People in a Changing Land

The Archaeology and History of the Ballona in Los Angeles, California

VOLUME 5

Gabrielino/Tongva Origins & Development
A View from Guaspet

edited by John G. Douglass, Seetha N. Reddy, Richard Ciolek-Torello, and Donn R. Grenda

Statistical Research, Inc.
Technical Series 94

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ABSTRACT

Sponsor: Playa Capital Company, LLC

Volume Title: Gabrielino/Tongva Origins and Development: A View from Guaspet. People in a Changing Land: The Archaeology and History of the Ballona in Los Angeles, California.

Project Location: The project area is located in an area formerly containing the Ballona Lagoon, a prehistoric wetland complex in west Los Angeles that is known collectively as the Ballona in Los Angeles County. This area is today bounded roughly by Playa del Rey to the west, Marina del Rey to the north, the Ballona Escarpment (a high bluff) and Del Rey Hills/Manchester Bluffs to the south, and Interstate 405 to the east. It is located approximately 0.5 km east of the Pacific Ocean near an area referred to as Santa Monica Bay along this section of the coast, 1.3 km west of the Baldwin Hills, and 1.6–2.6 km north of Los Angeles International Airport. Ballona Creek, a drainage that is now channelized, crosses the project area; Centinela Creek, a spring-fed drainage, once ran along the southern portion of the project area along the base of the Ballona Escarpment.

Project Description: Statistical Research, Inc. (SRI), conducted research, including testing, evaluation to determine eligibility for listing in the National Register of Historic Places (NRHP), and data recovery at eight sites in the Ballona (CA-LAN-54/H, CA-LAN-62/H, CA-LAN-193/H, CA-LAN-211/H, CA-LAN-1932/H, CA-LAN-2676/H, CA-LAN-2768/H, and CA-LAN-2769/H) (hereafter, the prefix CA- and the suffix /H will be omitted). Of these sites, five were recommended eligible for listing in the NRHP: LAN-54, LAN-62, LAN-193, LAN-211, and LAN-2768. Data recovery was conducted on these five sites (Altschul 1991; Altschul et al. 1991; Altschul et al. 1998; Altschul et al. 1999; Altschul et al. 2003; Keller and Altschul 2002; Van Galder et al. 2006; Vargas and Altschul 2001; Vargas et al. 2005). Research designs and plans of work were developed and implemented after review by regulatory agencies. In addition, related research in the Ballona included a paleoenvironmental study of the area (Homburg et al. 2014). This study presents the results of the analysis of seven classes of material culture and six classes of subsistence-related data.

Project Summary: This Playa Vista Archaeological and Historical Project (PVAHP), which began in 1991, was one of the largest and most complex cultural resources project in the history of the Los Angeles Basin. Designed around human adaptation to a dynamic wetlands environment, the archaeological component of the PVAHP is presented in 5 volumes. This volume, which represents the culmination of more than 25 years of research, synthesizes data presented in the first four volumes into inferences about the Ballona region's paleoenvironment, human occupation, and cultural evolution region over the past 8,500 years. Because of the presence of a large and complex Mission period occupation and use of multiple sites in the project area, several chapters in this volume focus on the ethnohistoric and early historical period in the Ballona, unraveling the complex webs of interaction between and among native inhabitants and Spanish colonists. The results of mortuary analysis of a Gabrielino/Tongva burial area at CA-LAN-62 is presented. Additionally, important research on glass bead trade and distribution from the heartland of Spanish colonialism in central Mexico, to the frontier in Alta California and into the hands of Native Californians is thoroughly presented. This volume concludes with a synthetic chapter that summarizes the various research questions posed on the project over the past quarter century, offers insight into new interpretations for the pre-Hispanic and historical-period occupation and use of the Ballona region, and links this work to larger perspectives.

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ACKNOWLEDGMENTS

In 2016, Statistical Research, Inc. (SRI), began its 25th year of work on the Playa Vista Archaeological and Historical Project (PVAHP), the project that ultimately resulted in this five-volume series. These final reports offer a broad, as well as specific, understanding of more than 8,000 years of human occupation of the Ballona region and of the relationship between that occupation and the evolution of the Ballona environment. Over the long course of the project, a large number of extraordinary people contributed to its success; to all these people, we are deeply indebted. Although we cannot adequately thank everyone here, below we acknowledge the contributors to the research presented in these report volumes.

First and foremost, we thank the project sponsors for giving us the opportunity to conduct this important work. In 1989, two years before the PVAHP proper began, SRI was hired by Camp, Dresser, McKee (CDM, now CDM Smith) and Planning Consultants Research (PCR) to survey the project area and develop a research design as part of the environmental review process; Jane Yager (PCR) was our initial contact person for the project. After the completion of the initial environmental impact report, SRI was retained by Maguire Thomas Partners (MTP), then the developer of Playa Vista. Robert Miller of MTP ably provided SRI with corporate assistance and was a strong supporter of the PVAHP. In the late 1990s, MTP was replaced by Playa Capital Company, LLC[1], as the project developer. We are indebted to Bruce Harrigan, Marc Huffman, Randy Johnson, Pat Larkin, Cliff Ritz, Patricia Sinclair, Steve Soboroff, and Catherine Tyrrell, who oversee or have overseen the implementation of the PVAHP. Patti Sinclair worked closely with SRI during much of the field and postfield efforts and deserves an advanced degree in archaeology for the amount of knowledge she has gained over this time. During field efforts, Cliff Ritz offered many helpful suggestions on using heavy equipment for the efficient collection of required information on the sites. Specifically, Cliff designed and built a large-diameter coring system that helped us recover buried archaeological sites below groundwater. Marc Huffman has worked side-by-side with SRI on a number of matters related to the implementation of the PVAHP over the years and has been a great facilitator for the project. In 2012, Playa Capital Company, LLC, was purchased by Brookfield Residential.

Compliance with Section 106 of the National Historic Preservation Act was accomplished through a Programmatic Agreement (PA). The signatories to the PA for the PVAHP are the U.S. Army Corps of Engineers (Corps), the California State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP). The lead federal agency for this work is the Corps. We appreciate the help of a number of current and former Corps employees, including Aaron Allen, D. Stephen Dibble, John Killeen, Patricia Martz, Pamela Maxwell, Roderic McLean, and Richard Perry. Three consecutive SHPOs, Knox Mellon, Milford Wayne Donaldson, and Carol Roland-Nawi served as important guides for this project; the current SHPO is Julianne Polanco. We thank both of these agencies, as well as members of the ACHP who participated in the project, including the current chairperson, Milford Wayne Donaldson, and Reid Nelson, the director of Federal Agency Programs. Phillip de Barros, John McAlister, and William Want were all instrumental in drafting the PA, and Hans Kreutzberg, Chief of Review and Compliance for the California Office of Historic Preservation helped bring it to a successful conclusion. George Mihlsten and others at Latham and Watkins were a great help with advice on particular aspects of the project.

Peer review has been an integral part of the PVAHP from beginning to end—during prefield research-design creation and fieldwork and during postfield analysis and report writing. The peer-review team reviewed the research design and treatment plans for various sites, met with us multiple times in the field during various excavations, offered important feedback during analysis, and gave critical review of reports. We appreciate and value the feedback from our peer reviewers, John Johnson, Patricia Lambert, Patricia Martz, Charles Rozaire, and the late Phillip Walker.

Two Tongva/Gabrielino tribal groups signed the PA as concurring parties: the Gabrielino People (represented by

[1] The several stages of the Playa Vista development project were overseen by a series of different corporate entities.

Vera and Manuel Rocha) and the Tongva/Gabrieleno Tribal Council of San Gabriel (represented by Cindi Alvitre). As discussed below, we have enjoyed working with these and other Gabrielino/Tongva tribal groups and appreciate the opportunities we have had to interact with them over the course of two decades. We have also enjoyed our interactions with Robert Dorame, who was named Most Likely Descendent for the project by the Native American Heritage Commission, and appreciate his recommendations. We also thank the Native American monitors who worked side by side with SRI on the PVAHP. These monitors, all representatives of various Gabrielino/Tongva Tribal groups, included Martin Alcala, Richard Alcala, Dana Alcala, Evan Alcala, Tonantzin Carmelo, Virginia Carmelo, Jordan David, Katy Dorame, Mat Dorame, Mercedes Dorame, Robert Dorame, George Dorame, Sam Dunlap, Adrienne Kinsella, Edgar Perez, Theresa Richau, and Abel Silvas. We are proud to have developed such a strong working relationship with these individuals during the PVAHP. We also thank the late Vera Rocha for blessing the PVAHP at the outset of the project.

A number of past and present SRI employees have contributed to project direction, oversight, and management, including Kenneth Becker, Su Benaron, Amanda Cannon, Christopher Doolittle, John Douglass, David Ferraro, Jeffrey Homburg, Janet Grenda, Angela Keller, David Maxwell, Seetha Reddy, Steven Shelley, and Anne Stoll. We are especially grateful to Benjamin Vargas and Sarah Van Galder Wollwage for their multiple roles directing fieldwork, analysis, and the writing of volumes. The initial survey for the PVAHP was directed by James N. Spain, while Mark Swanson conducted the initial historical research.

Laboratory direction was overseen by a number of different individuals, principally James Clark, Elizabeth Denniston, William Feld (who also did remarkable work with field logistics and setup of the water screening apparatus), Jennifer Howard, Scott Kremkau, LaShawn Lee, Katherine Pollock, and Susan Seifried. Database work (including the creation of a relational database that we have since adapted to use companywide) was essential for all aspects of investigation, and the diligence of Andrew Bean, Robert Heckman, Jim LoFaro, Carey Tilden, and Mark Woodson was indispensible to the project. We thank the many field crew and laboratory technicians who labored so assiduously on different aspects of the fieldwork, laboratory sorting, and analysis. Their efforts are truly appreciated.

The geoarchaeology and geomorphological work was accomplished by many individuals. Led by Jeffrey Homburg, the geoarchaeology team included Eric Brevik, Diane Douglas, David Ferraro, Antony Orme, Manuel Palacios-Fest, Steven Shelley, Caroline Tepley, and Lance Wollwage. We are also indebted to many individuals at SRI who played crucial roles in support of the paleoenvironmental project. Richard Boettcher, Diane Douglas, John Douglass, David Ferraro, Dennis Gallegos, Paul Goldberg, Jeffrey Homburg, Stanley Kling, Doug Macintosh, Richard Macphail, Russell Morse, Manuel Palacios-Fest, Seetha Reddy, Neil Rhodes, Paul Sauder, Peter Wigand, and Steve Williams all played various roles in the field and postfield efforts. A number of consultants contributed to the paleoenvironmental study, including Matt Rowe, Roy Shlemon, Jacob Lipa, Douglas Howard, and William Nailling III, and surveyors at Psomas and Associates; they are acknowledged for mapping the original cores collected for this study. We thank Tracy Spilotro of West Hazmat Drilling Corporation and Tony Morgan of Quaternary Investigations for collecting these cores. Foothill Engineering also collected cores for this project, and we are grateful to Delta Group for sharing data on other cores with us throughout the years. The chronostratigraphical analysis for the project was conducted by William Deaver, Stacey Lengyel, Jill Onken, Benjamin Vargas, and Lance Wollwage.

Material culture studies were conducted by SRI archaeologists and consulting specialists. John Griswold and his associates helped a great deal in the field with conservation of fragile material culture. Lithic analysis was led by Kathleen Hull and Polly A. Peterson, with contributions from Amanda Cannon, Robert Elston, Henry Koerper, Scott Kremkau, Seetha Reddy, Mark Sutton, and Robert Wegener. Shell-bead analysis was conducted by Amanda Cannon after initial contributions from Angela Keller. During the initial identification of shell bead types, Angela Keller consulted with Chester King. Worked-bone studies were led by Janet Griffitts, with assistance from Tina Fulton and Justin Lev-Tov. Glass-bead studies were done by Lester Ross with assistance from Amanda Cannon, John Douglass, and Scott Kremkau. Basketry analysis was conducted by Judith Polanich, while Owen Davis and Peter Wigand conducted the pollen analysis and Seetha Reddy studied the macrobotanical remains. Christopher Garraty analyzed the Native American ceramics, and Karen Swope studied the historical-period artifacts in collaboration with John Douglass. Marcy Gray also analyzed selected historical period artifacts. Faunal analysis (vertebrate and invertebrate) was led by David Maxwell and Sarah Van Galder, with assistance from Justin Lev-Tov, John Goodman, and Robert Wegener. Ethnohistoric research has principally been conducted by John Douglass, Steven Hackel, and Anne Stoll. An important component of this research was conducted using the Early California Population Project database, housed at the Huntington Library and directed by its general editor, Steven Hackel.

Osteological analysis of remains from CA-LAN-62 was among the most important cultural and scientific components of the project. Osteological work was overseen by Patrick Stanton, with guidance from Phillip Walker. A number of other individuals were important to this analysis—namely, Rhonda Bathurst, Joseph Hefner, Mitch Keur, Tamara Leher, Lorrie Lincoln-Babb, Kenneth Maes, Christopher Nagle, Korri Turner, and Bonnie Yoshida. We acknowledge the generous support and consultation of the late Phillip Walker, who not only was a peer reviewer for osteology, but also offered important insight throughout excavation and subsequent analysis; we appreciate Patricia Lambert taking over as the osteological peer reviewer after his passing.

The PVAHP had several research components, and SRI archaeologists worked closely with a large number of consultants conducting specialized studies, including paleoenvironmental study, radiometric studies, chronological analysis, osteological analysis, ceramic analysis, lithic analysis, faunal analysis, micro- and macrobotanical studies, and historic-artifact analysis. We thank each of these scholars for their participation and their role in making the project a resounding success.

We appreciate the help of SRI's publications staff in completing these five volumes. We thank María Molina, SRI's director of publications for overseeing the many tasks involved. We are especially indebted to Steve Bradberry, John Cafiero, Diane Holliday, Grant Klein, April Moles, Jason Pitts, Peg Robbins, Jennifer Shopland, Luke Wisner, and Linda Wooden for their work in editing, graphics, and production, which made the volumes read and look as they do. Others who helped with the massive amount of illustrations, graphs, and maps include Ileana Bradford, Marie Echevarría-Delgado, Cindy Elsner-Hayward, William Hayden, Steve Norris, Nicholas Reseburg, James Wallace, and Deland Wing. Seetha Reddy and John Douglass deserve special recognition for coediting and coordinating all five volumes through various drafts and peer and regulatory review, with help from colleagues Jeff Homburg, Patrick Stanton, and Benjamin Vargas on specific volumes.

Finally, we thank Wendy Teeter, curator of the Fowler Museum at the University of California, Los Angeles, for guiding us as we prepared the massive collection of non-burial-related PVAHP material for curation at the Fowler. Wendy was a great help throughout the entire process.

Donn R. Grenda, Richard Ciolek-Torello, and Jeffrey H. Altschul
Series Editors

The Playa Vista Archaeological and Historical Project

John G. Douglass, Seetha N. Reddy, Richard Ciolek-Torello, Donn R. Grenda, and Jeffrey H. Altschul

This volume represents the culmination of more than 25 years of research for the Playa Vista Archaeological and Historical Project (PVAHP) and other projects by Statistical Research, Inc. (SRI), in the Ballona wetlands (see Douglass et al. 2015). When we began our investigations in 1989, we had little inkling of what was to come. In March of that year, SRI was selected by the J. H. Snyder Company, from a list of qualified archaeologists submitted by the Southern California Gabrielino Indian Band (Gabrielino People), to conduct testing and data recovery excavations on a 16-acre parcel in Marina del Rey, a development known as the Channel Gateway Project. Beyond its commercial value, the property was valued by some groups within the modern Gabrielino/Tongva community. As early as the 1940s, archaeologists had recorded a large prehistoric site, CA-LAN-47 (hereinafter the prefix CA- will be omitted), also known as the Admiralty site, in the vicinity of the proposed development. Some of the Gabrielino/Tongva believed that the site represented the remnants of Sa'angna, a purported Gabrielino/Tongva village occupied at the time of Spanish contact. Our research, however, found little support for the presence of Sa'angna in the ethnohistoric record and no support for the existence of an ethnohistoric component at LAN-47 (Altschul, Homburg, and Ciolek-Torrello 1992). Yet, we were able to document to the satisfaction of all parties that important archaeological deposits existed in the Ballona even after large-scale urban development.

The excavation of the Admiralty Site was the beginning of SRI's intensive, 27-year involvement in research in the Ballona region. We completed excavations for the Channel Gateway Project in June 1989, but by that summer, we had already contracted with Camp, Dresser, and McKee, Inc. (now CDM Smith), to develop a research design and conduct an archaeological survey for the much larger Playa Vista Project being planned by Maguire Thomas Partners. Importantly, along the way, we also completed a small data-recovery project at LAN-60, an Intermediate period site along the upper reaches of Centinela Creek, for the University of California, Los Angeles (UCLA), Foundation, which was building faculty housing on the bluff tops above the eastern end of Playa Vista. In addition, between 2000 and 2005, we conducted testing and data recovery at LAN-63, LAN-64, and LAN-206A on the western bluff tops overlooking the Ballona for the Catellus Development Corporation (the West Bluffs project). The West Bluffs excavations provided us with the best picture of Intermediate period culture in the Ballona, and LAN-64 also generated our earliest dates in the Ballona, revealing that occupation extended back to about 8000 cal b.p., the early Millingstone period. Together, these four projects gave SRI an unprecedented broad view of the prehistory and history of this region.

When the archaeological research began in the Ballona, the prehistory of the Los Angeles area and broad patterns in cultural adaptation were largely reconstructed from previous research at a few sites, such as Malaga Cove (LAN-138), the Tank site (LAN-1), the Cairn site (LAN-21), and the Mulholland site (LAN-246). In addition, data from the better-documented Chumash region to the northwest and the Orange County area to the south provided basic outlines of prehistory in the Los Angeles area. Although a number of important archaeological investigations of Los Angeles–area sites had been conducted and a considerable amount of data had been collected, there had been only limited analyses, and no detailed reports of these investigations were available. As a result, many viewed the prehistoric Gabrielino/Tongva as a rich, sociopolitically complex maritime culture that was very similar to their Chumash neighbors. The results presented in this series of reports provide the most-detailed and well-documented picture of Gabrielino/Tongva culture to date. Most importantly, these volumes provide new insights into the development of Gabrielino/Tongva culture from its ancient roots to the culture that was documented initially by Spanish padres and colonists and then by the ethnohistorians and ethnographers who followed. Although the picture of Gabrielino/Tongva culture that emerges in these volumes shares much with these historical records, significant differences are also evident, especially with respect to the path taken by the Gabrielino/Tongva.

We have indeed been fortunate to have had the opportunity to conduct such a long-term research program under the aegis of cultural resource management. Through the years, we were able to build on our own research efforts: develop models, gather data to test them, modify the models, and then gather more data to test the refined models. Furthermore, unique to the Los Angeles Basin, our research has not been limited by data from a single source but has drawn data from many sites representing an almost continuous occupation from the early Millingstone to the Historical period and from virtually all portions of the Ballona—from the lagoon edge to upper Centinela Creek, and from the lowlands to the bluff tops.

We have been rewarded with a very rich and diverse data set and perhaps one of the best-documented archaeological collections in the region. As part of PVAHP alone, we have analyzed more than 50,000 prehistoric ground stone and flaked stone artifacts, 500,000 invertebrate remains, 500,000 faunal remains, 90,000 shell beads, 65,000 glass beads, and thousands of other prehistoric and early Historical period artifacts. In addition, 386 human burials with associated grave goods were excavated from the PVAHP. These data have allowed us to develop a detailed reconstruction of ancient life in the Ballona and have provided new and fascinating insights into the development and character of Gabrielino/Tongva culture.

The PVAHP has offered a unique opportunity to examine long-term human adaptations to a dynamic ecosystem in a coastal setting in western North America. Over the course of this project, SRI has developed a detailed paleogeographic reconstruction that traces the evolution of an entire ecosystem over a period of 8,000 years—from the time Ballona was an open embayment to when it became a sediment-choked estuary. From this paleogeographic reconstruction, combined with a detailed land-use history, we have attempted to model biological productivity and human occupation. In the process, we have learned much about regional culture history and how people responded to the evolution of the Ballona as well as to both minor climatic fluctuations and major climatic changes. This study has sought to integrate the environmental dynamics of a coastal wetland with the sociocultural evolution of the people living in it. The interdisciplinary approach implemented in the PVAHP and documented in these volumes has led to a variety of methodological and theoretical studies that are individually compelling as well as mutually reinforcing. The data derived from the PVAHP will have lasting importance to archaeologists, anthropologists, historians, and Native Americans alike, as they pursue research to characterize and understand more fully the human history of the Southern California Bight. This work will also be of interest to scholars who are more generally interested in how humans have perceived and adapted to coastal environments.

Moreover, this project is especially important, because it offers a wealth of archaeological and historical information about the native inhabitants of the Los Angeles area, the Gabrielino/Tongva. Over the course of the PVAHP, we have gathered collections of artifacts and documented features from contexts never identified or fully analyzed before. At the same time, we have conducted an intensive historical study to place these archaeological materials into their context, a study that included the search of mission records at the Huntington Library and the Spanish royal records housed in the Archivo General de la Nación (AGN) in Mexico City. The depth and breadth of knowledge about Gabrielino/Tongva culture and mortuary practices that we have gained through this research is incomparable in the annals of California archaeology.

Three unique aspects of the PVAHP make it noteworthy: the dynamic yet expansive ecosystem within the project area, the complexity of the burial ground, and the span of human history the project encompasses. Although there have been many important studies of prehistoric sites and Native American colonial period settlements, few have gathered such a rich body of information on a long-occupied Native American settlement that was independent of colonial settlements. Furthermore, whereas other investigators in California have drawn detailed pictures of Native Californian life in missions and towns, we have viewed how Native Californians responded to European incursions and actually changed their lifeways in their own native settlements. Our study of the 8,000-year history of human settlement in the Ballona has allowed us to examine the response of the Gabrielino/Tongva to the social and environmental changes caused by Spanish colonization, from the perspective of the Gabrielino/Tongva's long-term adaptation to the Ballona. This perspective provides rare insights into the processes and mechanisms involved in cultural evolution and mortuary practices.

Organization of This Volume

The results of the long-term PVAHP are presented in five volumes. The other four volumes in this series focused on the following topics: Volume 1, Paleoenvironment and Culture History (Homburg et al. 2014); Volume 2, Archaeological Sites and Chronology (Vargas et al. 2016); Volume 3, Material Culture and Subsistence Practices (Reddy and Douglass 2016); and Volume 4, Bioarchaeology and Paleodemography (Stanton et al. 2016). This fifth and last volume is structured to present a synthetic discussion of the major results in a theoretical and regional context. Consisting of 11 chapters, including this introductory chapter, this volume draws upon the data presented in the other volumes (Volumes 1–4 of this series). Chapter 2 presents the revised research design for the PVAHP, as well as a summary of the culture history for the Southern California Bight. The research issues highlighted in the research design and subsequent chapters include the following:

1. The early occupation of the Los Angeles Basin

2. The Takic incursion into the Los Angeles Basin and evidence of when it occurred

3. The response of Native Californian inhabitants of the Ballona through time to environmental change, including the ebb and flow of the Ballona wetlands and Ballona Lagoon and the Medieval Climatic Anomaly (MCA)

4. The question of maritime adaptation among prehistoric inhabitants along the coast of southern California, including those in the Ballona

5. The nature of Gabrielino/Tongva political organization through time, including whether it had a complex, hierarchical structure.

6. The effects of Hispanic colonization on demography, health, subsistence, and sociopolitical organization of those inhabiting the Ballona and the greater Los Angeles Basin

7. The Native Californian response to colonization

Chapter 3 focuses on the human-land relationships, community organization, cultural dynamics of prehistoric settlement, and site function in the Ballona through time. Chapter 4 discusses the major research issues on subsistence that have pancultural implications, including coastal adaptation, mammal exploitation, and trends in plant use during the prehistoric and Mission periods in the Ballona. The PVAHP provides high-resolution subsistence data (faunal and floral remains) for coastal southern California for the first time, and there are far-reaching implications to these findings.

Bioarchaeological and archaeological evidence for disease and demography are considered in Chapter 5, revealing a population in the Ballona that had a reasonably good quality of life. In making this determination, the intricacies of skeletal reaction to disease were considered, and the comparison of archaeological data to ethnohistorical records indicates that information provided in mission records fails to correspond to observations made from the skeletal data. Chapter 6 details the analysis and interpretations of mortuary practices and associated feasting in the Ballona, with a focus on the Mission period. There is strong evidence of differential treatment of individuals in the burial area at LAN-62 during the Mission period. Trends in the mortuary and ceremonial data indicate cultural continuity and conservatism in mourning and ritual contexts, as native communities made a concerted effort to maintain traditional ritual practices, along with considerable acceptance of colonial culture in some aspects of mourning and ritual contexts, particularly during mourning events in the Mission period.

Chapter 7 provides context for the study of the colonial period in the Ballona and has an overview of the theory behind colonial studies as well as the colonial era in the Los Angeles Basin. Through a review of the documentary record, the chapter provides insights into the lifeways of the Gabrielino/Tongva during the colonial period and how they related to colonial settlers and the padres. Chapter 8 synthesizes data about place names gleaned from mission records to discern whether there was a Mission period Native Californian village in the Ballona named Guaspet. Continuing on with the story of Guaspet and its occupants, the interpretive focus of Chapters 9 and 10 is on what Spanish glass beads and the historical record can tell us about the residents of Guaspet. Glass beads are important indicators of Gabrielino/Tongva interactions with the Spaniards between 1769 and 1850. In Chapter 11, the final chapter of this volume, we summarize and synthesize the major findings of the PVAHP by placing them in the context of the project research goals. We also highlight the contribution of PVAHP research results to the investigation of broader regional research issues. Appendixes 1.1 and 1.2 list reports, papers, presentations, and posters associated with the project.

Development and Regulatory Background

SRI was hired in 1989 by Camp, Dresser, and McKee as part of the Environmental Impact Report team for Maguire Thomas Partners–Playa Vista (MTP), the developer of Playa Vista at that time. In 1990–1991, SRI began working directly for MTP, at which point we developed the PVAHP as a phased archaeological and historical study designed to comply with federal, state, and municipal regulations protecting cultural resources. In 1997, the Playa Capital Company, LLC, took over ownership and development of Playa Vista. To facilitate management, planning, and research, archaeological and historical resources were grouped into two districts: the Ballona Lagoon Archaeological District (BLAD), which encompasses the prehistoric archaeological sites, and the Hughes Industrial Historic District (HIHD) (Altschul et al. 1991). Both districts were determined eligible for listing in the National Register of Historic Places (NRHP) by the U.S. Army Corps of Engineers (Corps), in consultation with the California State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP), and two groups representing the Gabrielino/Tongva. All archaeological and historical work undertaken within these two districts contributes to the ultimate goal of documenting past human occupation and activities throughout the area. Although the Playa Vista development occupies only a portion of the original PVAHP area, the archaeological and historical work was conducted over the entire PVAHP area.

The PVAHP area is located north of the community of Westchester, immediately east of the community of Playa del Rey, west of Culver City, and south of the communities of Marina del Rey, Venice, and Santa Monica (Figure 1). This area is generally referred to as the Ballona region, being the former site of the prehistoric Ballona Lagoon (Figure 2). The project area, formerly part of the Culver City plant of the Hughes Aircraft Company, originally consisted of 1,087 acres, a portion of which has been developed into the Playa Vista neighborhood of the City of Los Angeles. More than half of the original acreage has been conveyed to the State of California for permanent open space.

Soon after Howard Hughes's death, one of the many Hughes companies, Summa Corporation, began plans for developing

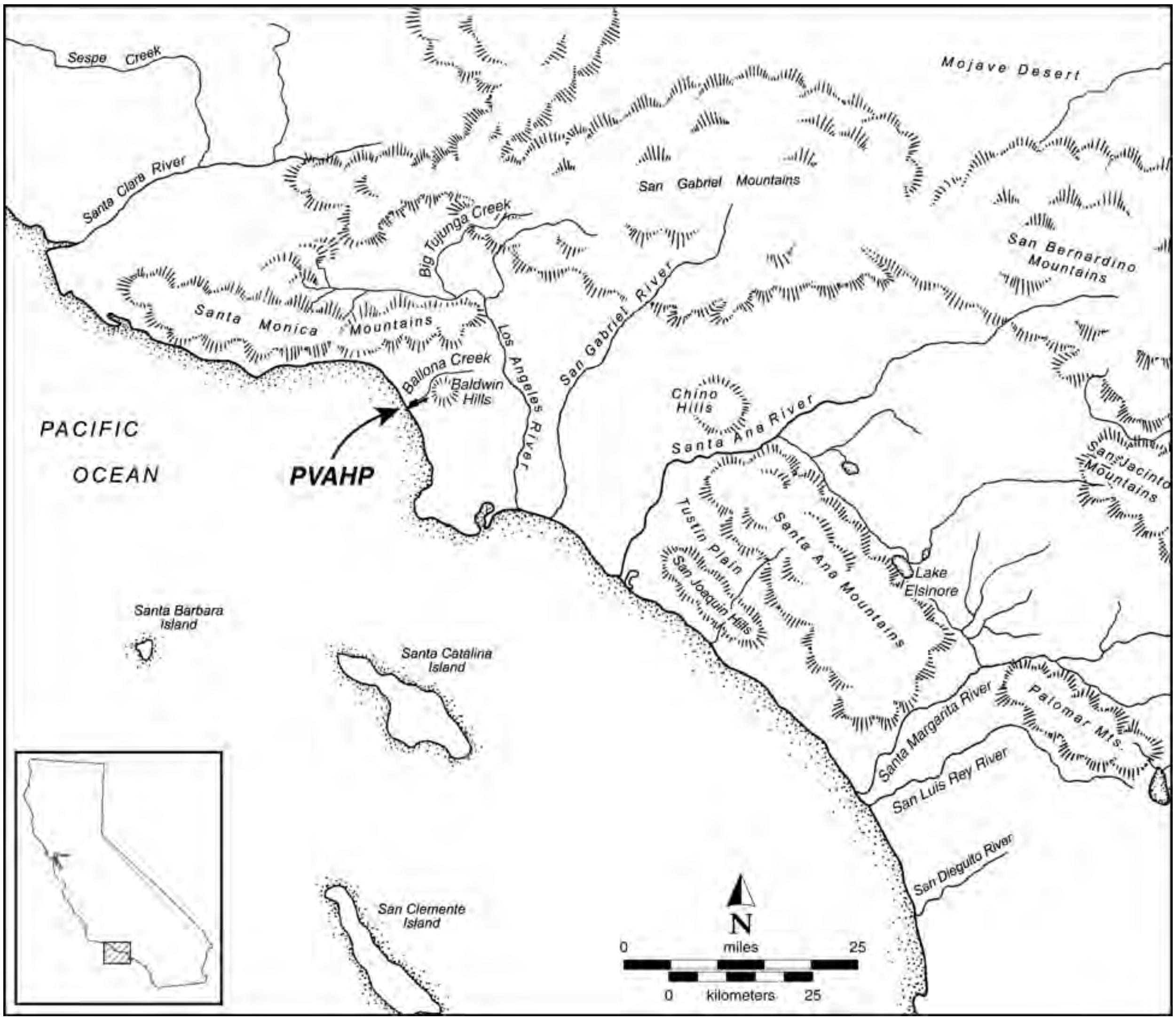

Figure 1. Location of the PVAHP area.

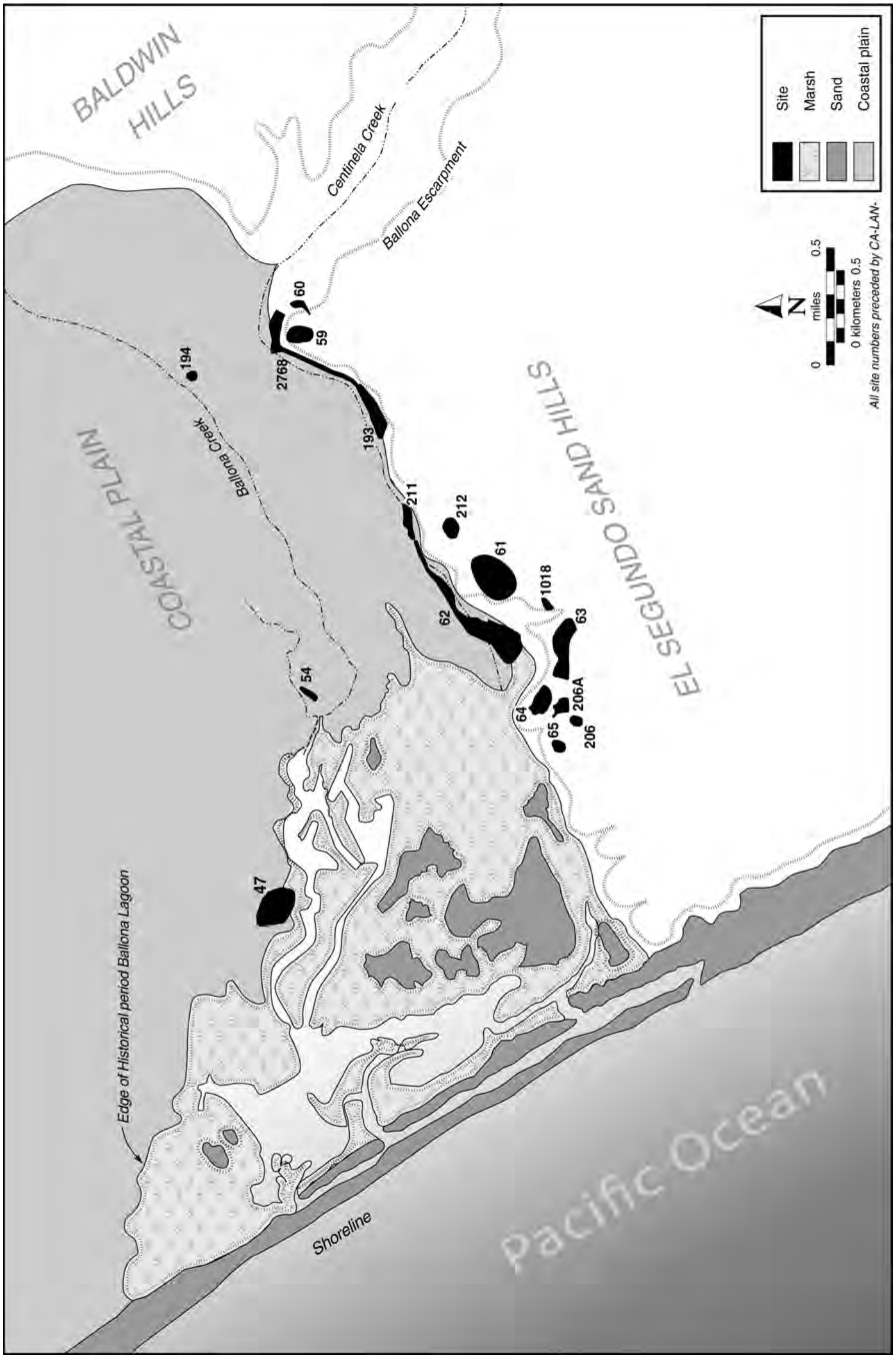

Figure 2. Prehistoric archaeological sites in the Ballona region.

the project area. Other portions of the Hughes property on top of the bluffs both east and west of Lincoln Boulevard were separate from the Playa Vista planned development and were sold to separate entities. The PVAHP project area was divided into four areas: Areas A–D (Figure 3). Figure 3 illustrates the four areas of the PVAHP, and Figure 4 illustrates the five archaeological sites that are the subjects of this series of reports: LAN-54/H, LAN-62/H, LAN-193/H, LAN-211/H, and LAN-2768/H (hereinafter the suffix /H will be omitted). Area D is further subdivided into three subareas: Area D1 on the west, Area D2 (now known as The Village) in the middle, and what was originally known as the Entertainment, Media, and Technology District and is now known as The Campus in the east. By the mid-1980s, the original development plans for Playa Vista by Summa Corporation had been approved by the City of Los Angeles and the California Coastal Commission.

When Howard Hughes purchased much of the project area in the 1940s and 1950s, there was still substantial open space surrounding it. By the 1980s, however, suburban housing and commercial development had encroached upon all sides, and open space was at a premium. As a result, the portion of the project area that was to be set aside as open space in the Summa Corporation plan was seen as inadequate by development opponents, and that plan was the subject of litigation.

By the late 1980s, the original plans for the project area were being restructured under a development team led by MTP. In 1989, MTP acquired the property and began new plans for developing the project area that included a reduction of development plans and an increase in open space. SRI's initial role as part of the Environmental Impact Report team for the Playa Vista development was to conduct a pedestrian archaeological survey; compile and summarize archival sources on the history of the project area and its cultural resources; and develop a comprehensive research design that would aid in the identification, evaluation, and treatment of archaeological and historical resources, both known and anticipated to be found, during the course of development (Altschul et al. 1991).

Between 1989 and 2012, SRI conducted its work in phases, beginning with archival research and a survey of the project area in 1990. Five previously known sites—LAN-54, LAN-62, LAN-193, LAN-211, and LAN 1698—were rerecorded, and 17 new sites—SR 1–SR 17—were documented. Archival research, however, resulted in the deletion of LAN-1698 from consideration, because it was determined to be the product of dredging activities along Ballona Creek. This work led to the formulation of the project research design (Altschul et al. 1991) and a programmatic agreement (PA) for the project in which the two historic districts were defined. Several of the sites, including the Hughes Culver City plant, dated to the twentieth century. In the early 1990s, SRI undertook historic-building evaluations and testing of these Historical period sites. With the exception of several buildings in the plant (Greenwood and Associates 1991; Statistical Research et al. 1991), most of these historic properties—including several modern landfills—were determined not eligible for listing in the NRHP (Hampson 1991). One of the important products of the survey was the determination that much of the ground surface within PVAHP could not be observed because of historic and modern construction. As a result, to complete the inventory, it was necessary to undertake an extensive subsurface inventory and testing program using mechanical coring, augering, and trenches. Three additional prehistoric sites were found during this process—LAN-2768, LAN-2676, and LAN-1932. Evaluation of all the prehistoric sites for NRHP eligibility (except for LAN-62) followed between 1999 and 2003. Many of the newly discovered sites were determined to be the product of modern dredging activities (similar to LAN-1698); only LAN-54, LAN-193, LAN-211, LAN-2676, and LAN 2768 were determined eligible for listing in the NRHP. No evaluation was conducted at LAN-62, which was determined eligible, based on previous investigations (Altschul 1991; Freeman et al. 1987).

One of the most important results of the testing investigations was the discovery of an important Protohistoric through Mission period component at LAN-211, and this led to major modifications of the research design (Altschul et al. 2003) (for a discussion of modifications to the research design, see Chapter 2 in this volume). Data recovery at some of the NRHP-eligible sites and monitoring of ground-disturbing activities began, while other sites were still being evaluated. It quickly became clear that one of the six sites determined eligible for listing in the NRHP (LAN-2676) was, in fact, redeposited materials that Hughes had used to expand his runway in the 1950s. Data recovery was quickly terminated at this site. Data recovery and monitoring activities, however, were completed at the remaining sites, along with public outreach, analysis, and written reports. The PVAHP series has been designed to detail the results of all archaeological and historical investigations at the aboriginal sites recommended eligible for listing in the NRHP as contributing members of the BLAD and to offer an understanding of what the accumulated archaeological material and prehistoric and historical patterns suggest about the use of the Ballona over the past 8,000 years.

Prehistoric and Historical Period Occupation

Here, we offer a brief summary of the prehistoric and Historical period occupation of the Ballona, (including the five sites in the BLAD, as well as a number of other sites in the surrounding area) and also a reconstruction of the Ballona ecosystem. In addition, we also discuss some of the findings of the PVAHP to provide additional insights into this contextual background. The Ballona region contains a rich and long history that is one of the best documented for the Southern California Bight

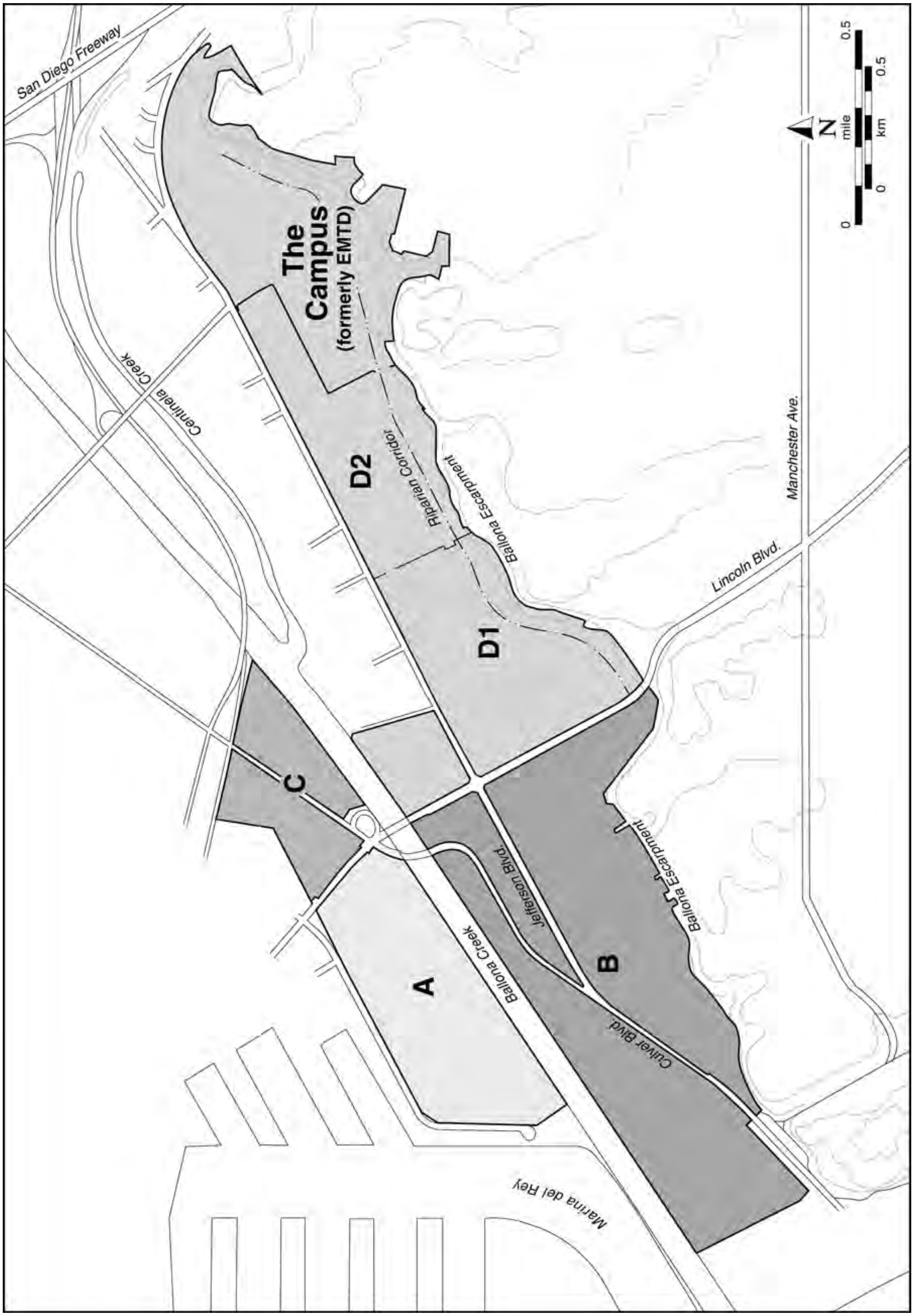

Figure 3. Map of the original Playa Vista area, showing Areas A–D and the Entertainment, Media, and Technology District (EMTD).

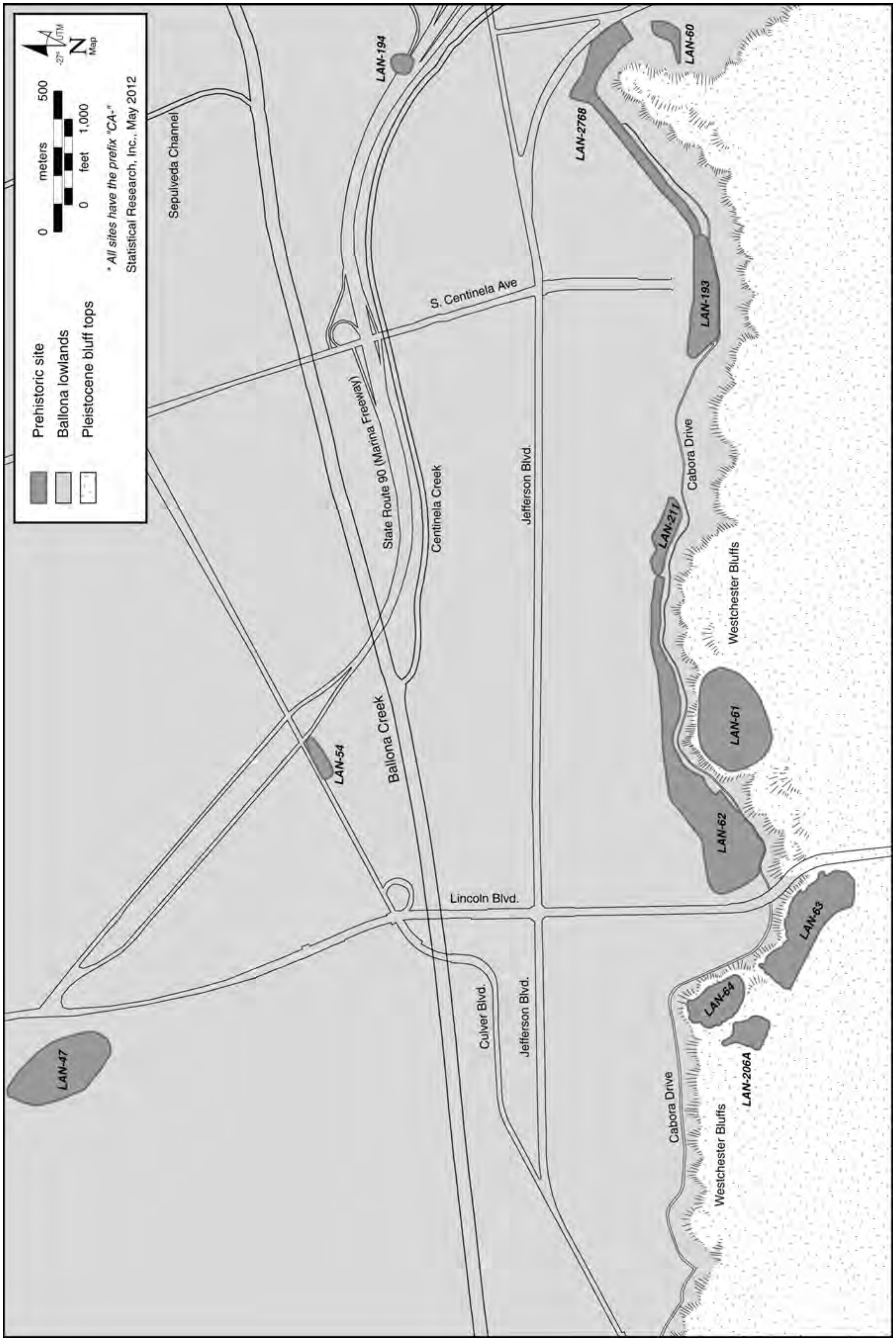

Figure 4. Map of the Ballona area, illustrating the location of archaeological sites discussed in the text and their placement within two primary ecological zones.

(Altschul et al. 1991; Altschul et al. 2003; Douglass et al. 2005; Grenda and Altschul 2002a). The Ballona can be broadly categorized into two main ecological landscapes: Pleistocene bluff tops on the southern part of the PVAHP and the lowlands located adjacent and around the Ballona Lagoon (see Figure 4). The sites in the lowlands include LAN-54, LAN-60, LAN-62, LAN-193, the Hammack Street site (LAN-194), LAN-211, and LAN-2768; and the bluff-top sites include LAN-61, LAN-63, LAN-64, and LAN-206A. Until recently, much of what was known about the Ballona was from the bluff tops (Douglass et al. 2005; Van Horn 1987; Van Horn and Murray 1985). The current work presented in this volume complements the older research in the region by offering new insights into the patterns of human occupation in the Ballona.

Recently, a clearer picture of the prehistory of coastal southern California has begun to emerge, thanks to recent excavations at a number of sites, including those in the Ballona (Altschul et al. 2003; Douglass et al. 2005) and Landing Hill (Cleland et al. 2007), along with synthetic treatments of southern California prehistory (e.g., Byrd and Raab 2007; Sutton 2009; Sutton and Koerper 2009; Warren et al. 2008). The extensive work undertaken in the Ballona area over the last three decades (e.g., Altschul et al. 1991; Altschul et al. 2003; Douglass et al. 2005; Grenda et al. 1994; Van Horn 1987; Van Horn and Murray 1984, 1985; Van Horn and White 1983) has resulted in a refinement of existing chronologies (Stoll et al. 2003) (Figure 5). As part of this work, more than 200 radiocarbon dates have been assayed to define the Ballona chronology, which includes the Millingstone (6500–1000 b.c. [8500–3000 cal b.p.]), Intermediate (1000 b.c.–a.d. 1000 [3000–1000 cal b.p.]), Late (a.d. 1000–1542 [1000–410 cal b.p.]), Protohistoric (a.d. 1542–1771 [410–180 cal b.p.]), and Mission (a.d. 1771–1834 [180–120 b.p.]) periods.

Paleocoastal Period

The earliest Paleocoastal sites in California, dated between approximately 12,200 and 11,200 years ago, are on the Channel Islands (Erlandson et al. 2011). The island Paleoindians relied heavily on marine and aquatic resources. Data from SRI-512 on Santa Rosa Island and Cardwell Bluffs on San Miguel Island indicated that these people used stone tools to capture geese, cormorants, and other birds, along with marine mammals and finfish. Most importantly, Erlandson et al. (2011) noted that the bifacial technologies on the Channel Islands are similar to those seen in Western Pluvial Lakes Tradition assemblages of western North America. One of the reasons these Paleocoastal sites on the islands (e.g., Daisy Cave and Arlington Springs on San Miguel Island) have been preserved is their location on upland landscapes, distant from submerged terminal Pleistocene shorelines (Erlandson 2007; Johnson et al. 2002).

The earliest interest in the archaeology of the Ballona centered on the hunt for “Early Man” in the New World. This

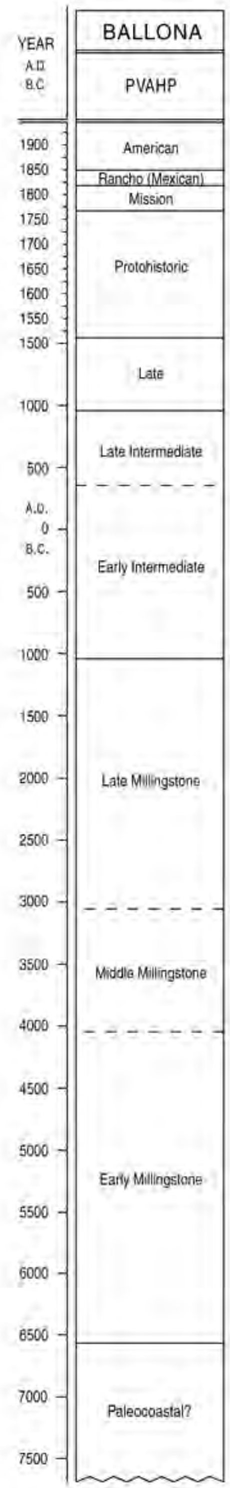

Figure 5. Chronological framework for the Ballona.

interest was inspired by early discoveries at three sites in the vicinity: the La Brea Tar Pits site (LAN-159); the Haverty, or Angeles Mesa, site (LAN-171); and the Los Angeles Man site (LAN-172) (Figure 6). The 1914 discovery of human remains in association with extinct Pleistocene fauna in the La Brea Tar Pits was heralded as evidence of "Early Man" (Merriam 1914). This discovery spawned the notion that human occupation of the Los Angeles area extended as far back as 34,000 years ago, a notion that held sway until relatively recently. The 1924 discovery of deeply buried human skeletal material at Angeles Mesa in the Baldwin Hills, by construction workers for the Haverty Company, provided more support for this contention (Stock 1924). The remains of at least eight individuals were uncovered at this site at depths between 5.8 and 7 m (Brooks et al. 1990). The depth of the finds and the partial mineralization of some of the bones suggested to Stock (1924) that these remains might be Paleoindian in age. Sixty years later, a subsequent age estimate of more than 50,000 years, based on amino acid racemization, seemed to confirm this conclusion (Taylor et al. 1985:137). In 1936, a third discovery was made, that of a single skeleton, dubbed "Los Angeles Man," found in the same stratum as mammoth bones. This site was located 3 km west of the Angeles Mesa site in a similar stratigraphic context (Lopatin 1940). By this time, even some of the skeptics of Early Man in southern California were convinced (Altschul et al. 2003:11).

These finds thrust the topic of Early Man in the Los Angeles Basin into an era of controversy from which it has only recently begun to emerge, as new and more-reliable dating methods have become available. Radiocarbon dates for the human remains at the La Brea Tar Pits site have reduced the age to the span of 9000–4450 b.p. (Berger et al. 1971; Payen 1970), which would correspond more closely with the Millingstone period (see below). Nevertheless, problems inherent in dating bone-collagen extract and in decontaminating the samples taken from tar seep suggest that these dates should also be regarded with caution (Altschul et al. 2003:11). Furthermore, the wide range of dates and disparate results from different methods used to date the bones from the Haverty, or Angeles Mesa, site indicate that the dating issues for these sites remain unresolved (see Altschul et al. 2003:11–13). Haverty Man No. 4, for example, is apparently dated anywhere from 3870 ± 350 to 15,900 ± 50 years old (Berger et al. 1971; Brooks et al. 1990), a span that exceeds an acceptable margin of error for radiocarbon dates. Significantly, despite the intensive research in the Ballona since the 1980s, no additional evidence of Paleocoastal or Pleistocene occupation has been found in this particular region, primarily because most of these sites are likely underwater if they were along the coastline (unlike the Paleocoastal sites on the Channel Islands).

Millingstone Period

For thousands of years, Native Californian inhabitants of the Ballona lived either on the edge of Ballona Lagoon or on the bluffs overlooking the lagoon and wetlands. Settlement during the Millingstone period (8500–3000 cal b.p.) was diverse and was part of a larger settlement system that extended from the Ballona, across the Baldwin Hills, to the La Brea Tar Pits, as indicated by the presence of cogged stones, discoidals, and a handful of crescents found by Malcolm Farmer in his early survey of the region. Prior to the PVAHP, our only detailed knowledge of this early occupation came from minor components of two sites on the bluff tops (LAN-64 and LAN-206 and LAN-206A [a discontinuous component of LAN-206]) that dated to the early Millingstone period (8000–6000 cal b.p.) (Douglass et al. 2005; Van Horn and White 1997a). Data from PVAHP, however, have provided evidence of more-intensive settlement during the Millingstone period at five sites (LAN-54, LAN-62, LAN-63, LAN-64, and LAN-193) and has revealed occupation throughout this long time period, with the exception of a 1,000-year-long hiatus between 6000 and 5000 cal B.P.).

Within the Ballona, only one archaeological site appears to be firmly dated prior to 8,000 years ago: LAN-64, located on the bluff tops overlooking the Ballona. The earliest component of the site, located on a knoll overlooking the western portion of the Ballona and Santa Monica Bay in the near distance, consisted of a series of small, discrete pits dug into the B/C soil horizon and filled with shellfish remains (primarily scallops [*Argopecten*] and venus clams [*Chione*]) and other assorted small artifacts, mainly lithics. These discrete features likely represented the remains of meals for small groups that camped at LAN-64 for short periods of time, gathering resources from the rich wetlands below and the coastal prairie on the bluff tops. Other sites on the bluff tops that appear to have Millingstone period components include LAN-61, LAN-63, LAN-206, and LAN-206A; in some cases, these dates are tentative, because they are based on diagnostic artifacts reportedly collected from the surface of these sites.

Although occupation on the bluff tops continued intermittently throughout most of the Millingstone period, the first evidence of occupation in the Ballona lowlands during the early Millingstone period is from LAN-62, indicating that this site was settled as early as 7000 cal b.p. It is likely that LAN-62 was originally picked as a habitation location below the bluff in part because it was located on an aggrading alluvial fan that offered higher and more-stable land on the edge of the lagoon than other nearby areas. By the late Millingstone period (5000–3000 cal b.p.), many more sites, both on top and below the bluffs, were occupied, including LAN-54, LAN-61, LAN-62, LAN-64, and LAN-193. Sutton (2009) has argued that, by the end of the late Millingstone period, there was an initial entry of a new culture and language group, the Takic (proto–Gabrielino/Cupan branch) into the Los Angeles Basin, and with it, there were major changes in material culture, genetically different populations, increased numbers of sites, different subsistence strategies (from more marine/aquatic to more terrestrial resources), and new and different mortuary patterns (see also Altschul et al. 2005; Altschul et al. 2007).

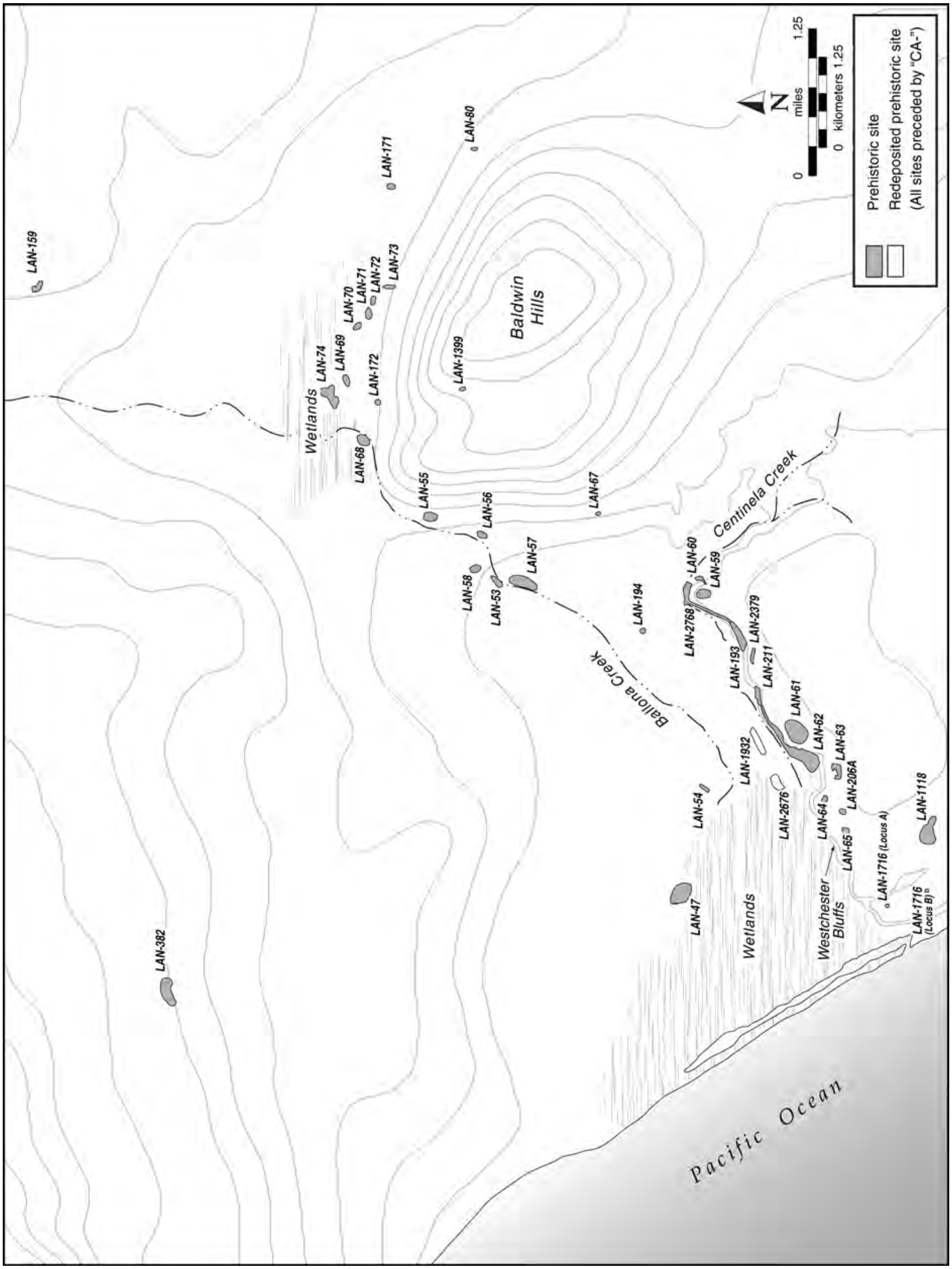

Figure 6. Prehistoric archaeological sites in the Ballona.

Intermediate Period

Many of the changes that occurred at the end of the Millingstone period continued into the Intermediate period (3000–1000 cal b.p.). Settlement spread throughout the Ballona, with larger and more-intensive occupations. Changes in subsistence strategies across southern California are indicated by a general decline in the use of manos and metates that corresponded with an increase in the use of mortars and pestles, a greater number in the type and variety of projectile points, and the introduction of earthen ovens. Although Millingstone period occupants of the Ballona appear to have been quite mobile, evidence suggests semipermanent settlement by the Intermediate period.

In the Ballona area, there was a florescence of occupation in the Intermediate period, with all major sites showing evidence of occupation. The increase in the number of sites occupied in the Ballona may relate to the influx of Takic groups into the area, as suggested by Sutton (2009). At the same time, paleoclimatic reconstructions suggest that the Intermediate period was a time of the highest precipitation in thousands of years, greatly increasing the biological productivity of both the Ballona wetlands and surrounding prairies. Macrobotanical evidence from the bluff-top sites suggests that the inhabitants took advantage of abundant resources in the freshwater marsh and the upland coastal prairie, collecting seeds from the plants associated with vernal pools in the prairie and the lowland marshes (Altschul et al. 2007). The most notable change in subsistence at some sites during the Intermediate period—the use of the venus clam—can also be attributed to the evolving wetlands, which had shifted from an open lagoon to more-estuarine conditions. Previously, during the Millingstone period, venus clam and scallop were the primary shellfish resources, along with Pismo clam (*Tivela*). Although these were also exploited in the subsequent Intermediate period, there was a decline in Pismo clam and an increase in venus clam exploitation.

There were other important developments during the Intermediate period, which had not been identified in previous research. For the first time, we have been able to identify organized site structure at sites in the Ballona, particularly on the bluff tops. Space at Intermediate period sites such as LAN-63 was organized, with specific portions of the site used for distinct activities. For example, specific areas of LAN-63 were used for garbage disposal, whereas other areas were used for cooking, communal activities, and burials (Altschul et al. 2007) (Figure 7). Another important characteristic of the Intermediate period was the appearance of new mortuary practices. At a small number of archaeological sites in Los Angeles and Orange Counties, archaeologists have identified what have been referred to as mourning-ceremony features (Douglass et al. 2005; Hull et al. 2013; Walker 1952). These features, consisting primarily of purposefully broken ground stone artifacts and unaltered cobbles, have been interpreted to be the result of the purposeful destruction of deceased community members' property. Hull et al. (2013) identified the sequence of purposeful destruction of artifacts, covering the broken pieces with ocher and/or asphaltum, and their subsequent burial. Figure 8 illustrates the large number of broken ground stone in one example of this type of ritual feature, Feature 587 at LAN-63. In addition, at both LAN-63 in the Ballona and ORA-263 near Seal Beach to the south, these features also contained cremated human remains. Although the LAN-63 feature with human remains appeared to have been created and used in a single event, the mourning feature at ORA-263 appeared to have been reused for hundreds of years during the Intermediate period. A variety of other stone tool artifacts, shell beads, stone beads, ocher, worked and unworked shell and bone, and other unusual artifacts were found in these contexts. In addition, some of the stone artifacts, such as a 2-m-long sandstone pestle in Feature 11 at LAN-63 (Figure 9) appeared to have been created specifically for ritual destruction, because the pestle was manufactured from a soft, easily degraded material, rather than the more durable igneous or metamorphic materials used in most pestles. Furthermore, this pestle shows no evidence of having been used with a mortar, and its great size would have made it impractical for such use.

Late Period

The PVAHP has demonstrated that, with the exception of the hiatus during the middle Millingstone period, the Ballona was occupied regularly until the end of the Mission period. However, there is also strong evidence that occupation at the beginning of the Late period (a.d. 950–1542) was much less intense and more intermittent. Several sites in the Ballona—including the Admiralty site, LAN-61, LAN-62, and LAN-63—were occupied during the Late period, but these occupations all represent much smaller and less-intensive settlements than either the preceding Intermediate period or the following Protohistoric and Mission periods. Environmentally, the beginning of the Late period was one of great flux, as much of it corresponds to the MCA (A.D. 800–1350) (Stine 1994). The MCA was a period not just of general drought at a macroregional level but also of great fluctuations of drought and wet periods on a finer scale (Larson et al. 1994). Although the Ballona may have reached its peak productivity during the optimal climatic conditions of the Intermediate period, by the Late period, the lagoon and surrounding wetlands had become a sediment-choked saltwater marsh. Our paleogeographic reconstruction revealed that, by the Late period, the Ballona Lagoon had shrunk considerably, and adverse climatic conditions may have reduced freshwater input into the wetlands, significantly reducing the productive capacity of both the wetlands and surrounding coastal prairie (Wigand 2005). The Los Angeles River, which had coursed through the Ballona along Ballona Creek throughout much of prehistory (and was found along this course when the Spanish arrived in the late 1700s), may have retreated to its alternate course to San Pedro. The saltwater marshes, however, may have expanded, and coastal resources may have been unaffected.

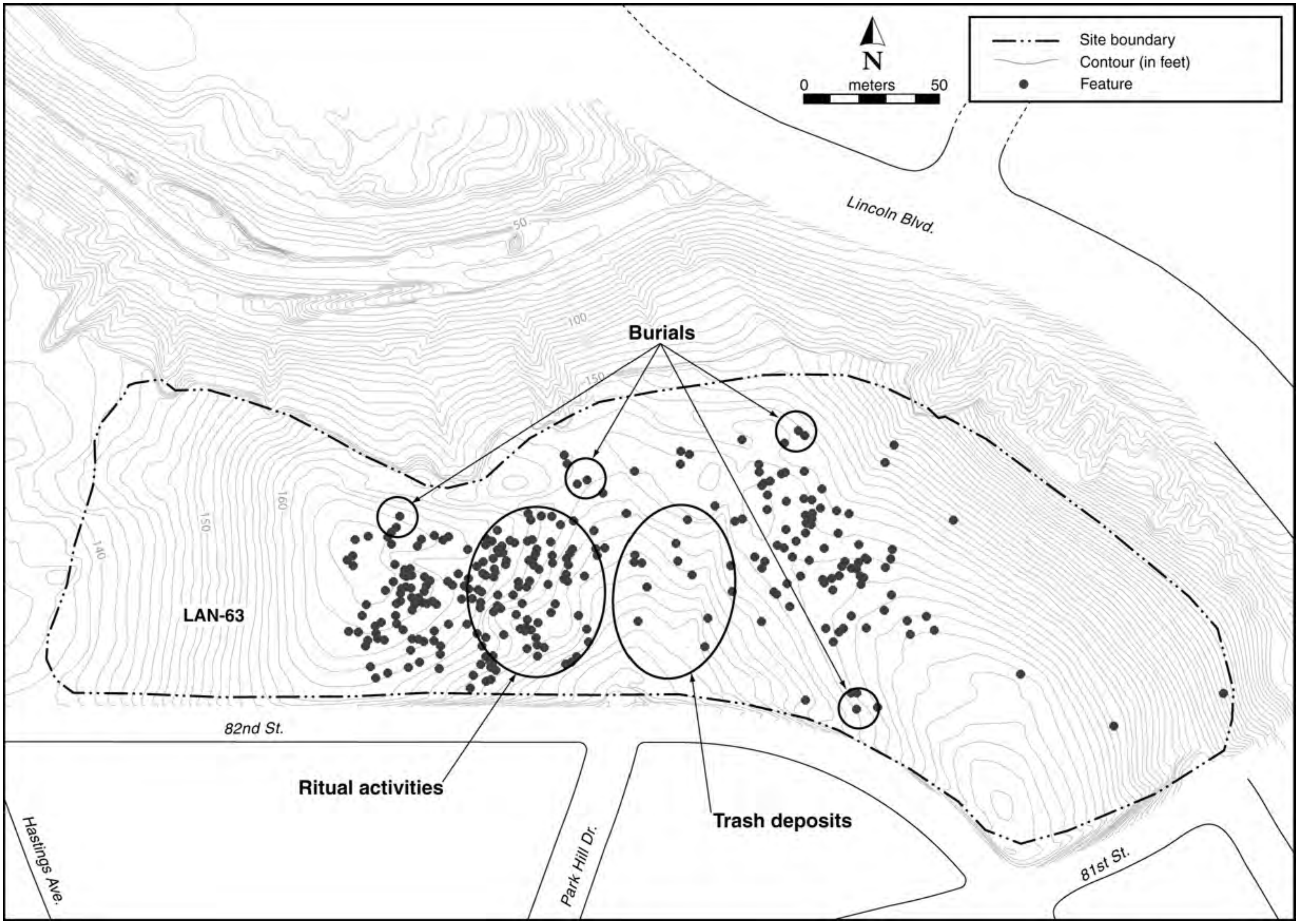

Figure 7. Map of LAN-63, showing the location of features discovered during data recovery excavations and different functional areas of the site.

Figure 8. Photograph of Feature 587 at LAN-63, illustrating the large amount of purposefully broken ground stone in this ritual, mourning-ceremony feature.

Figure 9. A 2-m-long, ritually broken sandstone pestle found in Feature 11 at LAN-63.

Perhaps, in part, because of these conditions, settlement in the Ballona shrunk considerably compared to the previous Intermediate period, leaving just a few small sites along the edge of the lagoon and a few isolated loci on the adjacent bluff tops. At approximately 2000 cal b.p., nearly every habitable location on the bluff tops and in the wetlands hosted settlements, but 1,000 years later, occupation was reduced to two sites on the margins of the wetlands and two loci on the adjacent bluff tops. As the resources of the coastal prairie and freshwater marshes dried up or became less reliable, inhabitants of the Ballona may have shifted their settlements closer to the more-reliable saltwater resources.

Much of our understanding of the Late period occupation in the Ballona is based on data from the Admiralty site, which is located in the lowlands. Analysis of diagnostic artifacts and radiocarbon dates led Altschul, Homburg, and Ciolek-Torrello (1992:7–8) to conclude that temporary, seasonal camps were established at the site between a.d. 1050 and 1150. Analysis of artifacts and food remains indicated that subsistence focused on locally available estuarine resources (e.g., diverse species of shellfish, fish, small mammals, and wild seeds and berries) that were available during the later stages of infilling of the Ballona Lagoon, as described above. To facilitate the gathering, hunting, and processing of plant and animal resources, a variety of lithic tools were used. Lithic technologies ranged from finely controlled bifacial and microlith technologies used primarily on imported, fine-grained cherts and chalcedony to expedient flake tools made from coarser-grained, locally available basalt and quartzite cobbles. A wide variety of shell beads were also recovered from the Admiralty site, although no evidence of local manufacturing was identified.

Perhaps the most important development during the Late period occurred at LAN-62, where the first burials were placed in an area that would become a larger and more-formal burial area during the Protohistoric and Mission periods. LAN-62, on the edge of the wetlands, was the longest-occupied site in the Ballona, occupied almost continuously for at least 7,000 years. From the late Millingstone period until sometime during the Late period, this portion of the site was used as a logistical camp or similar seasonal settlement. It is unclear exactly how many burials date to the Late period or the nature of the burial ground during this period. It is clear, however, that a large portion of LAN-62 was probably used for residential activities, as evidenced by numerous features such as hearths and manufacturing areas, and that subsequently, this residential area was covered by a Late period midden, and then ultimately used for burials. The Ballona inhabitants continued to use this burial ground during the subsequent Protohistoric period (a.d. 1542–1771) and well into the Mission period (a.d. 1771–1834).

Mission Period

The Mission period in the Los Angeles Basin is an important time in Gabrielino/Tongva history. Beginning in A.D. 1771 with the founding of Mission San Gabriel, it culminated in A.D. 1834 with the secularization of the mission system. At the beginning of the Mission period, it has been estimated that there were approximately 5,000 Gabrielino/Tongva living in numerous small villages in the Los Angeles Basin and on the southern Channel Islands (McCawley 1996). With the founding of Mission San Gabriel, Gabrielino/Tongva were recruited first from villages near the mission and then from villages farther removed. Eventually, Gabrielino/Tongva, Serrano, Cahuilla, and other groups were drawn in from distant areas (Northwest Economic Associates and Chester King 2004). There were complex reasons for Native Californians to join the mission. Among others, the destruction of native habitat by introduced cattle and horses played a key role, eliminating areas that were crucial to aboriginal hunting and gathering (Hackel 2005; Larson et al. 1994; Milliken 1995). Soon after the founding of the mission, the Pueblo of Los Angeles was established, leading to additional economic and religious interaction between Hispanics and Native Californians.

Over the past two decades, a number of scholars have researched which native villages may have been present during the Mission period along Santa Monica Bay, including the Ballona, as well as areas farther away in the greater Los Angeles Basin (e.g., Johnson 2006a; King 1994; King and Johnson 1999; McCawley 1996; Northwest Economic Associates and Chester King 2004; Van Horn and White 1997a). Initially, the research focused on the village of Sa'angna. Alfred Kroeber (1925) was the first to apply the Gabrielino/Tongva name of Sa'an to the area. Despite an intensive search by later researchers, no mention of Sa'angna was found in the historical records (Stoll et al. 2003). Instead, research by Chester King and John Johnson (1999) and William McCawley (1996) has turned our attention to the *ranchería* of Guaspet.

Although no known Mission period map shows the location of native villages in the Ballona or a *ranchería* named Guaspet, based on review of ethnohistorical accounts, King (1994), Johnson (2006a), McCawley (1996), and Northwest Economic Associates and Chester King (2004) all have placed Guaspet in the Ballona near the mouth of Ballona Creek. The exact location of Guaspet, if indeed it was a single discrete settlement, will likely never be known, but all evidence—archaeological and historical—suggests that it was in the Ballona, most likely somewhere in the vicinity of LAN-62 and LAN-211. Research of mission records has identified 92 individuals who were directly recorded as being from Guaspet. If extended family members of these individuals, such as parents, children, and in some cases grandchildren, are added to the list, over 200 people documented in mission records can be associated with Guaspet. The first baptism from Guaspet occurred in 1790, and between 1803 and 1805, there was a spike in baptisms of Guaspet villagers, primarily of children, which likely corresponds to increased interaction with Hispanic colonists in the Ballona when the Rancho de los Quintos was established there in the early 1800s. The date of its establishment is unclear, but according to Mason (2004), it was around the time Rancho Topanga Malibu Sequit was established in 1804. Pío Quinto Zúñiga, the patriarch of the Quinto Zúñiga family, had been a soldier at San Juan Capistrano, where he met and married his neophyte (baptized Native Californian) wife, a Juaneño who would have spoken a language very similar to that of the Gabrielino/Tongva and would have been familiar with their customs. Thus, he and his children, who were of partial Native Californian ancestry, could readily interact with the natives of the Ballona. Baptismal and godparent records at Mission San Gabriel document ties between Pío Quinto Zúñiga and his family members with residents of Guaspet. Pío Quinto himself baptized a former Guaspet resident in danger of death at the native village of Yaanga, adjacent to the Pueblo of Los Angeles (Stoll et al. 2009). Furthermore, Quinto Zúñiga's family members served as godparents for several Guaspet residents, which probably would have created and reinforced personal alliances and allegiances between these natives of Guaspet and their new landlords (e.g., Newell 2009:144).

The archaeological evidence indicates that there was a substantial Mission period occupation in the Ballona at two sites within the PVAHP at the base of the Westchester Bluffs: LAN-62 and LAN-211. In addition, there was more-ephemeral evidence of Mission period occupation and use at LAN-61 and LAN-63 on the bluff tops overlooking these two sites. Evidence of terminal Mission period and/or the ensuing Rancho (Mexican) period occupations have been found at a variety of sites in the Ballona, including the Hammack Street site, LAN-62, LAN-193, LAN-211, and LAN-2768. With the exceptions of LAN-62 and LAN-211, these relatively late native occupations were fairly ephemeral and difficult to discern. LAN-211 was primarily a domestic site with numerous hearths and a dense and diverse midden. It is likely that, as discussed in Chapter 3 in this volume, LAN-211 functioned, in part, as a feasting site and as a domestic area (Reddy et al. 2011). The feasting area was defined by a large, extremely dense midden containing numerous hearths and other cooking and storage features, as well as a disproportionate amount of deer remains (for overview map of Feature Block [FB] 1 at LAN-211, see Chapter 3 in this volume). These feasts may have been what the Spanish recorded in their documents as "fiestas," which generally occurred during the summer months when neophytes were allowed to leave the missions and visit their home villages. In addition, these feasts may have been feasts for the dead, associated with the burial ground at adjacent LAN-62. As part of mourning ceremonies, these feasts would have cultivated social memories of the past and present and addressed key facets of the future. In this feasting context, food remains were a mixture of traditional, native varieties with some plants and animals that were newly introduced by colonists, including domesticated animals, such as cows and goats or sheep, as well as domesticated plants, such as corn, barley, and wheat. A variety of artifacts of Hispanic origin were recovered from the Gabrielino/Tongva site at LAN-211, including nearly 100 glass trade beads (Figure 10) and small bits of ceramics, metal, and glass. In addition, some native-made artifacts were constructed of imported material; Figure 11 shows a projectile point made of green glass. It appears that a variety of items introduced by Hispanic colonists to the area were incorporated into the daily use of the inhabitants of this native habitation site. A wider range of colonial items were recovered from the Mission period burials at LAN-62.

LAN-62 functioned during the Mission period first and foremost as a mortuary and burial area for the Gabrielino/Tongva in the Ballona and likely Gabrielino/Tongva from adjacent areas. Here, hundreds of burials, many dating to the Mission period, were identified. Although this location first was used as a burial area sometime in the Late period with a few burials, it was formalized during the Mission period and ultimately evolved into a concentration of burials in a small area, including the use of large pieces of whalebone to possibly demarcate individual graves (Figure 12). Based on ethnographic and ethnohistorical analogy, it is likely that the tightly defined main burial area was also surrounded by a wooden fence to demarcate its boundaries, although no archaeological evidence was found of such a structure. As noted in other Mission period burial grounds documented in southern California, there was a marked disparity among burials; some individuals were found with thousands of grave

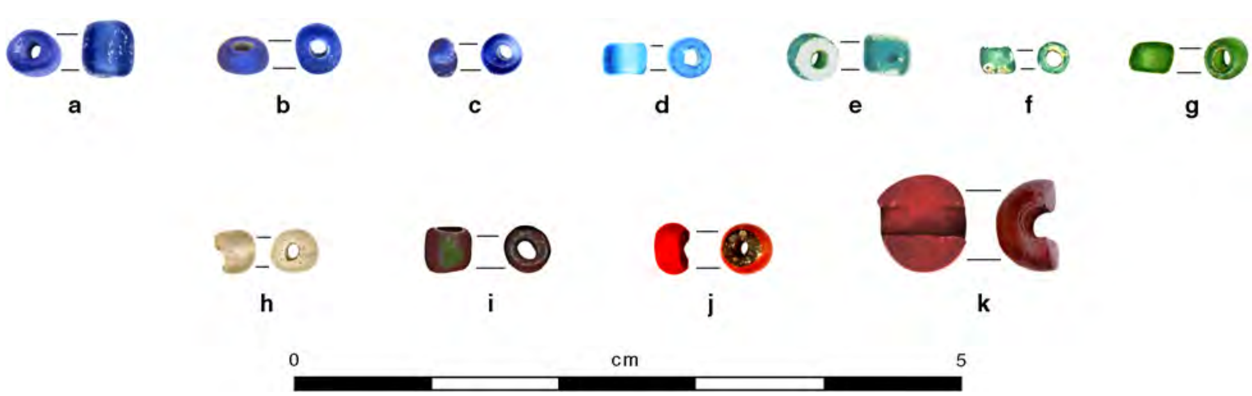

Figure 10. Glass beads from LAN-211/H: (*a–c*) cane, cobalt blue; (*d–e*) cane, copper blue; (*f–g*) cane, green; (*h*) cane, clear; (*i–j*) cane, translucent red with green core; (*k*) wire-wound, red.

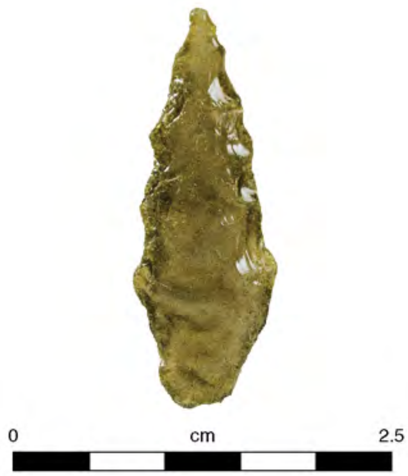

Figure 11. Green glass projectile point recovered from LAN-211.

goods, others with hundreds, and most with just a few or none. One of our major research objectives was to ascertain whether this disparity represented the presence of a hierarchically structured society—as has been interpreted in the case of Chumash burial grounds (Gamble et al. 2002; King 1969; Martz 1984)—or was the product of changes in burial practices that had resulted from European contact.

The most common artifacts found among burials, and the burial area in general, were shell and glass beads. Shell beads have been an integral part of Native Californian culture for thousands of years and have been found in burial contexts from as far back as the Millingstone period. Shell beads were also a medium of exchange and one of several attributes associated with wealth and social and political status (King 1990). The presence of tens of thousands of shell beads in the burial ground at LAN-62 speaks strongly to the continuation of the use of traditional shell beads well into the Mission period—although shell beads were surprisingly rare in earlier contexts. Glass beads, on the other hand, were a newly introduced item to the Gabrielino/Tongva from colonizers and were only available through interaction and relationships with local ranchos, the missions, the Pueblo of Los Angeles, and perhaps black-market merchants. The presence of tens of thousands of glass beads in the burial area suggests a strong relationship between native residents of the Ballona and colonizers. Examples of several different types of strands of glass beads found at LAN-62 are illustrated in Figures 13 and 14. Glass beads were part of a daily exchange between the colonizers and the Gabrielino/Tongva who labored in the colonizers' fields and ranchos. Glass beads also were distributed as part of a colonial policy to create and maintain good relationships with Native Californian groups. In addition to glass beads, many unique or rare native-made objects were found in either individual burials or the burial area, including stone pipes (for figure of stone pipe from Feature 9 at LAN-62, see Chapter 6 in this volume); incised tablets (Figure 15); numerous stone bowls, mortars, and pestles (some purposefully broken) (Figures 16 and 17); hundreds of projectile points (Figure 18); effigies—including both zoomorphic (Figure 19a, b) and anthropomorphic (Figure 20); and bone flutes (Figure 21a, b) and gaming pieces (Figure 22).

Along with the thousands of Native Californian artifacts from the burial area at LAN-62, there were almost equal numbers of artifacts of European origin. These included diverse items that were not part of traditional Gabrielino/Tongva culture, such as particular Old World cultigens; clothing fasteners (Figure 23); tens of thousands of glass trade beads; portions of several weapons (Figure 24); two copper chocolate pots (Figure 25); farming and shearing equipment (Figure 26); horse tack (Figure 27); and many small pieces of metal, glass fragments, and formal serving ware (Figure 28). Interestingly, these items of nonnative origin were found in contexts that included traditional native goods. For example, in many cases, glass beads were found in the same context as shell beads and, in a few cases, there was evidence that indicated they were strung together. In another example, a number of imported items, including a porcelain cup and a fragment of a glass tumbler, were found intermixed with marine shell, ocher, and waterworn pebbles, suggesting that they functioned together in their final use (Figure 29). This mixture of native and nonnative items that functioned together suggests how Native Californians negotiated the fast-changing colonial era. These items arrived in Alta California primarily on Spanish ships that yearly stocked the presidios and missions (e.g., see Hackel 1998; Perissinotto 1998) but also arrived through more-illicit means as contraband from ships, which traded unofficially with both the missions and colonists (Miller 2001), as well as from wrecks of Spanish or Yankee ships.

Nonnative, imported items, although in some cases unique, were generally similar to those found at the Mission period burial area at the nearby village of Humaliwo (Malibu) (Bickford 1982; Gamble 2008; Gamble et al. 1996; Gamble et al. 2001). At Humaliwo, Gamble et al. (2001) have argued that the presence of these nonnative items suggested that the Chumash from this village may have been employed at local ranchos as cowboys (vaqueros) or house help. The presence of imported items with specific functions, such as horse tack, may lead one to a similar argument for the Gabrielino/Tongva at LAN-62 and LAN-211. The presence of domesticated cow and goat or sheep at LAN-211 may suggest gifts, payment for labor, or poaching of colonists' stock from nearby communal grazing areas (*paraje*) or ranchos of the Pueblo of Los Angeles. During the Mission period, some gentile (unbaptized Native Californians) Gabrielino/Tongva and Chumash had strong ties to local ranchos and the Pueblo of Los Angeles (e.g., see Douglass and Stanton 2010; Gamble et al. 2001). Some of those buried at LAN-62 and the Mission period residents of native villages in the Ballona may have once worked at Rancho de Los Quintos. It is quite possible that the interactions between residents of

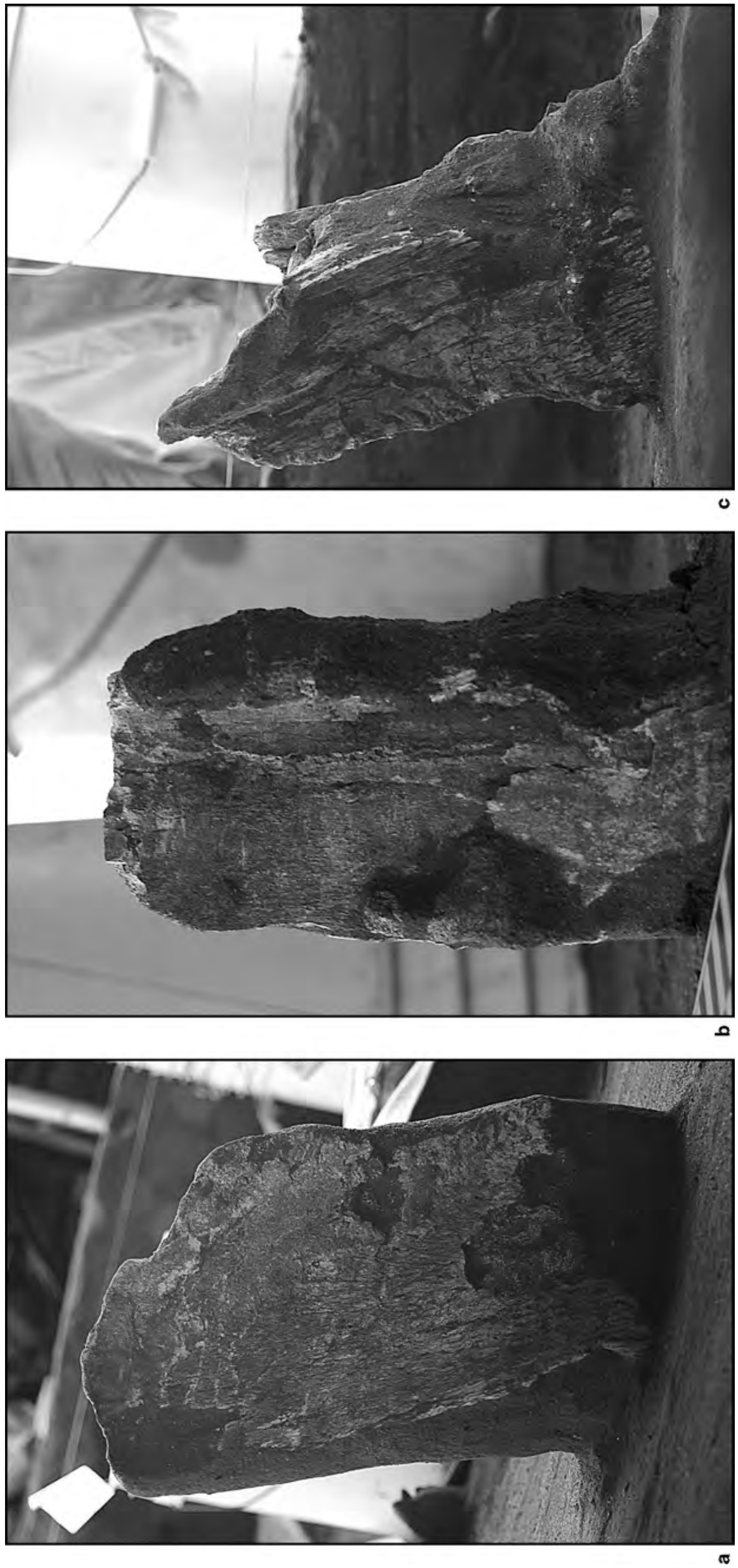

Figure 12. Photographs of whalebone in the burial area, LAN-62.

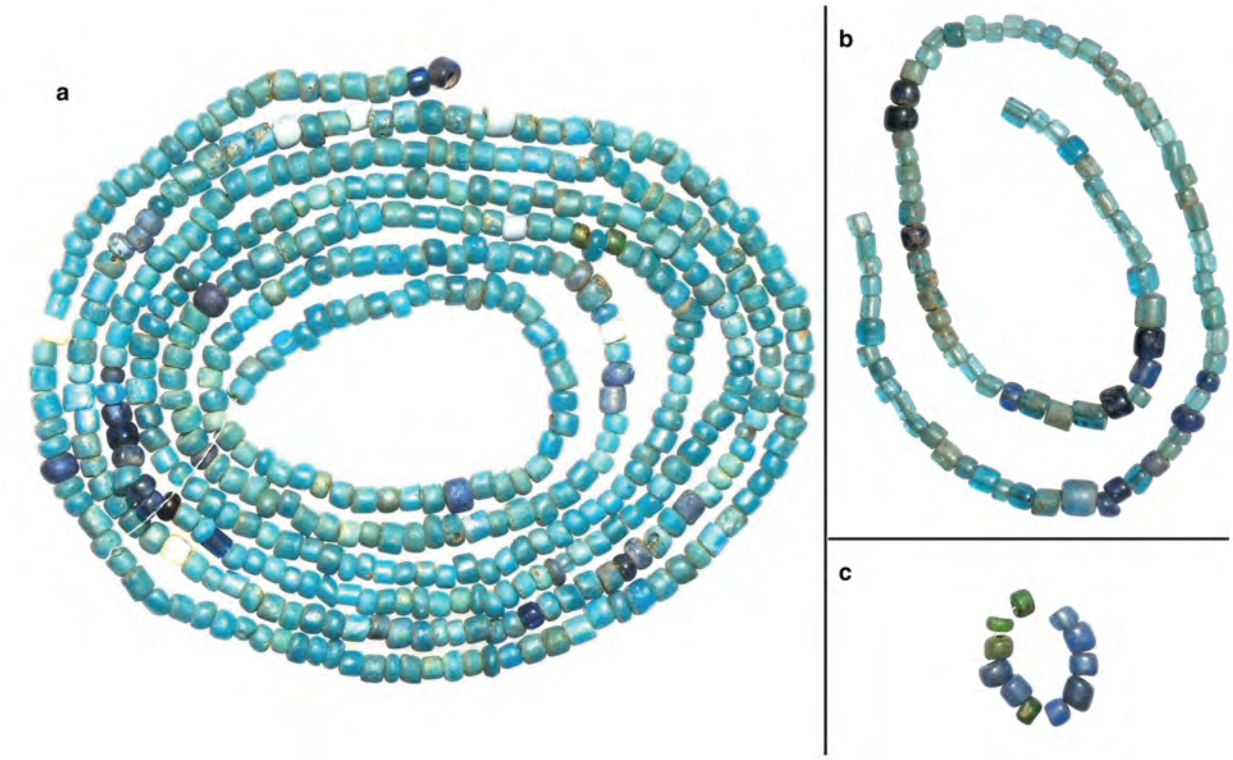

Figure 13. Glass bead strands from (*a*) Feature 90, (*b*) Feature 112, and (*c*) Feature 244 at LAN-62.

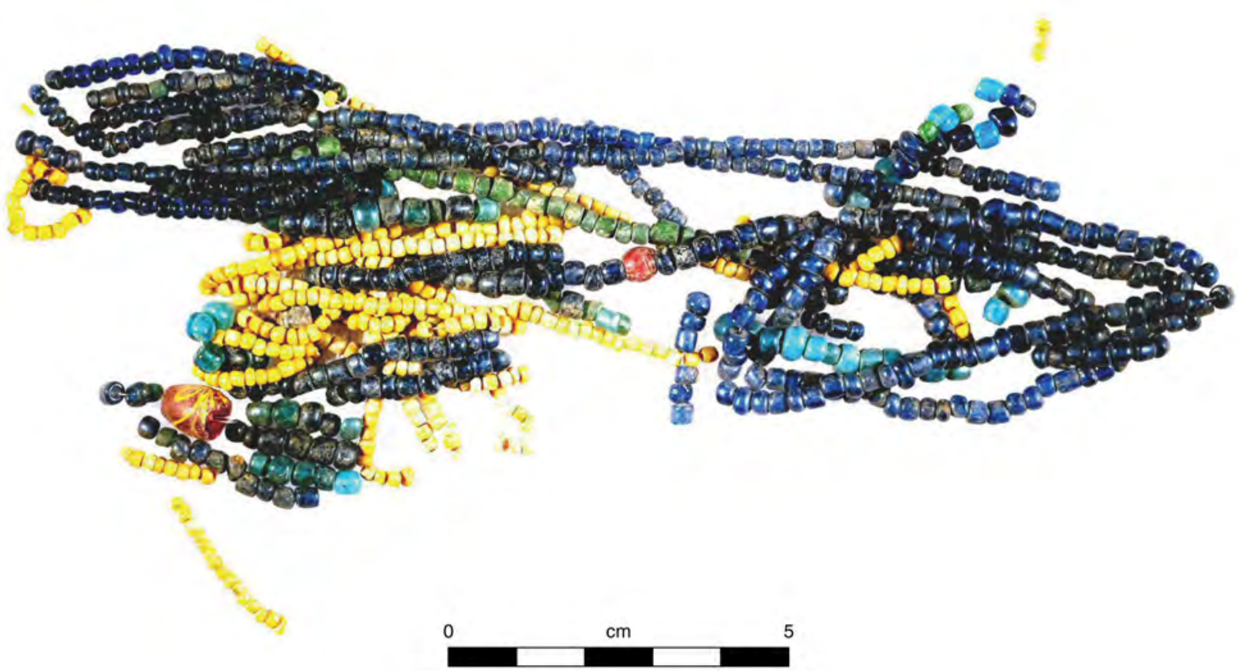

Figure 14. Glass bead strands from Feature 280 at LAN-62.

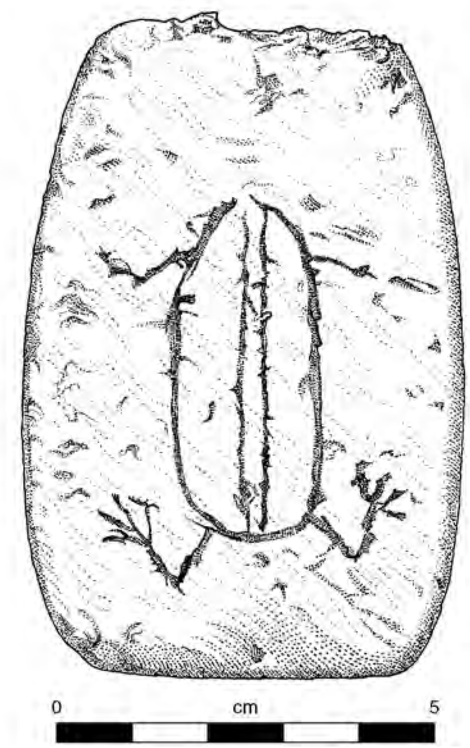

Figure 15. Incised steatite tablet from Feature 252 at LAN-62.

Figure 16. Example of an intentionally broken stone bowl from Feature 38 at LAN-62.

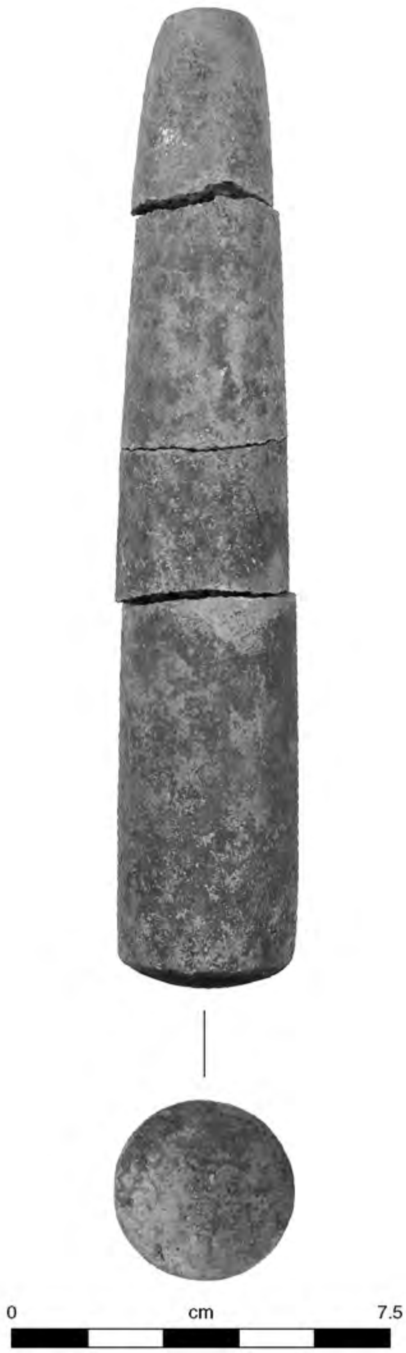

Figure 17. Example of an intentionally broken stone pestle from Feature 38 at LAN-62.

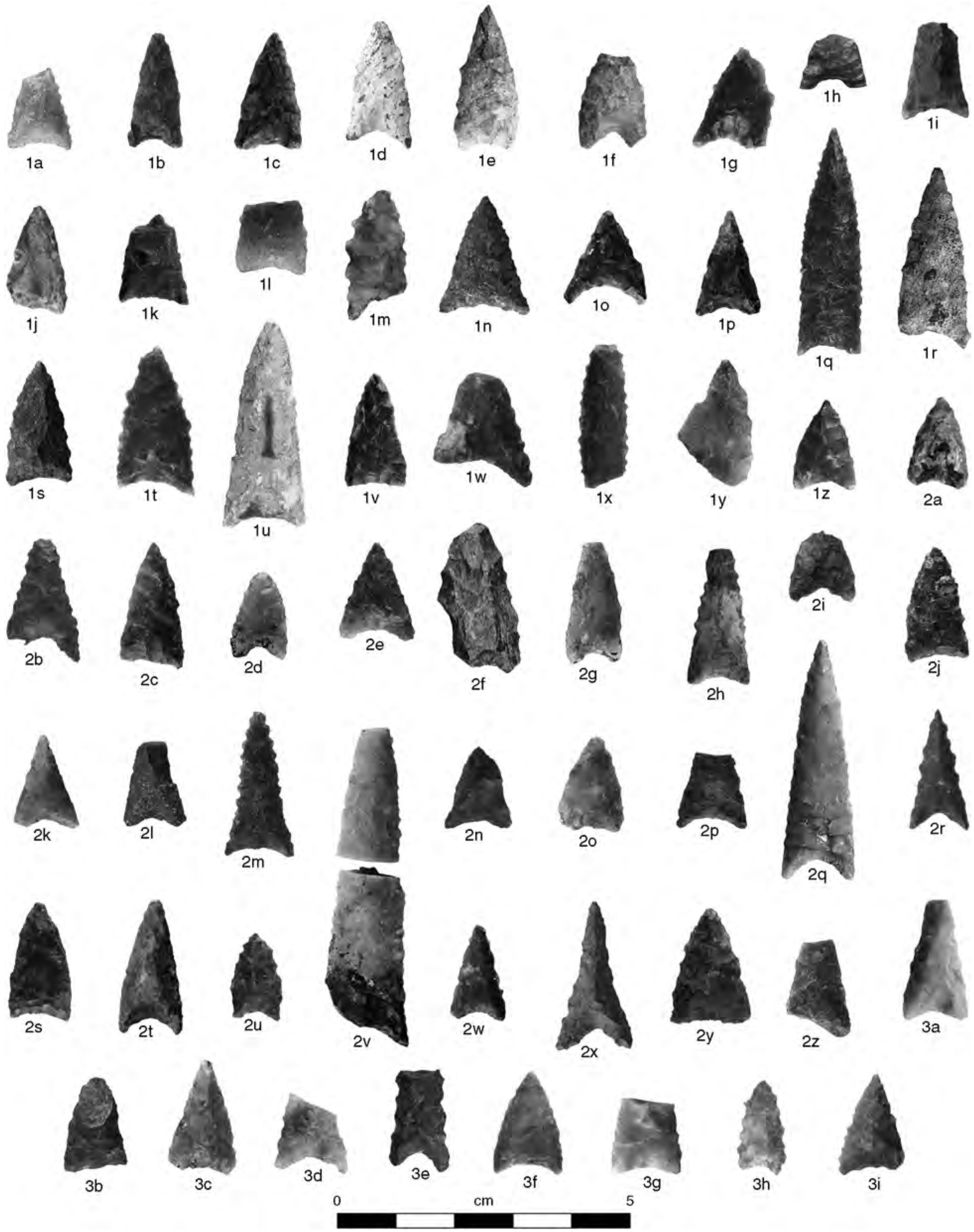

Figure 18. Examples of Cottonwood Triangular Concave Base point types from PVAHP.

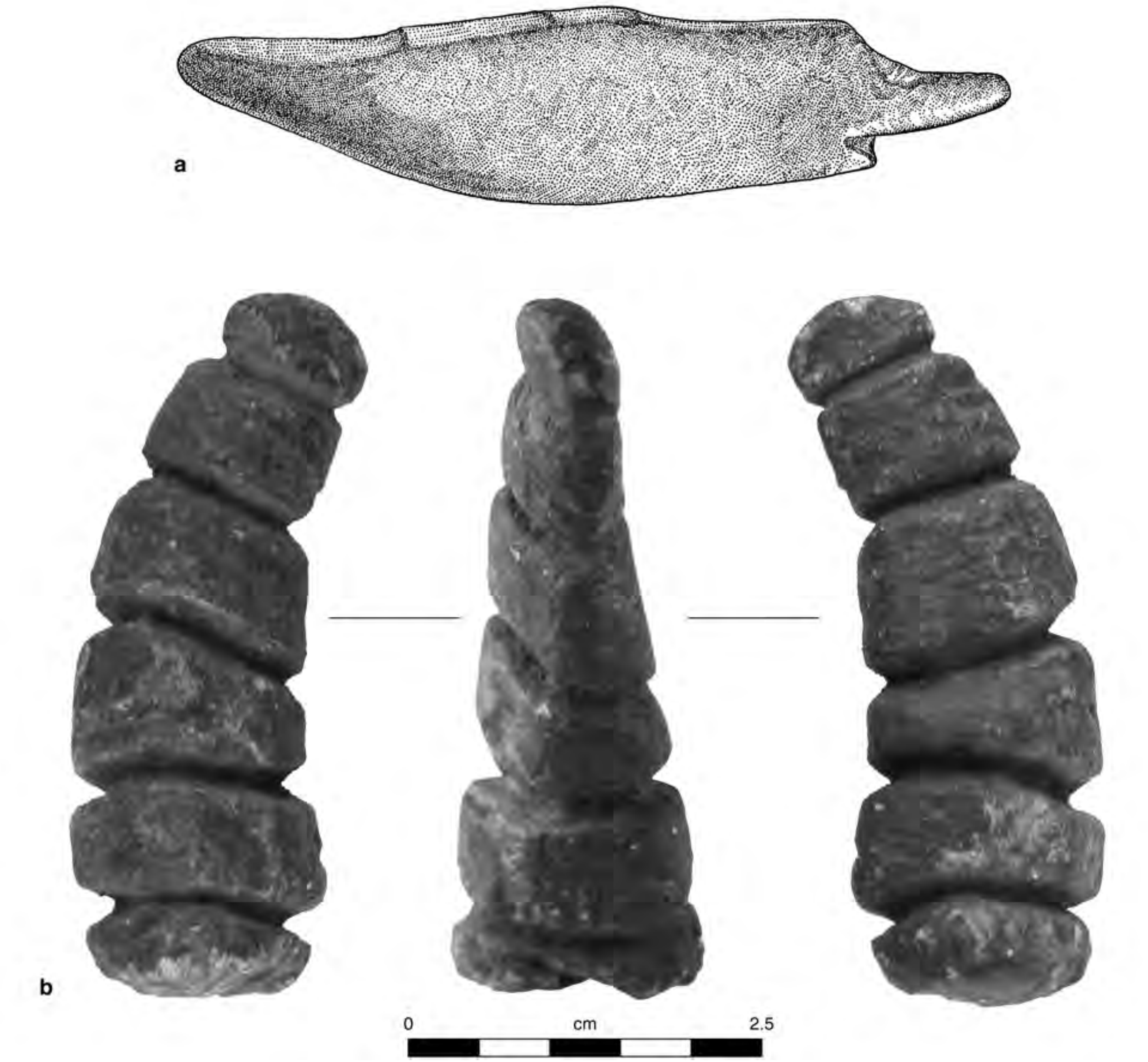

Figure 19. Examples of zoomorphic effigy or figures from LAN-62: (*a*) zoomorphic figurine (possibly a dolphin) from burial-area EU 166 at LAN-62 and (*b*) rattlesnake-rattle effigy from burial-area EU 155 at LAN-62.

Figure 20. Anthropomorphic figure from burial-area EU 161 at LAN-62.

Figure 21. Examples of (*a*) bone flute and (*b*) bone whistle from LAN-62.

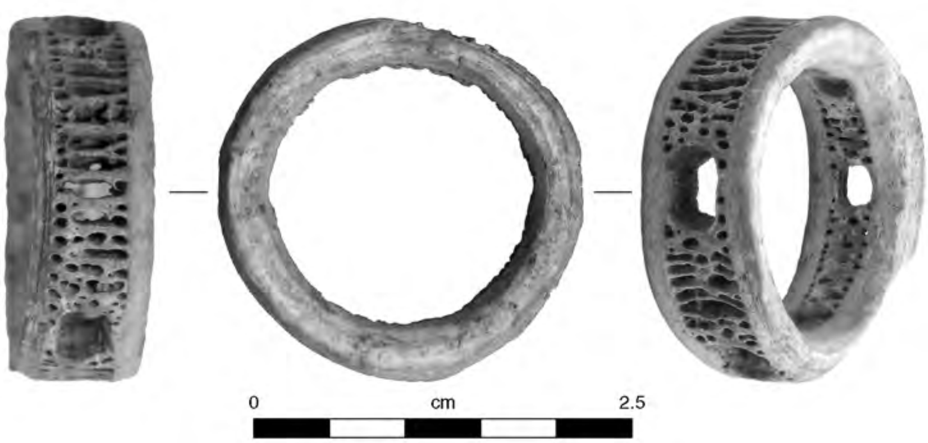

Figure 22. Shark-vertebra bead or gaming piece from LAN-62.

Figure 23. One-piece cast copper/brass button with drilled eye from Feature 313 at LAN-62.

Figure 24. Composite photograph of probable gun barrels from burial area at LAN-62.

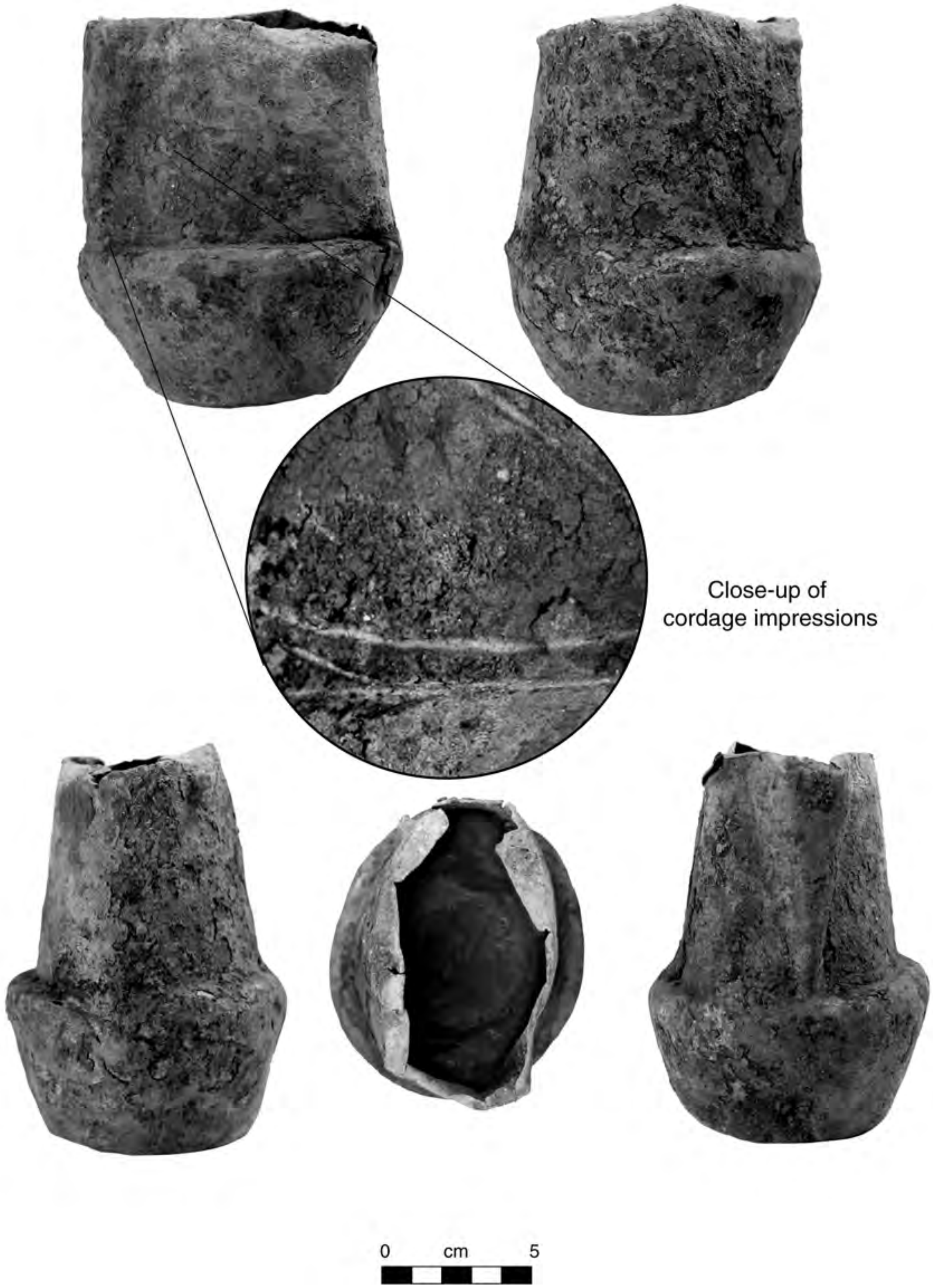

Figure 25. Copper chocolate pot from Feature 50 at LAN-62.

Figure 26. Iron hoe head from LAN-62, burial Feature 438.

Figure 27. Possible iron horse-tack elements from LAN-62, burial-area EU 143.

Figure 28. Salt-glazed-stoneware child's or demitasse cup from Feature 227, LAN-62.

Figure 29. Overview of mortuary offering that was a part of Feature 227, LAN-62. This mortuary offering included Hispanic and native items, including waterworn pebbles, glass shards, ceramic sherds, a whole cup, and marine shell.

Guaspet, located somewhere in the Ballona, and either a local rancho or the Pueblo of Los Angeles would have created opportunities for Native Californians to gain access to some or many of the types of nonlocal goods (including Old World cultigens) found in the burial area.

In addition to hundreds of Gabrielino/Tongva burials, the burial area also included a ritual component. FB 3, located 2 m west of the burial area, measured 4 by 8 m across and contained 14 features that were primarily pits. These pits may represent either a single depositional event or an area of recurrent ritual involving burned offerings (for plan view of Feature 384 at LAN-62, see Chapter 6 in this volume). All of these features appeared to date to the Mission period and contained burned basketry, textiles, thousands of carbonized seeds, numerous broken pieces of ground stone, glass and shell beads, and a variety of other artifacts (Figures 30–32). Seeds from both native-plant species and introduced domesticates were recovered; over 370,000 carbonized seeds were analyzed from just one of these features (Figure 33). The nonperishable contents of the features were variable. Some features contained relatively small collections, such as shell or glass beads and faunal bone. In contrast, other features contained an abundance and diversity of materials, including broken ground stone (e.g., bowls, *comales*, and pestles), glass and shell beads, mineral concretions, charcoal, flaked stone debitage, and unworked shell. Nearly all of the 14 features contained burned textile or baskets, and shell and glass beads. The association of food and artifacts suggests ritualization of these items, including food offerings.

We believe that these features represent the remnants of mourning-ceremony activities, as described in ethnohistorical and ethnographic sources for the Gabrielino/Tongva and neighboring groups (Bean 1975; Benedict 1924; Blackburn 1976; Boscana 1846; McCawley 1996; Merriam 1962; Strong 1929). During these events, offerings were given in memory of departed community members, and artifacts, perhaps personal items of the deceased, were ritually destroyed. There was a wide variety of mourning ceremonies across the Chumash, Gabrielino/Tongva, Juaneño, and Serrano tribes, but all involved offering foodstuffs and ritual destruction of items, among many activities. Interestingly, although the feasting context at LAN-211, which likely related to mourning events, contained a mixture of both native and introduced species, the ritual/mortuary contexts at LAN-62 contained almost exclusively native grasses, which may have symbolically represented different types of traditional pinole mixes ritually offered to the deceased (Reddy 2010). In addition, the burial ground, in general, appears to have been placed atop a hard-packed surface that may have been an additional ritual area, perhaps a dance area.

Guaspet disappeared in mission recruitment records by 1819, the year that Felipe Talamantes and Augustin

Figure 30. Plan view close-up photograph of Feature 68, a mortuary offering from LAN-62 Locus A. Notice glass beads, burned textiles, and other artifacts.

Figure 31. Close-up photograph of a portion of Feature 75, a mortuary offering from LAN-62 Locus A. Notice glass beads in original, strung position.

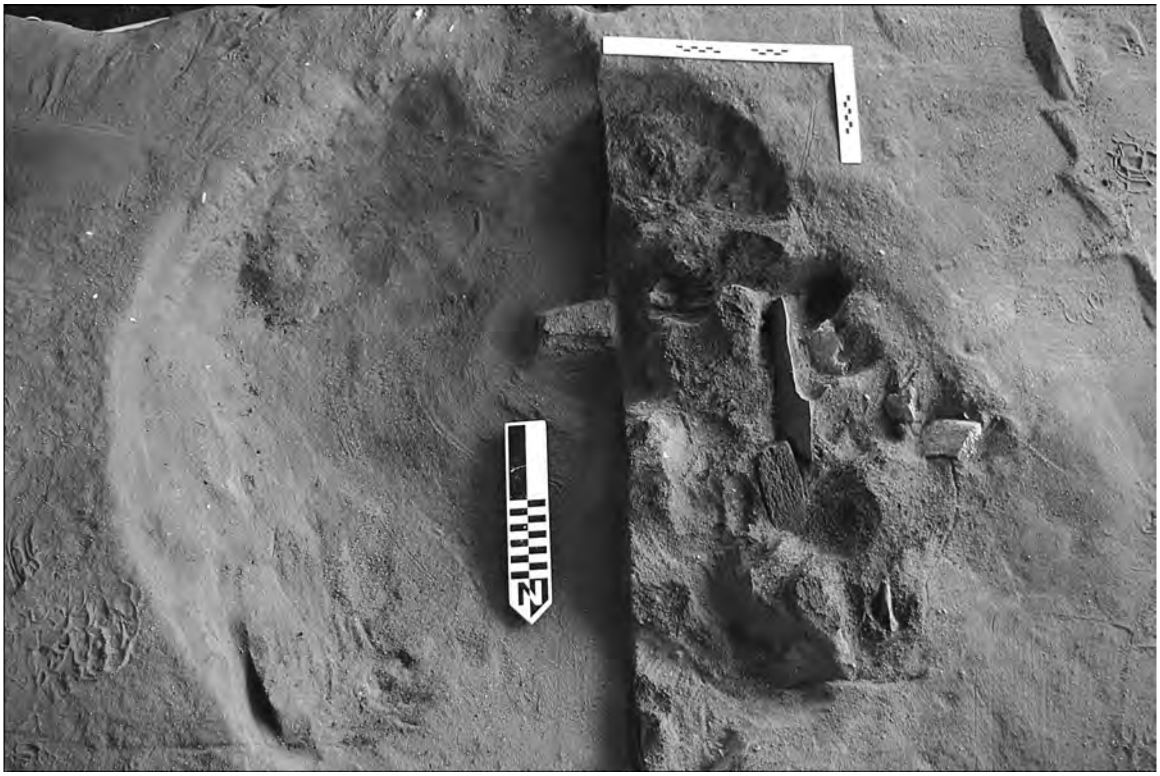

Figure 32. Plan view photograph of Feature 458 (subfeature of Feature 384), LAN-62, a mourning feature, showing the shape and depth of the feature, as well as the burned and purposefully broken objects contained within it.

Figure 33. A mixture of *Phalaris* spp., *Hordeum* spp., and other wild-plant seeds analyzed from FB 3, LAN-62.

Machado, residents of the Pueblo of Los Angeles, began to run cattle in the Ballona (Stoll et al. 2003). It was not until 1839, however, that they were given official sanction for this activity. With the granting of the Rancho la Ballona, Machado and Talamantes began planting crops and constructing homes and outbuildings, irrigation ditches, and a winery. No records indicate that the native village of Guaspet still existed at the time the Talamantes and Machados began ranching the Ballona. For example, unlike the Quinto Zúñiga family, neither the Talamantes nor the Machados baptized or were godparents to natives of Guaspet or any other native village reportedly in the Ballona area. Rather, although it is reported that Native Californians worked the rancho and lived at the base of the bluffs, it is likely they were either Juaneño (Stoll et al. 2003) or Diegeño. The only documented baptism of a Native Californian in the vicinity of Rancho la Ballona occurred in 1839 when Felipe Talamantes baptized a child in danger of death at the rancho itself (Los Angeles Plaza Church [LA] Baptismal Record 914, Early California Population Project [ECPP] Database, www.huntington.org/information/ECPPlogin.htm). Baptismal records indicate that both parents of this gravely ill child were neophytes from Mission San Diego and presumably worked at Rancho la Ballona.

By the end of the Mission period, it is clear that major changes to the landscape (both political and physical) fundamentally altered the path of traditional Native Californian culture, settlement patterns, and subsistence. By establishing ranchos, farms, and grazing lands in proximity to native villages, colonizers made it more and more difficult for the native inhabitants to continue their traditional lifeways. Grazing and planting likely destroyed many of the wild-plant foods of the coastal prairie, and irrigation hastened the drying and infilling of the wetlands and lagoon.

American Period

By the 1870s, after years of legal boundary disputes, the heirs of Talamantes and Machado partitioned the Ballona, and much of the land was sold. Although farming continued in the Ballona for almost another 100 years, land speculation had begun by the 1880s. Initial development was spurred by the Santa Fe Railroad's interest in a harbor in the Ballona area. Although the area was named Port Ballona, a harbor was never established.

This abortive commercial development probably had little impact on the Ballona, but it was soon replaced by the development of recreation and tourism in the area. By the early 1910s, development of Venice, Santa Monica, Playa del Rey, and other beach communities was well underway. Although the ranchos in the Ballona had made an initial impact on the area, the construction and development of these new communities brought about much greater changes to the landscape, draining water from the freshwater and saltwater marshes and filling in portions of the lagoon. The canals of Venice, as well as its expansive boardwalk, were important developments that brought hordes of visitors to the area. Soon, the Pacific Electric Railroad began daylong excursions to bring tourists from downtown Los Angeles.

Perhaps the most devastating impacts to the Ballona began in the 1920s when the Corps began to channelize Ballona Creek (Figure 34). This project redirected the flow of the creek from the marsh and lagoon directly into Santa Monica Bay. It was now left to the limited flow of Centinela Creek to supply the wetlands with freshwater; Centinela Creek was later channelized as well. The Los Angeles River was similarly channelized permanently along its current course, ending the possibility of once again redirecting its water into the Ballona. Starved of its primary freshwater inputs, the marshes began to dry up, and the remains of the lagoon became more saline. At the same time the freshwater inputs to the Ballona were redirected, the Venice Oil Field was developed in the Playa del Rey area. The forest of oil derricks (Figure 35) and associated oil-storage facilities, roads, and pipelines constructed in the area, and the pollution they created, likely spelled the end of the saltwater marsh and the remnants of the lagoon.

Although the area had begun development in the early 1900s, it was not until the famous aviator, engineer, and industrialist (as well as film producer) Howard Hughes began purchasing land in the Ballona in the 1930s that others took notice of the region (Figure 36). Between the early 1940s and his death in 1976, Hughes's company, the Hughes Tool Company, used the central portion of the project area as its Culver City plant for design, construction, and testing of a variety of aircraft. The Culver City plant included the longest privately owned runway in the United States. Outlying areas of land owned by Hughes, including those on the bluffs to the south, were used as buffers for airspace, as well as for the construction and use of radar installations related to the airstrip. Many of these unused buffer areas, including the land adjacent to the airstrip, were farmed, because farming land was taxed minimally (Altschul et al. 1991). Perhaps the most famous airplane to be designed and constructed at the Culver City plant was the Hercules, also known as the "Spruce Goose," the largest wooden aircraft ever designed and flown. In addition, the Culver City plant created important technological and engineering innovations, from radar technology and helicopter manufacture to aircraft critical to the war in Vietnam. Beginning in the late 1970s, after the death of Howard Hughes, plans for development of the project area were initiated. Over time, these plans evolved into a mixed residential-commercial development named Playa Vista.

Figure 34. Excavation associated with the channelization of Ballona Creek, January 1936. Photograph courtesy of the Benjamin and Gladys Thomas Air Photo Archives, Spence Collection, UCLA Department of Geography (Negative E-6527).

Figure 35. 1930 aerial photograph of oil derricks associated with the Venice Oil Field, Ballona (view to the south toward the Bluffs). (Courtesy Robert Strutsman, Negative No. B-1274).

Figure 36. Photograph of the Hughes Aircraft Culver City Plant, 1950s. Photograph courtesy of the Benjamin and Gladys Thomas Air Photo Archives, Spence Collection, UCLA Department of Geography.

Cultural Background and Research Goals for the Playa Vista Archaeological and Historical Project

John G. Douglass, Seetha N. Reddy, Donn R. Grenda, Richard Ciolek-Torello, and Jeffrey H. Altschul

Introduction

Over the past 12,000 years, humans have occupied the mainland Southern California Bight and adjacent Channel Islands (Altschul and Grenda 2002). Over that time period, cultural dynamics, sociopolitical organization, and technology, among many other aspects of culture, have changed. This chapter is divided into two sections: (1) a summary of the regional cultural background and (2) a summary of research goals for the PVAHP. In the first section, we present highlights of major periods across the Southern California Bight and then offer insight into developments in the Ballona during these periods. Figure 37 presents a chronological sequence for southern California.

The second section presents a summary of research goals and objectives for the PVAHP. Altschul et al. (1991) presented the PVAHP research design, which outlined three research themes for the project: (1) human-land relationships, (2) culture history and cultural dynamics of prehistoric settlement, and (3) Historical period development of the Ballona. In subsequent years, as we learned more about the archaeology of the Ballona, SRI built on the original research design and expanded these themes within the context of specific investigations (Altschul 1991; Altschul et al. 1999; Altschul, Ciolek-Torrello, and Homburg 1992; Altschul, Doolittle, and Benaron 1998; Altschul et al. 2003; Ciolek-Torrello et al. 2000; Grenda and Altschul 1994a; Vargas and Altschul 2001; Vargas et al. 2003). This section presents these themes, offers additional ones, and details what was known in the early 1990s, when the original research design was created, as well as how these themes have evolved over the past 25 years. The research theme related to late Historical period development of the Ballona has been previously addressed (Greenwood and Associates 1991; Statistical Research et al. 1991) and will not be discussed here. We do, however, discuss in detail research themes related to Mission period development of the Ballona, a theme that was not fully addressed in the original research design because of the paucity of information about this period. This shortcoming was rectified after significant Mission period remains were discovered at LAN-211 and LAN-1932 (Altschul et al. 2003). An important point to be made here is that although the research design for the project laid a strong framework, it has been used as a dynamic guide for research rather than a rigid structure.

Paleocoastal Period

The first people in southern California appear to have arrived along the coast as early as 12,000 b.p. (see Erlandson et al. 2007; Johnson et al. 2002). These maritime-adapted people apparently migrated down the coast from the north, as indicated by discoveries on the northern Channel Islands and the mainland coast of central California (Erlandson et al. 2007; Johnson et al. 2002). These early people are generally known as Paleoindians and these coastal Paleoindians are part of the Paleocoastal tradition. The inland Paleoindians were part of the Clovis culture, a terrestrial and lacustrine adaptation (with a different technology) generally dating to the same time as the Paleocoastal materials. Major Clovis localities are known at Lake Tulare (Riddell and Olsen 1969) and Lake China (Davis 1975), among other locations in central and southern California, including the Mojave Desert and the coast.

It seems plausible that the first Americans could have migrated along the coast of the Pacific Rim, even quite early, to colonize the Americas. Before 12,000 b.p., sea levels would have been as much as 122 m (400 feet) lower than today, exposing a coastal plain along which people may have traversed (Erlandson 2002a). In addition, the islands would have been larger and closer to the mainland. It may be that the coastline of northwestern North America was not glaciated after ca. 13,500 b.p., allowing people to move south along a continental shelf exposed by lower sea levels (Fedje and Christensen 1999; Fedje and Josenhans 2000; Josenhans et al. 1997). Such a route may have been sufficiently productive to support human populations moving south. It has been suggested that the extensive kelp beds that extend

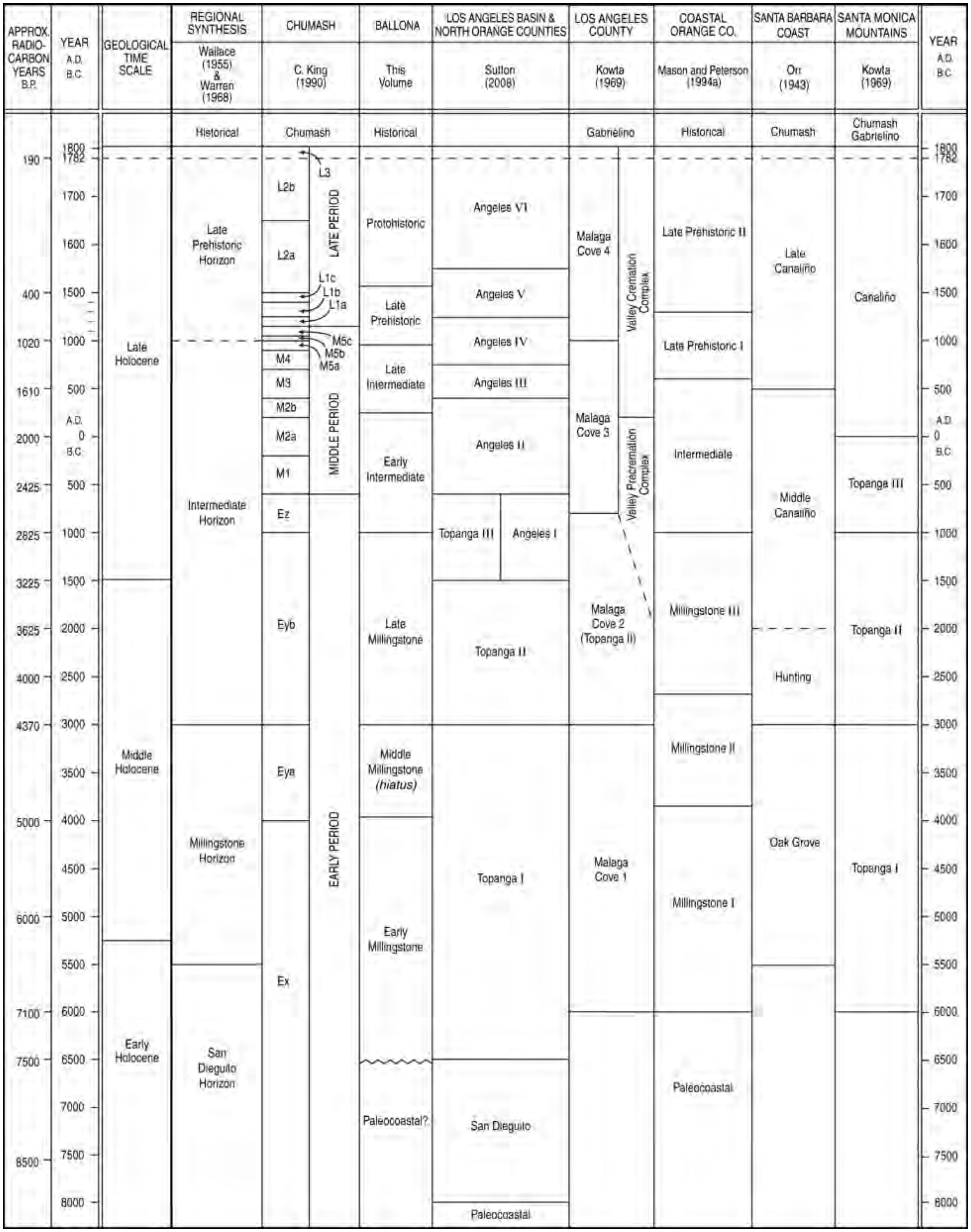

Figure 37. Chronological sequences for the greater Los Angeles Basin, including the Ballona.

from Japan to California may have provided the resource base necessary for a movement of people along the coast in the late Pleistocene (Erlandson et al. 2007). As sea levels rose at the end of the Pleistocene, sites containing evidence of an early coastal migration or maritime adaptation would have been flooded. Very little evidence exists to support a coastal-migration model, largely because most of these sites would now be underwater and very difficult to locate. Notably, the earliest sites in coastal California are located on the Channel Islands (Erlandson et al. 2007; Johnson et al. 2002).

Many dozens of sites dating between 12,000 and 8500 cal b.p. are known along coastal California (see Erlandson, Moss, and DesLauriers 2008; Jones, Porcasi, et al. 2008), but only one is located north of Monterey Bay (Erlandson et al. 2007; see also Erlandson 1997; Erlandson and Colten 1991:3; Jones, Young, and Hildebrandt 2002; Jones, Porcasi, et al. 2008). The other early sites are distributed in three primary clusters. One cluster extends from San Luis Obispo south to the Santa Barbara coast (including the northern Channel Islands). The second cluster is concentrated on the southern Channel Islands, and the third is around the ancient lagoons of San Diego County. By contrast, only a few isolated sites are known along the coast in the Los Angeles area, including the Bluff site (LAN-64) at Playa del Rey (Douglass et al. 2005). Two important sites in Los Angeles and Orange Counties dating to this period are ORA-64 and LAN-159 (see Erlandson, Moss, and DesLauriers 2008 for details).

Evidence of a maritime adaptation has been found at a number of early coastal southern California sites, including the use of shellfish, fish, and marine mammals. These sites include Daisy Cave (Erlandson et al. 1996; Erlandson et al. 2007; Rick et al. 2001), Arlington Springs (SRI-173) (Johnson et al. 2002), Cross Creek (Jones, Fitzgerald, et al. 2002), Diablo Canyon (Jones, Porcasi, et al. 2008), Malaga Cove (Sutton and Grenda 2012), and Arlington Point (Erlandson et al. 1999). Further, it has been argued that there is evidence of boat technology dating to ca. 8000 cal b.p. from the Eel Point site (SCLI-43) on the southern Channel Island of San Clemente (Cassidy et al. 2004) and possibly earlier elsewhere (Erlandson and Moss 1996:295), including Daisy Cave (Rick et al. 2001).

As Paleocoastal groups moved south along the coast north of the Los Angeles Basin, they would have occupied the general area now occupied by the Chumash. The Chumash language, originally classified in the Hokan linguistic family, is now considered a separate linguistic family, Chumashan, and is thought to have been in place for a considerable amount of time (Golla 2007). Based on lexical data, Klar (2008) has suggested that an unknown (but not Chumashan) language was present on the northern Channel Islands before the entry of the Chumash and this could represent the initial migrants into the region. In the interior, it is probable that Clovis was part of the Hokan language group (Moratto 1984:543–544; but see Lathrap and Troike 1984). This would imply that at least two groups of linguistically unrelated Paleoindians were moving south in California at the same time, followed a bit later by Chumashan groups.

Paleocoastal Evidence in the Ballona

In the Ballona area, evidence of a Paleocoastal occupation is scant; only two sites have showed any evidence of occupation during this time period: LAN-61, located on the bluff top, just east of the Lincoln Gap, and LAN-63, located just west of the Lincoln Gap. Although there are no radiocarbon dates from LAN-61 for this period (Lambert 1983:8; Van Horn and Murray 1985), a crescent and several stemmed points were recovered by Van Horn and Murray during their large-scale data recovery investigations at this site in the 1980s. Crescents generally date prior to ca. 7000 cal b.p. A few stemmed points indicative of the Paleocoastal period also were recovered from the surface of LAN-63 in the 1980s (Hull and Douglass 2005; Lambert 1983:8; Van Horn 1987). Subsequent data recovery at LAN-63, however, including dozens of radiocarbon dates, failed to reveal any evidence of a Paleocoastal component (Douglass et al. 2005).

Millingstone Period

The Millingstone period—sometimes referred to as the Early period—is a roughly 5,500-year span beginning ca. 8500 cal b.p. and ending with the first dramatic increase in regional human population ca. 3000 cal b.p. We previously argued that the Millingstone period in the Ballona began ca. 6500 cal b.p. (Stoll et al. 2003), beginning with the stabilization of sea levels, but more-recent work in the Ballona (Douglass et al. 2005) has shown that this Millingstone occupation goes back to approximately 8200 cal b.p., based on radiocarbon dates on the bluff tops at LAN-64. Figure 38 illustrates the collection and span of radiocarbon dates collected for the PVAHP. The Millingstone period (called a "horizon" in some chronological schemes) is defined by abundant milling implements (especially manos and metates), scraper planes, choppers, and core tools and a dearth of projectile points and faunal remains. Inherent in the definition of the Millingstone period is a heavy dependence on seeds and a minor emphasis on hunting, hence the abundance of milling implements and the near absence of hunting equipment and faunal remains.

Several sites in the local area with Millingstone components include Level 2 from the Malaga Cove site (LAN-138) (Walker 1952), the Tank site (LAN-1) in the Topanga Canyon area (Heizer and Lemert 1947; Treganza and Bierman 1958; Treganza and Malamud 1950), Sweetwater Mesa site (LAN-267) (see King 1967; see also Gamble and King 1997:64),

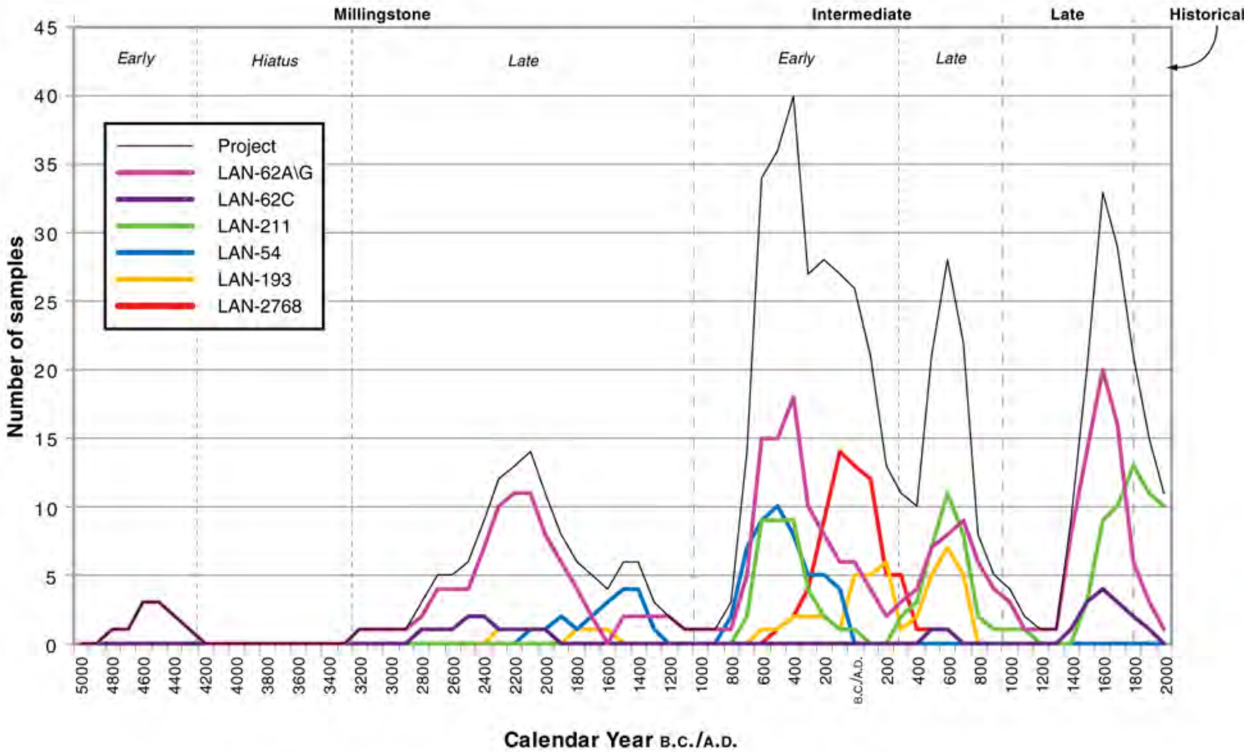

Figure 38. The weighted probability curve of all radiocarbon dates obtained for PVAHP depicted against the weighted probability curve generated for each site.

the Shobhan Paul site (LAN-958) (Porcasi 1995; Porcasi and Porcasi 2006; Salls 1995), and the Parker Mesa site (LAN-215) (King 1962). Generally, these sites had large numbers of ground stone artifacts; cobble hammers; discoidals, cogged stones, and crescents; choppers; a few mortars and pestles; large, coarsely flaked projectile points; knife blades (Walker 1952:51–60); and, in the case of the Tank site, 19 primary and secondary inhumations (Treganza and Bierman 1958). Treganza and Malamud (1950:151) (see also Gamble and King 1997) suggested that the Tank site was an early village (partly based on the presence of the inhumations), but Hale (2001:77–78) suggested that it represented a less sedentary settlement. A few other early Millingstone period sites are known in the Santa Monica Mountains area, although they are not thought to have been occupied to any great extent prior to ca. 7500 b.p. (King et al. 1968:99). Important Millingstone period sites in Orange County include Bolsa Chica (ORA-83) (Herring 1961, 1968), ORA-64 (Drover et al. 1983; Macko 1998), and Landing Hill (Cleland et al. 2007), which all contained numerous cogged stones and a variety of other artifacts diagnostic of this period. ORA-83 is thought to have been a manufacturing center for cogged stones, and ORA-64 contained nearly 1,000 discoidals, crescents, stone balls, and numerous burials, some of which dated to the Millingstone period. The early Millingstone period at ORA-64 also contained obsidian from several sources, including northeastern California, demonstrating wide-ranging trade or movement during the early Holocene (Erlandson et al. 2005; Fitzgerald et al. 2005; Macko et al. 2005; Sutton and Koerper 2009).

Sutton (2009) has argued that there was an initial entry of the Takic (proto–Gabrielino/Cupan branch) into the area ca. 3500–1500 cal b.p., towards the end of the Millingstone period into the late Intermediate period. These Takic groups replaced the existing late Millingstone groups along the coast. The archaeological record reflects this major change. First, the entering Takic groups were biologically distinct from the preceding populations (although the data set was small), as indicated by both osteometric and ancient DNA (aDNA) data (for a full discussion, see Sutton 2009). This suggests that a migration took place. Second, there were significant increases in site numbers in some areas, such as the Ballona (Altschul et al. 2005:291, 295; Altschul et al. 2007:35; Grenda and Altschul 2002b:128), suggesting the arrival of Takic groups during the early Intermediate period, which is earlier than the traditional late Intermediate date (post ca. a.d. 500) for the Takic intrusion (Kroeber 1925). Also, larger sites with a greater diversity of artifacts appeared at about this time, although they seem to have been occupied on a seasonal basis. Third, economies changed from a heavy emphasis on marine resources (especially shellfish) to more of an emphasis on terrestrial resources. At the same time, fishing became more important during the transition from the late Millingstone period to the subsequent early Intermediate period. Lastly, there were important changes in mortuary patterns on the coast. The practice of flexed burials under cairns disappeared on the coast but continued inland; cremation was uncommon and was not a Takic marker as is so commonly believed (see Sutton 2009). Large mourning features with cremated human bone appeared about 2600 cal b.p. (during the early Intermediate period). These features apparently represent a diffusion of ideas from Yuman groups in the deserts to the east and could mark the inauguration of some sort of ritual complex in the region (see Sutton 2009).

Millingstone Period Occupation in the Ballona

Millingstone period sites have also been discovered in the Ballona, on the bluff tops above the PVAHP area in the lower Ballona, and to the east near the Baldwin Hills in the upper Ballona, where ephemeral camps were located near an inland swamp later known as Las Cienegas. Early archaeological surveys of this area in the upper Ballona identified a series of about 15 sites with artifact collections that included cogged stones, large projectile points, and large numbers of ground stone artifacts (Farmer 1934, 1936; Rozaire and Belous 1950). The Angeles Mesa site (LAN-171) is among this group of sites.

Evidence of occupation in the lower Ballona Creek area (including the project area) during the Millingstone period has been scant in the past. Even as recently as 2003, for example, only two sites (LAN-61 and LAN-206) were known to have early Millingstone components (Stoll et al. 2003). Recent reinterpretation of some sites, in addition to data recovery efforts at others, has yielded much stronger evidence of a Millingstone component in the Ballona area.

Van Horn and White (1997b) argued that the occupants of the Millingstone period component (Component A) at the Berger Street site (LAN-206) fished and collected shellfish in the nearby Ballona estuary. The paucity of tools and faunal remains in the midden was consistent with a short-lived campsite; presumably, the occupations did not last more than a few days or weeks. The picture that emerges is one of brief forays to the lagoon from campsites on the bluff tops overlooking the bay. In small, mobile groups, Millingstone period residents of the Ballona exploited nearshore and lagoonal fish and shellfish. As evidenced by a common material culture found at sites along the coast, a distinct cultural system became widespread over the region during the Millingstone period.

Below the bluff, Millingstone period dates have been identified at two sites: LAN-54 and LAN-62 (see Volume 2, this series for details) (Altschul et al. 2003; Vargas and Altschul 2001; Vargas et al. 2005). LAN-62 appears to date to at least 7000 cal b.p., whereas LAN-54 generally dates to the late Millingstone, ca. 4000 cal b.p. Four sites on the bluff tops, LAN-61, LAN-63, LAN-64, and LAN-206 (including LAN-206A), have yielded radiocarbon dates or other diagnostic artifacts that fall within the Millingstone period (Douglass et al. 2005; Van Horn 1987; Van Horn and Murray 1985). Radiocarbon assays from LAN-64 (Hull and Douglass 2005) have yielded a cluster of dates between 8200 and 7000 cal b.p., making it, by far, the earliest site known in the Ballona area (and one of the oldest sites along the Southern California Bight, as well). LAN-64 also yielded cogged stones and discoidals during data recovery efforts, but their context in the upper (Intermediate period) component of the site argued that they were likely curated and used during later occupations of the site. This cluster of early Millingstone radiocarbon dates was from several shell-dump features identified at the base of the cultural deposit, dug into the underlying C horizon at the site. Beyond venus clam (*Chione*) and scallop (*Argopecten*) shells and a small amount of debitage in these features, little is known about the Millingstone occupation at this site, except that it may have been used as a temporary camp for collection of nearby lagoon resources (Douglass et al. 2005). It is likely, however, that these early inhabitants of the Ballona used a number of locations along the bluff-top mesa and selected locations along the edge of the lagoon for short periods of time. At LAN-206, a single uncorrected radiocarbon date of 6750 ± 80 b.p. on a shell valve (*Chione* sp.) recovered from 50 to 60 cm below surface, also argued for a Millingstone period occupation of this neighboring site (Van Horn and White 1997b:19). A component of this site, LAN-206A, located on the west end of the West Bluffs property, yielded no datable organic material but did contain cogged stones and discoidals (Douglass et al. 2005). LAN-63, located immediately to the east of LAN-64 and LAN-206A, also contained cogged stones and discoidals (as well as stemmed points), but radiocarbon assays failed to yield dates older than the Intermediate period. Furthermore, these diagnostic artifacts were not found in feature contexts, so it is possible that they were curated artifacts, like those at LAN-64. Finally, an uncorrected shell date of 4710 ± 80 b.p. from the Marymount site (LAN-61A) falls within the late Millingstone period (Van Horn and Murray 1985). Cogged stones and discoidals were also recovered during data recovery efforts at the site by Van Horn and Murray. Overall then, there is strong evidence of Millingstone occupation in the Ballona, both on top of and below the bluffs. There was, however, a gap in occupation during the middle Millingstone period, between approximately 6000 and 5000 cal b.p., which is currently not well understood.

Intermediate Period

The Intermediate period, dating to 3000–1000 cal b.p., is defined by important changes in settlement patterns, economic activities, mortuary practices, and technology. The latter portion of the Intermediate period, ca. 1500–1000 cal b.p., is marked by the spread of the bow and arrow to the coast from the north and east. Sometime toward the end of the Intermediate period, the trade in Coso obsidian decreased dramatically (Sutton et al. 2007:244), and Obsidian Butte obsidian increased in importance. Yuman ceramics, plus some local wares, have been found at some coastal sites. As in earlier times, major settlements were occupied on a seasonal basis, and flexed burials were the primary inhumation pattern; cremation remained uncommon. As noted above, Sutton (2009) has argued that a major process in the late Intermediate period was the diffusion of a Takic language, the mother of the Cupan languages, into Yuman-speaking areas immediately to the south of the Los Angeles Basin.

Common traits of Intermediate period sites along the Southern California Bight include a relative dearth of manos, metates, and core tools; an increase in the number of mortars and pestles; a greater number and wider variety of projectile point types; flexed inhumations (some beneath rock cairns); and the introduction of stone-lined, earthen ovens (Johnson 1966:19). As Johnson (1966:19) pointed out, however, there was generally little change in the morphology of core tools and grinding implements between the Millingstone and Intermediate periods. Johnson (1966:4) suggested that the ovens were used to bake yucca and/or agave. Similar features containing carbonized yucca (as well as other botanical resources) have also been found in the central Transverse Ranges, most dated between ca. 2300 and 800 cal b.p. (Milburn et al. 2008:6, 20). Van Horn has identified examples of these types of features on the bluff tops in the Ballona at LAN-61 (Van Horn and Murray 1984, 1985) and LAN-63 (Van Horn 1987). SRI identified similar types of archaeological remains during subsequent work at LAN-63 (Douglass et al. 2005) and argued that these represented either communal ceremonial features or large roasting pits, depending on the contents of the features. In addition, a house pit reused as a large roasting pit was identified by SRI at LAN-2768 (see Volume 2, this series). As discussed below in this section, burial patterns changed, including the introduction of cremations.

The Intermediate period at the Malaga Cove site (in the upper portion of Level III) was marked by the presence of gear for fishing and hunting sea mammals. This occupation, thought to date to ca. 1450 b.p., was characterized by big stone mortars and pestles, abalone-shell fishhooks, bone harpoon barbs, chert knives and scrapers, steatite vessels, and shell ornaments. These artifacts mark the beginnings of maritime exploitation (Walker 1952; Wallace 1984).

Johnson (1966) identified an Intermediate period component at LAN-2 in Topanga Canyon that contained rock-lined ovens and seven flexed inhumations (see also the discussion of this site in Hale 2001:79–90). LAN-2 also contained abundant metates, manos, scraper planes, and hammerstones, as well as a few choppers, small and large points, pestles, a crescent, and a few mortars. Radiocarbon dates for LAN-2 ranged between 2700 and 2440 b.p. (Johnson 1966:15). Based on these dates, Johnson (1966:20) proposed that Topanga III (what we call the Intermediate period) began about 3,000 years ago.

Intermediate Period Occupation in the Ballona

The Intermediate period is one of the best-documented periods of the prehistoric occupation in the Ballona (see Figure 41 for radiocarbon dates from the PVAHP sites). Ten Intermediate period sites have been identified through radiocarbon dating. Four sites (LAN-60, LAN-62, LAN-193, and LAN-2768) were located at the base of the bluff, along the banks of Centinela Creek. LAN-54, which had both late Millingstone and early Intermediate period components, was located on what was likely a small island or slightly higher spot in the middle of the Ballona Lagoon, alongside Ballona Creek; this site was unique among Intermediate period sites in the Ballona as it was located away from the bluffs. Five sites with large middens (LAN-59, LAN-61, LAN-63, LAN-64, and LAN-206) occupied almost every elevated knoll along the edge of the Westchester Bluffs overlooking the Ballona. These sites contained relatively dense artifact and feature deposits that have yielded radiocarbon dates from the Intermediate period (Altschul et al. 2007; Douglass et al. 2005; Van Horn and Murray 1985). Many of these sites appear to have been multicomponent, with minor Millingstone and Late period components.

Two basic questions concerning Intermediate period occupation in the Ballona have guided SRI's research in the PVAHP area. First, what accounts for the increase in settlement during this period? And second, what was the nature of the relationship between the bluff-top and lowland sites? In pursuit of an answer to the first question, previous researchers have hypothesized that some Intermediate period cultural traits indicate the arrival of people from the desert (Van Horn 1987). These traits include tanged projectile points, cremation of the dead, the introduction of stone beads, and a lack of shell artifacts. The preference of stone over shell as a raw material for making beads suggests the presence of people without a well-developed, preexisting maritime tradition. At some sites occupied during this period, such as ORA-263 (Landing Hill), massive numbers of stone beads dwarfed a small number of shell beads found in burial contexts; at LAN-63 and LAN-64, stone beads far outnumbered shell beads in burials though in much smaller quantities than at ORA-263 (Hull and Douglass 2005).

Investigations have examined the microlith industry and the presence of desert-style projectile point types during the Intermediate period as expressions of a cultural tradition unique to the Ballona (Van Horn and Murray 1985). Artifacts referred to as microliths were scarce at large sites with Intermediate period components such as ORA-83 in Bolsa Chica (Whitney-Desautels 1986) and ORA-64 in Newport Bay (Macko 1998). Numerous microblades, however, were identified from primarily Intermediate period deposits at LAN-61 (Van Horn and Murray 1985). The question of desert migrations during the Intermediate period has been discussed by several authors (Koerper 1979; Kowta 1961; Kroeber 1925; Moratto 1984; True 1966; Van Horn 1987, 1990). Most have suggested that an arrival date of approximately 1500 cal b.p. is consistent with the data; however, some authors have argued for a much earlier migration (ca. 3500 cal b.p., near the Millingstone/Intermediate period transition), including Sutton (2009), as discussed above. Both arguments may be correct; it is possible that multiple migrations took place over hundreds, if not thousands, of years.

Three archaeological sites, LAN-63, LAN-64, and LAN-206A, immediately to the west of the Lincoln Gap on the bluff top, have provided our best data on Intermediate period settlement (Douglass et al. 2005). Analysis of the midden materials supports a highly diverse set of activities, strongly suggestive of more-permanent occupation. These sites overlooked two natural depressions. The smaller eastern depression was used as a community trash dump and was surrounded by hundreds of thermal features. On the western flank of this depression were three features consisting of large numbers of milling implements, many of which had been intentionally broken and smeared with ocher. Interspersed among the milling stones was cremated human bone. Inhumations also were found in several locations throughout the community. Often, these burials were found in small clusters, suggesting the presence of burial grounds for specific social groups. The much larger western depression, which held water for various lengths of time, was used primarily as an area to procure plant resources, and the processing took place on the higher ground, where hearths also abound. In short, space at these bluff-top sites was highly structured and segregated into communal refuse areas, resource-procurement and resource-processing areas, ritual space, and burial areas (Altschul et al. 2007; Douglass et al. 2005). A more detailed discussion follows in Chapter 3.

Several features at LAN-63 with purposefully broken artifacts, and some with cremated human remains, were similar to features found at Landing Hill (including ORA-263). Burial Feature 29 at ORA-263 contained large amounts of fragmentary, cremated human bone and broken ground stone fragments. This feature, approximately 23 m^2, contained ground stone that had been purposefully broken and left in place by the prehistoric inhabitants of the site. The majority of the recovered bowls and mortars appeared to have been intentionally broken or "killed," similar to what was seen at LAN-63 in the Ballona area. This main concentration of cremated human bone also contained an exceptionally dense concentration of beads (primarily stone beads, although some shell beads were also present) and ornaments. Based on similarities with ethnographic and ethnohistoric documents, Cleland et al. (2007:114–115) argued that the cremation feature at ORA-263 may represent an early form of mourning feature. Hull and colleagues came to a similar conclusion regarding similar features at LAN-63 (Hull et al. 2006; Hull et al. 2013; see also Walker 1952). Hull et al. (2006) argued, similarly to Cleland et al. (2007), that the features at LAN-63 and ORA-263 were likely communal features related to mourning of departed community members. During the Mission period, mourning ceremonies were documented by various ethnographers in the southern California area, including Benedict (1924), Strong (1929), and Kroeber (1925). Hull et al. (2006) argue that the contents of these features at LAN-63 and ORA-263 reveal an organized deposition through a sequence of actions, including burning, breakage, pigmentation, and placement. These features, and associated communal activities, are very important because they appear to date to the late Intermediate period (ca. 2000 cal b.p.) and have not been identified archaeologically in earlier contexts in the Southern California Bight. They may reflect additional evidence of an increased sedentary nature in Intermediate settlement patterns; certainly, they reflect site structure not seen before.

Van Horn (1987) has argued that Intermediate period sites on the bluff tops (such as LAN-61, LAN-63, and LAN-64) were created by periodic, short-term visits by one or two domestic units. For the occupation prior to 3000 cal b.p., we concur. After this date, however, these settlements underwent a fundamental change, and multiple social groups lived there on extended basis for short periods of time. More than 20 radiocarbon dates, primarily from features at LAN-63 and LAN-64, clustered in a 300-year period around 2000 cal b.p. (Hull and Douglass 2005).

This occupation at LAN-63 and LAN-64 corresponds with a brief period of unusually high precipitation documented by Wigand (2005), roughly between 2100 and 1900 cal b.p. Sites located on the bluff tops were ideally situated for the procurement of resources from two distinct environments: the Ballona wetlands to the north and the vernal pools of the coastal prairie to the south. Macrobotanical evidence from these sites suggests that their inhabitants took advantage of this ecotone, collecting seeds from plants growing around vernal pools and marsh plants from the lagoon. Because of the dramatic increase in rainfall during this brief period, resources in both the wetlands and the coastal prairie would have been at their peak, making the area especially attractive to settlement (Altschul et al. 2007).

Although there have been competing hypotheses related to the functional variation of bluff-top sites and those located below the bluff during the Intermediate period (for a review, see Stoll et al. 2003; see also Altschul et al. 2007), current views of the greater Ballona settlement system suggest that all sites were roughly contemporaneous. Some sites may have been specialized food-collecting and food-processing sites, but the occupants of all Intermediate period sites performed similar types of activities. Data from LAN-63 suggest that this site may have been unique in the Ballona during this period, with more site structure and more evidence of ritual activity than any other contemporary site, but this pattern may simply be a reflection of better preservation of the site and the larger-scaled data recovery efforts that resulted in its complete exposure as part of planned development of the area.

Late Period

The Late period, beginning ca. 1000 cal b.p. and ending with the Cabrillo expedition and the first European contact in a.d. 1542, witnessed extensive population growth along much of the southern California coast. There are more sites and a greater variety of sites with greater internal differentiation dating to the Late period than any other time in prehistory. Villages with complex site layouts and burial grounds with highly variable mortuary treatments appeared, suggesting the development of social differentiation. The Late period component at the Malaga Cove site, Level IV, consisted of a midden measuring more than 4.5 m (15 feet) in thickness and containing large quantities of small, Canaliño (leaf-shaped) projectile points, steatite bowls, mortars, pestles, bone tools, shell fishhooks, and ornaments of bone and shell (Walker 1952). Late period sites elsewhere in the Southern California Bight include fully developed villages with complex site features, suggesting a corresponding differentiation within the social system. During this period, as we discuss below, there appears to have been a more formal placement and differentiation of burials than seen previously along the Southern California Bight, possibly suggesting greater differentiation in social status.

One example of a Late period site, the Sheldon Reservoir site (LAN-26), was located on the east side of Arroyo Seco in Pasadena. This burial ground site was first excavated in 1938 by Edwin Walker. Based on the artifacts recovered at the site, King et al. (1974) dated occupation of the site to between a.d. 1000 and 1769. Two levels excavated at this site yielded 2 cremations and 53 flexed inhumations (Walker 1952:73). Near these burials in the upper level were large, broken stone tools—metates, mortars, and pestles—indicating that the aboriginal custom of "killing" artifacts was part of the funeral rites practiced by this group (Walker 1952:73). The cremations were deposited in such a manner that one of the cremations was completely surrounded by a circle of five small boulders and the second was bounded by a crescent of seven boulders on its western side (Walker 1952:73). A few of these burials were interred with Late period projectile points beside or above them (Walker 1952:73, 79).

The Mulholland site (LAN-246), another Late period site, was a large habitation site located in the Santa Monica Mountains. This site was first excavated by Alex Apostolides in 1963 (Galdikas-Brindamour 1970). Radiocarbon dates obtained from charcoal and human bone indicated that the site was occupied between a.d. 1240 and 1440. Galdikas-Brindamour (1970) argued that the inhabitants were a subgroup of either the Gabrielino/Tongva or the Chumash, in light of the proximity of this site to the cultural boundary separating these two groups. She also argued that the artifact assemblage, soil, midden, and inferred social complexity were indicative of a "multiactivity, sedentary village" with a year-round resident population, although no distinct house floors or house remains were identified (Galdikas-Brindamour 1970:157). Modern looting at this site was a significant problem and very likely affected the artifact and burial recovery.

Another important site dating to the Late period is LAN-1595, thought to be the site of Yaanga, located in downtown Los Angeles near Union Station (Goldberg 1999). Some 14 primary inhumations, 3 cremations, 2 possible cremations, and 2 clusters of scattered human remains were recovered from this site (Goldberg 1999:Table 4.1). All ages except adolescents (13–20 years of age) were represented in the burials; the sexes were found to be relatively evenly represented—4 males and 5 females (Goldberg 1999:Tables 5.5 and 5.6). Unlike some other burial areas from the Late period, only a few of the burials at LAN-1595 had associated artifacts. Unusual items recovered from burial and nonburial contexts included fragmentary elements of basketry, glass and shell beads, complete ground stone tools, red and yellow ocher, stone pipe fragments, and several Tizon Brown Ware ceramic sherds.

Finally, the Encino Village site, LAN-43, was located on the floor of the San Fernando Valley at the northern base of the Santa Monica Mountains, near the boundary of the Fernandeño and Chumash territories (Mason 1986:9; Wheeler 2004:81). The site was first excavated in 1984 by Scientific Resource Surveys, Inc. (SRS), under the supervision of Nancy Whitney-Desautels and Roger Mason (Mason 1986:9). The Encino Village site had two distinct burial areas: one contained 21 inhumations and the second contained approximately 13 cremations (Mason 1986:13; Wheeler 2004:81). Additionally, 11 canid inhumations, 1 canid cremation, and 1 red-tailed hawk inhumation were recovered from this site (Langenwalter 1986:63; Mason 1986:13). Based on radiocarbon dating of features and human bone, this site appeared to date primarily to the Late through Mission periods; a few radiocarbon dates were from the Millingstone and Intermediate periods. The direct radiocarbon dating of human bone dated the burials to three periods: the late Intermediate/early Late period transition, the Protohistoric period, and the Mission period (Taylor et al. 1985).

Late Period Occupation in the Ballona

Whereas population and site density increased in other areas of the Southern California Bight during the Late period, the Ballona was characterized by a quite different pattern. Rather than site numbers increasing, there appears to have been a dramatic contraction in the number of sites occupied after the Intermediate period. There were three sites in the Ballona—all along the edge of the Ballona wetlands—that had good evidence of occupation during the Late period: the Admiralty site (LAN-47), LAN-62, and LAN-211 (see Figure 41 for radiocarbon dates from PVAHP sites). The two sites on the south side of the wetlands—LAN-62 and LAN-211—appear to have functioned as a single community stretching along the base of the bluffs for approximately 1.5 km (ca. 1 mile). In addition, as discussed below, two additional sites on the adjacent bluff tops—LAN-61 and LAN-63—appeared to have isolated evidence of Late period use.

The Admiralty site was investigated in the late 1980s by SRI (Altschul, Ciolek-Torrello, and Homburg 1992). Although only a small fraction of the site was investigated, the information return was high. The site was found to have been occupied for a relatively short period, between approximately a.d. 1050 and 1150. By the time the site was occupied, the Ballona wetlands were in their final stages of sedimentation, and an estuarine lagoon environment prevailed. The prehistoric inhabitants of the site subsisted on plants and animals found in the marsh, particularly shellfish, waterfowl, fish, small mammals, and various seeds and berries. Surprisingly, little evidence of pelagic exploitation was found. In addition, there was no evidence for permanent occupation of the site, although several burials had been encountered nearby during earlier salvage operations. It appeared that the Admiralty site represented a series of temporary camps established along the northern edge of the Ballona lagoon at various times throughout the year when resources were available. Four flaked stone technologies were identified at the site, ranging from finely controlled bifacial and microlith industries to the manufacture of expedient flake tools. The variation in lithic technology was mirrored in the range of lithic raw materials used. Although there were bone tips identified in the collection, there was little evidence of technology related to the manufacture of other goods, including fishhooks and shell beads.

There also appear to have been Late period occupations at LAN-62 and LAN-211, both located across the Ballona wetlands from the Admiralty site, but these were disturbed in many places by subsequent occupations. That said, one of the most important events in the Ballona area during prehistory occurred at LAN-62 during the Late period: the apparent establishment of a formal burial area. During previous periods of occupation throughout the Ballona, deceased members of the community were interred in site middens in a scattered and unorganized fashion. During the Late period, it appears that the community began to concentrate burials in a centralized part of LAN-62, within what is now known as Locus A/B. During the subsequent Protohistoric and Mission periods, burials were placed more and more densely in an increasingly small, restricted and confined space. Although there did not appear to have been a large number of burials in this area dating to the Late period, they were present and appear to be the founding burials for this important burial space at LAN-62. The total number of burials dating to the Late period is unknown because a number of burials do not contain datable grave offerings or they contain datable grave goods that span a long period of time (e.g. Intermediate through Late periods, Late through Mission periods, etc.).

In addition to strong evidence of occupation and use of the Admiralty site, LAN-62, and LAN-211 during the Late period, LAN-61 and LAN-63, overlooking these other sites from the bluff tops, also appeared to have been used during this period. Van Horn (1987) and Van Horn and Murray (1985) both focused their work on the Intermediate period components of these sites and downplayed occupation during subsequent periods. However, analyses by Hull and Douglass (2005) at LAN-63 and by Douglass et al. (2005) at LAN-61 have suggested that there was use of these sites during the Late or possibly Mission periods, based on the presence of triangular and Canaliño Cottonwood arrow-point types. Although Van Horn (1987) and Van Horn and Murray (1985) have argued that use of these arrow-point types ended around a.d. 1000, SRI's work at LAN-62 and LAN-211 suggests that they were used from the late Intermediate period (ca. a.d. 500) through the early nineteenth century. These Cottonwood points appear to have been plentiful in burial contexts dating to the Protohistoric and Mission periods at LAN-62. In addition, there were a few glass trade beads dating to the Mission period found by Van Horn and his colleagues at LAN-63 in the 1980s, which further suggests ephemeral use during the Mission period at the bluff-top site. Therefore, although there are no radiocarbon dates associated with the Late period from these sites, these types of arrow points and other data suggest that these sites were used during the Late, Protohistoric, and/or Mission periods.

Wigand's (2005) climatic reconstruction has provided a clue as to why settlement changed so drastically between 2000 and 1000 cal b.p. He suggested that there was a return to drier conditions by 1000 cal b.p., with less annual precipitation and cyclical episodes of wet climate alternating with extreme drought. The Los Angeles River also may have shifted its course away from the Ballona. These drier, less predictable conditions would have severely impacted vernal pools and reduced associated freshwater and terrestrial resources but would have left salt marshes relatively unaffected. With reduced freshwater inputs, salt marshes may have even expanded during this period. Deteriorating terrestrial conditions may have been one of the reasons for the shift from dispersed settlements at the ecotone between the Ballona wetlands and the coastal prairie to aggregated settlement at the lagoon edge. As the coastal prairie dried up, people may have shifted to the more reliable resources of the salt marshes (Altschul et al. 2007).

Protohistoric through Mission Period

The line between the Late and Protohistoric periods is admittedly arbitrary. The Protohistoric period in the Los Angeles Basin begins with the initial European contact in a.d. 1542 and ends with the establishment of the Mission San Gabriel in 1771, after which direct and recurrent contact between the Gabrielino/Tongva and Spanish settlers in the Los Angeles Basin was established (King 1978). The Mission period (also known as the early Historical period) runs from 1771 until the beginning of the era of secularization in 1834.

The ARCO site, LAN-2682, dates from the Late through Mission periods and is located at the ARCO refinery in Carson, adjacent to the Wilmington–San Pedro wetlands. This site was first discovered in September 1998 during replacement of underground utilities at the refinery. Two distinct components were identified at the site: an upper component containing the remains of at least 10 adult males, 4 adult females, 1 infant, 1 subadult, and 4 adults of indeterminate age that appeared to date to the Protohistoric through Mission periods (ca. a.d. 1680–1810) and a lower, Late period component containing at least 5 adult males, 1 child, and 1 adult of undetermined sex. In addition to 27 burials identified in situ, over 32,000 fragments of human bone were recovered from the mechanically excavated soils that were removed prior to archaeological involvement. Overall, although there was some evidence of tuberculosis and interpersonal violence, the human remains, including teeth, were relatively free of disease (Bonner 2000:157). Although sparse, shell and glass beads, bone wands, steatite eccentrics, basketry, projectile points, and ocher were among the artifacts identified. Luhnow (2000:167) argued that only a few items in the burial area—an incised soapstone tablet fragment, a soapstone eccentric, a deer-tibia wand, and a soapstone pipe—were related to shamanism or ritual. Because of the limited reporting on the excavations, it is difficult to ascertain the importance or context of the burials.

The Medea Creek site, LAN-243, is another important Protohistoric through Mission period site. Located in the Santa Monica Mountains, this site primarily consisted of a burial area that served the local region as well as a nearby village and was probably under the influence of the larger village at Humaliwo (Malibu) (Martz 1984:381). Linda King (1982:35) indicated that the burial area may have been founded by a.d. 1450 and used until approximately a.d. 1800. The burial area at Medea Creek contained an estimated 397 primary and secondary interments clustered in an oval area that measured 20.1 m (east–west) by 9.5 m (north–south) (L. King 1982:36). Clusters of burials may indicate family plots. The tightly confined burials and the discrete boundaries of the burial area indicated some form of fence or enclosure. Preserved redwood in the burial area was suggestive of pole markers, and whalebone planks that had been painted red, found in some surface features, might have been used as individual grave markers (L. King 1982:64). L. King (1982:66–67) made several astute observations regarding the status of the individuals recovered from the burial ground at Medea Creek. Similar to the Mission period burial area at Humaliwo (see below), there appeared to have been marked differences in burial treatment between individuals; some burials (including children) contained significantly more burial items than others. The few artifacts of shamanistic/ceremonial importance were generally recovered with male individuals, whereas basket impressions in asphaltum were common in female burials (L. King 1982:70). As at Humaliwo, some burials associated with higher-status grave goods were buried more deeply than others. Linda King (1982:93, 96) observed that children tended to be more differentiated than adults and that males tended to be buried deeper than females. At Medea Creek, then, Linda King (1982:99) argued that the overall pattern suggested status differentiation based on ascribed status. Of the over 28,000 artifacts collected from Medea Creek, only a few were Hispanic in origin, likely in part because the site was no longer in use by the time mission recruitment occurred in the Santa Monica Mountains.

Finally, Humaliwo (LAN-264), a site occupied for thousands of years, contained an Mission period burial area (as well as a separate Middle period one). This area was excavated in 1972 and contained 137 burials and 59 nonburial features. Based on Historical period artifacts as well as shell beads, it appeared that this burial area was used for a very short period of time, between a.d. 1785 and 1805 (Gamble et al. 1996; King 1996). The health of the Mission period burial population was mixed. Overall, body size during the Historical period appears to have been reduced compared to earlier periods, based on the concordance between temporal differences in long-bone dimensions and tooth size. Walker et al. (1996:37) suggested that this was because of unfavorable environmental stress on the Mission period population at Humaliwo; poor nutrition, for example, can stunt growth. In addition, the presence of inflammatory lesions may indicate the population suffered syphilis and other venereal diseases, introduced by the Spanish. Compared to the Middle period burial population at Humaliwo, however, the Mission period population had less overall evidence of strenuous physical activity and traumatic injury.

The Mission period burial area at Humaliwo offers an important opportunity to understand sociopolitical organization. Gamble (2008:202) argued that the archaeological data from Humaliwo reflect the ethnographic and ethnohistoric accounts of Chumash sociopolitical organization and a disparity of wealth between elites and commoners (see also Gamble et al. 1996; Gamble et al. 2001). Glass beads, shell beads, and other Historical period artifacts were disproportionately distributed in the burial area. Burials with high numbers of grave goods, including individuals of both sexes and all ages, were concentrated in one particular part of the burial area, suggesting that highly ranked, ascribed-status individuals were placed together. In addition, these burials with more highly ranked shell beads were placed deeper in the ground than other burials, which was likely a reflection of the ability of family members to pay grave diggers more baskets (Gamble et al. 2001). Some of these presumed high-status burials also contained redwood planks, associated with the plank canoe (*tomol*), which were controlled by a small number of socially important and wealthy individuals (Gamble et al. 2001).

Protohistoric through Mission Period Occupation in the Ballona

Prior to 2003, when *At the Base of the Bluff* (Altschul et al. 2003) was published, there appeared to be little evidence from the Protohistoric and Mission periods in the Ballona. A few glass beads had been recovered from LAN-61 (Van Horn and Murray 1985), LAN-63 (Van Horn 1987), and LAN-211 (Altschul et al. 2003). In addition, glass beads had been identified at two redeposited runway sites, LAN-1932 and LAN-2676 (Altschul et al. 2003); these materials likely originated at LAN-211 and LAN-62, respectively. The presence of these glass beads led SRI to augment the research design for the project in *At the Base of the Bluff* and to develop models to interpret these findings.

Subsequent data recovery at LAN-62 and LAN-211 below the bluffs, as well as reevaluation of the materials from LAN-61 and LAN-63 on top of the bluffs, offered strong evidence of Protohistoric through Mission period occupations in the Ballona. As discussed in detail in Volume 2 of this series, the most important evidence was a large burial area dating to the Late through Mission periods discovered at LAN-62 during data recovery efforts in 2003 and 2004 (Vargas et al. 2005). As discussed for the Late period occupation of the Ballona earlier in this chapter, this burial area appeared to have been started during the Late period and was used through the early nineteenth century. Although hundreds of burials were present, only about half could be dated to any specific period. Of those that could be dated, a large number appeared to date to the Mission period, based on diagnostic artifacts such as glass and/or shell beads and other Historical period items. The burial area itself was tightly confined three-dimensionally and marked by whalebone. As discussed in Stoll et al. (2003), a Mission period *ranchería* called Guaspet (also known Guasna, see Chapter 8, this volume) was likely located somewhere in the Ballona area and was likely connected to the burial area at LAN-62 (see also Stoll et al. 2009; Chapter 8, this volume). The tightly delimited space used for the burial area, the preponderance of flexed inhumations, and the general patterns of associated grave goods were remarkably similar to the contemporary Chumash burial grounds at Humaliwo (Gamble et al. 2001; Gamble and Russell 2002) and Medea Creek (Martz 1984).

Data recovery at LAN-211 in 2005 (Van Galder et al. 2006) revealed a multicomponent site dating to the Intermediate through Mission periods (and possibly older—the base of the deposit was not exposed) with strong Protohistoric and Mission period occupations, based on the excavation of FB 1(for details see Volume 2, this series). This feature block contained nearly a dozen features (including pits, hearths, and rock clusters) and an extremely dense lithic and faunal collection, many times more dense than what has been found at other sites in the Ballona. This deposit contained numerous projectile points (primarily various types of Cottonwood styles), items of both domestic and ritual use, and debitage representing the entire production sequence. The deposit revealed that subsistence for the occupants of this area during the Mission period included a mixture of native foods as well as nonlocal resources including domesticated cow and sheep/goat and domesticated barley, wheat, and corn (Reddy 2009; see also Chapter 4, this volume).

In addition, there are some data that suggest continued although limited use of bluff-top sites during the Protohistoric through Mission period. The best evidence, though scant, is from LAN-61 (Van Horn and Murray 1985). In their report, Van Horn and Murray (1985) argued that there was little evidence of a Mission period occupation at the site beyond the presence of 10 glass trade beads. However, recent reinterpretation of their report by SRI (Douglass et al. 2005) has identified several lines of evidence that may further strengthen the argument for a Mission period presence at the site. Several features at LAN-61 contained *comales* (flat steatite vessels used for cooking), which are diagnostic to the Mission period (Lynn Gamble, personal communication 2009; Hudson and Blackburn 1983:196–197). The presence of *comales* in feature contexts, rather than simply in the midden, is clear evidence that they were used on-site in domestic activities. In addition, the presence of both Cottonwood and Canaliño projectile points indicated the possibility the site was used through the Mission period. Van Horn and Murray (1985) argued that these points were not used after a.d. 1000, but their abundance in well-dated Mission period contexts at LAN-62 and LAN-211 puts this argument in doubt. The same is true for LAN-63, where Freeman and Van Horn (1987) identified a cluster of Canaliño, Marymount, and Cottonwood projectile points in the central-northern section of the site (Hull and Douglass 2005). Although these projectile points generally date to the Intermediate and Late periods, they were used through the Mission period and may indicate use during that later time. Several glass trade beads dating to the Mission period were also discovered by Van Horn at LAN-63. Overall, the evidence clearly indicates intensive occupation of at least two sites below the bluffs and much more limited use of nearby sites on top of the bluffs during the Protohistoric through Mission period. It is important to add that LAN-61 is located directly above the burial area at LAN-62.

In conclusion, the human occupation of the Southern California Bight over the past approximately 12,000 years has offered considerable variety in land use, sociopolitical organization, and technology. The Ballona, too, has seen human occupation for at least the past 8,000 years and provides evidence of changes in settlement patterns, evolution of the lagoon and wetlands, and land use. Although early inhabitants of the Ballona were likely using the sites as temporary camps, by the Intermediate period, they were living in the area most of the year and organizing their sites very differently from the previous period. By the Late period, the burial area at LAN-62 was established but was not used heavily until the Mission period when hundreds of Gabrielino/Tongva were buried there. Below, we summarize the research goals of the PVAHP as they originally were conceptualized in 1991 and further discuss the evolution of the research goals for the project through time.

Research Goals and Objectives of the Playa Vista Archaeological and Historical Project

Our overarching research goal for the PVAHP was to better understand the place of the Ballona in southern California cultural systems through time. The Ballona has a long record of human occupation (dating back at least 8,000 years) coupled with a vastly changing environment during that time. From early, seasonal occupations by hunter-gatherers on the bluff tops to dense, complex aboriginal occupation during the Mission period, the Ballona has been an important place longer than many other locations in southern California. During this time, there were movements of outside groups to the coast (Takic groups), drastic changes in settlement patterns and site structure, and the emergence of large residential base camps and dispersed communities. By not only discerning the patterns of change and continuity in the Ballona but also comparing them to patterns in other areas of southern California and farther afield, we will come to a more informed understanding of human habitation in the Ballona and its relationship to surrounding regions.

Human-Land Relationships

A major research goal of the PVAHP was to reconstruct the paleoenvironment of the Ballona and to determine whether additional work was warranted to search for buried cultural deposits (Altschul et al. 1991). When SRI began working in the Ballona, numerous archaeological surveys of the region, spanning nearly 40 years, had been conducted. All these surveys focused on the surface, with very little attention to buried sites, even though much of the surface of the PVAHP area was buried under buildings, asphalt, and fill. Although many sites had been recorded on the bluff tops, few had been encountered in the wetlands or along the banks of Ballona or Centinela Creeks. However, our work at the Admiralty site, located on the north edge of the Ballona Lagoon and outside the PVAHP (Altschul, Ciolek-Torrello, and Homburg 1992), convinced us that more sites might be found along the edges of the lagoon and the banks of the creeks. Moreover, we hypothesized that as sea level rose and more sediment from Ballona and Centinela Creeks filled the lagoon during the Holocene, the border of the lagoon would have retreated westward, stabilizing at intervals as climatic and tectonic conditions dictated. We expected that if we could define these stable lagoon edges, then through various geotechnical methods, we should be able to find buried sites that had limited surface expression.

In addition, PVAHP research on human-land relationships focused on subsistence. For example, what were the long-term adaptations to an estuarine resource base, and how was the changing landscape used during the time of human occupation in the Ballona? We also compared and contrasted these patterns with regional subsistence patterns across prehistoric California and in coastal settings in other parts of the world.

Paleoenvironment

The first step in meeting our overall objective was to develop a study that could obtain data for paleotopographic and paleoecological reconstruction. The Quaternary history of the Ballona Lagoon was characterized by environmental changes. Most important were the shift from an open lagoon to an estuarine environment and the migrations of the Los Angeles River (see Altschul et al. 2007). These changes were the results of the complex interactions of lowering sea level, rapid uplift, subsidence, and floods. These environmental changes had profound effects on prehistoric settlement and resource procurement in the region. Volume 1 of this series addresses research questions related to the paleoenvironmental reconstruction of the Ballona and how it related to prehistoric occupation in the area.

Prehistoric Subsistence

When we first developed the research design, our understanding of prehistoric subsistence was that there was a shift from terrestrial to aquatic resources between the late Millingstone period and the Late period (Altschul et al. 1991). This shift was thought to have been associated with a change in settlement preference from the bluffs to the lagoon. Although we documented shifts in subsistence through time, they were much more complex than previously thought, with apparent differences in subsistence strategies above and below the bluffs, as well as changes through time. We now have a more in-depth understanding of subsistence trends in the Ballona. Additionally, these data can be used to test recent models of subsistence in coastal settings as well as regional models.

As part of our research on subsistence, we studied several broad topics using PVAHP data. The first topic was related to the costly-signaling model, which has been proposed to explain certain subsistence trends during the middle Holocene in California and the Great Basin. Costly-signaling theory has been used to explain the increase in hunting of highly ranked terrestrial mammals (namely, artiodactyls) in central California and the Great Basin in the middle Holocene (ca. 4000 cal b.p) (Hildebrandt and McGuire 2002; McGuire and Hildebrandt 1994, 2005). At the same time, use of acorns increased. By 1000 cal b.p. (during the late Holocene), Hildebrandt and McGuire (2002) argued there was a decrease in hunting large game (see also McGuire and Hildebrandt 2005). Hunting artiodactyls is a seemingly inefficient subsistence activity, as it requires more skill and a greater expenditure of effort compared to hunting small mammals or acquiring other protein sources. Hunting artiodactyls, argued McGuire and Hildebrandt (2005:698), was a way of communicating information to potential mates, allies, and competitors about personal attributes, such as hunting ability, leadership, cognitive skills, and generosity. Hunting larger animals uses meat as a medium of communication. McGuire and Hildebrandt (2005:695) have argued that these changes in subsistence were related to a shift in foraging currencies from calories to prestige. Other scholars, using different data sets from central California, however, have rejected this theory and argued for continuity in artiodactyl exploitation through time (Jones, Fitzgerald, et al. 2002; Jones, Porcasi, et al. 2008). One focus in our research was to examine these different trends in light of PVAHP data. How do patterns in the Ballona compare to those in central California? Did artiodactyl hunting rise during the middle Holocene in the Ballona, or at any other time? Was large-game hunting consistent through time, or were there variations to the pattern? What do the PVAHP data suggest about using costly-signaling theory to interpret subsistence activities along coastal southern California?

A second research topic focused on the intensity of the exploitation of marine resources over time in the Ballona. During the 8,000 years of recorded human occupation in the Ballona, the Ballona Lagoon evolved from an open bay to a sediment-choked estuary. How did these marked changes in the local landscape affect the exploitation of marine and estuarine resources? Were there small, gradual changes in the harvesting of marine resources, such as those seen at Diablo Canyon (Jones, Porcasi, et al. 2008), which suggested reliable resources that could accommodate increased harvesting pressure? Or, alternatively, were there major reorganizations of subsistence behavior? Oceanic travel between the coast and nearby islands, such as Santa Catalina, has been documented through the presence of steatite objects found on mainland sites dating at least as far back as the Intermediate period. Plank canoes, which are associated with pelagic fishing in the neighboring Chumash region to the north, have been documented at least as far back as the late Intermediate period about 1,300 years ago (Arnold 2007; Des Lauriers 2005; Gamble 2002). Was offshore fishing and hunting marine mammals important in the Ballona, and if so, when? Is there physical evidence of offshore fishing, and how does it compare to that of other regions in coastal southern California? For example, what evidence is there of compound fishhooks, simple fishhooks, harpoons, nets, or other fishing implements?

Plant use was another research topic of note. As a marker for adaptive strategies, plant use is used infrequently, primarily because of the lack of direct data and poor resolution for regional markers. Nonetheless, there have been observations at a gross level that associate nut use and its intensification during the Millingstone and Intermediate periods. Macrobotanical data from coastal southern California are markedly distinct from those in central and northern coastal California in terms of nut use. Nonetheless, scholars have applied models uncritically across coastal California. What was the nature of plant and nut use through time in the Ballona, and how does it compare to that in other areas? If there is evidence of intensified native-plant exploitation during the Protohistoric or Mission periods, is there associated evidence for the cultivation of plants?

Another topic related to culture contact and use of food by aboriginal groups in the Ballona. How did food preparation, use, and preferences change through time? How did food habits change through time as groups in the Ballona came into contact with other groups? There were two main contexts of culture contact in the Ballona. First, it has been hypothesized that Takic groups entered the Los Angeles Basin at the end of the Millingstone period (as discussed in the first section of this chapter) or sometime in the Intermediate period. The Takic intrusion has been associated with important changes in material culture and settlement. Were there associated changes in subsistence during this period as well? Second, Hispanic settlers entered the Los Angeles Basin in the 1770s and were using the Ballona before 1800 as communal pastureland. There is documented evidence of Hispanic ranchers, associated with the Rancho de los Quintos, actively herding animals in the Ballona by the early 1800s. What effect did this have on the subsistence strategies of the native inhabitants of the Ballona? Several scholars (Hackel 2005; Larson et al. 1994; Milliken 1995) have argued that, during the Mission period, the large increase in both farming and herding of cattle, sheep, and horses had a deleterious effect on the ability of Native Californians to continue their traditional subsistence patterns. What subsistence trends do we see during these periods of culture contact and social change? In what ways were new foods, if any, used and incorporated into the diet? What previous subsistence patterns, if any, ceased? Were native-plant populations in the Ballona affected by contact and the establishment of Hispanic settlement in the area? Do we see the effects of Hispanic contact in the macrobotanical record?

Related to subsistence, how were plants used in contexts unrelated to consumption? How were foods used in offerings, caches, and other features? The burial area at LAN-62, dating primarily to the Protohistoric through Mission period (and which may include Late period burials), has offered good data to study this topic: large densities of floral remains were associated with the burial area.

Finally, the health of the past inhabitants was directly related, in part, to subsistence. By studying the human remains of past inhabitants of the Ballona, we were better able to evaluate levels of nourishment and understand signs of stress.

Culture History and Cultural Dynamics of Prehistoric Settlement

Research questions related to this theme were organized into the following subthemes: chronology; technology, site function, and cultural interaction; cultural affiliation; prehistoric settlement, community, and persistent places; and culture adaptation.

Chronology

Like most archaeologists, we began our research with a focus on time and space. Where and when did people live in the area, and how did this compare to adjacent areas? Perhaps the most important chronological issue was building a local chronology. When we began our research in 1989, only a handful of absolute dates were available for the entire region, and the chronology for the Los Angeles Basin was based largely on comparison with the Chumash chronology. Previous research suggested a number of specific chronological issues:

1. Was there evidence for Early Man in the Ballona?
2. When was the Ballona Lagoon formed?
3. When did it become a sediment-choked estuary?
4. Can we date the periods when the Los Angeles River flowed into the Ballona?
5. Was there evidence of a Paleocoastal occupation?
6. How extensive was the Millingstone period occupation, and was there a hiatus in occupation during the Millingstone period as suggested by Van Horn?
7. Was there a retrenchment in occupation during the Intermediate period similar to other coastal lagoon areas in the Los Angeles Basin, and when did evidence for the Takic intrusion appear?
8. Was there an expansion of occupation in the Late period similar to other nearby areas?
9. Was the Ballona abandoned in the Late period, or were there Protohistoric, Mission, or Rancho (Mexican) period occupations?

The very limited chronological data available in 1991 suggested that occupation of the nearby Westchester Bluffs began during the Millingstone period, sometime between 5500 and 3000 b.c., and ended at the beginning of the Late period, ca. a.d. 1000. Below the bluffs, occupation appeared to have begun when the bluffs were abandoned, ca. a.d. 1000, with the possible exception of the area where Centinela Creek empties into the Ballona Lagoon. In 1991, it was unclear whether the hints of early occupation found at LAN-62 were an anomaly or the rule.

Today, we know that the earliest occupation in the Ballona occurred on the bluff tops on either side of the Lincoln Gap, which sits just above LAN-62. Radiocarbon dates from LAN-64 have provided strong evidence that small groups seasonally camped in this area more than 8,000 years ago. All sites below the bluff were occupied at least as far back as the Intermediate period (1000 b.c.–a.d. 1000); some sites (including LAN-54 and LAN-62) were occupied thousands of years earlier.

At the other end of the chronological span, no evidence has been found for the Mission period village of Sa'angna (Altschul et al. 1991; McCawley 1996; Stoll et al. 2003; Van Horn and White 1997b; Vargas 2003), which was reported to have been present in the Ballona (Johnston 1962). Instead, archaeological investigations revealed substantial evidence for a Mission period occupation that our ethnohistoric research suggested was associated with the village of Guaspet (Stoll et al. 2009). McCawley (1996) first speculated about a possible connection to a village named Waachnga. Citing ethnographic descriptions of the name Waachnga, variant spellings of the name in the Mission San Gabriel records, and the *diseño* for the Rancho Sausal Redondo, McCawley first suggested a possible tie to the village of Guaspet. Van Horn and White (1997b) disputed McCawley's suggestion, citing problems with how McCawley read the *diseño* and questioned the meaning of the name Guaspita, which is shown on the *diseño*. In the course of the PVAHP, more-intensive research with various Mission period documents and other copies of the *diseños* for the various Hispanic ranchos located in the area has bolstered McCawley's argument for the location of a village named Guaspet somewhere in or near the PVAHP area. When initial testing at LAN-211 and LAN-1932 revealed strong evidence of occupation during the Protohistoric through Mission periods, we created a cultural-adaptation model to guide subsequent intensive archaeological investigations at these sites (Vargas 2003; Vargas et al. 2003). This model was expanded to include the burial ground at LAN-62 after Protohistoric through Mission period remains were found there during data recovery. These models are further discussed below.

Regional models of Protohistoric through Mission period occupation of southern California are tenuous or lacking. Most often, a Protohistoric or Mission period component of a site may be indicated by the presence of glass trade beads or temporally sensitive shell beads but cannot be discerned from the rest of the archaeological record. Unfortunately, many mainland sites in southern California have been subjected to years of destruction and mixing from bioturbation. In portions of LAN-211 and LAN-62, we uncovered intact deposits dating to the Protohistoric through Mission period; these have provided a unique opportunity to study this period. The ethnohistoric record for the Los Angeles Basin is based largely on data collected decades after the end of the Native Californian occupation of the area. Rather than using the historical record as a tool for explaining the archaeological record, our approach has been to move back and forth between the archaeological and ethnohistoric records and to compare the results of both.

Technology, Site Function, and Cultural Interaction

From chronology, we moved on to technology. Previous work at bluff-top sites by David Van Horn and his colleagues (Van Horn 1987; Van Horn and Murray 1984, 1985; Van Horn and White 1997b) and SRI's work at the nearby Admiralty site (Altschul, Ciolek-Torrello, and Homburg 1992) suggested that the Ballona area was characterized by a material culture unlike that found elsewhere along the coast. The development of a small flaked stone tool (microlith) industry, apparently unrelated to the one developed on Santa Cruz Island, suggested that cultural adaptation in the Ballona area involved a unique economic adaption. As a result of more-recent work as part of the PVAHP and other related data recovery excavations in the Ballona (such as data recovery at LAN-63 and LAN-64 on the bluff tops), it is apparent that microlith technology was not as prevalent as previously thought. Research questions related to technology centered on how prevalent and localized this tradition was; whether other facets of material culture distinguished the Ballona from other groups; why this tradition may have appeared; and how the technology of the Ballona related to that of inland sites, both economically and socially.

Several additional research questions were related to lithic technology. Across southern California, there is a general dearth of evidence of tool production, as opposed to simple maintenance of tools, from the Millingstone and early Intermediate periods (before ca. 2000 cal b.p.). What is the evidence of lithic production in the Ballona before the late Intermediate period?

It has been argued that the bow and arrow arrived in southern California around a.d. 500, during the late Intermediate period (Byrd and Raab 2007; Koerper, Schroth, et al. 1996; Koerper, Mason, and Peterson 2002; Kroeber 1925). Of the hundreds of arrow points documented during the PVAHP, two arrow points have been identified from contexts dating to the early Intermediate period (see Volume 3, this series). How strong is the evidence that these points date to before a.d. 500? What evidence from sites outside the PVAHP is related to this issue?

Projectile point types offer a variety of information, including technological data, as well as inferences about sociocultural identity and trade. During analysis of concave-base Cottonwood Triangular projectile points, significant variations in length and thickness were found. What are the implications of these variations?

The use of raw materials, both local and nonlocal, in lithic tool production varied through time in the analyzed collection from the PVAHP. What does this imply about trade and exchange through time in the Ballona? How do these patterns compare to those in other areas of the Los Angeles Basin? Did patterns of stone resource use change through time? What role did PVAHP sites play in the provisioning, exploitation, and consumption of raw-material resources?

Ground stone tools were also important for southern California hunter-gatherers for thousands of years. Ground stone tools were used for a variety of purposes, from grinding seeds and nuts, to processing small animals, grinding pigments, and making other tools. Given an occupation dating from ca. 6000 cal b.p. through the Mission period in the PVAHP area, what patterns and functions can be seen at sites dating to the different periods? Were there differences in the function and storage of ground stone through time? In particular, was there a shift from small-seed grinding implements (manos and metates) to nut-grinding tools (mortars and pestles), as hypothesized for adjacent areas? Were ground stone tools connected to particular sites or settings?

In addition, what do the lithic tools in the PVAHP collection suggest about cultural connections, identity, trade, and interaction with other regions and cultural groups? For example, Canaliño points are culturally tied to the Chumash, who were located north of the project area. Other types of Cottonwood, Desert Side-notched, and Rose Spring (along the coast, referred to as Marymount) points are generally associated with inland and desert areas. How do the frequencies of these different types of projectile points compare to those at other sites in the Los Angeles Basin, and what do the patterns suggest regarding coastal and inland interactions? The same can be asked for nonlithic tools, such as shell beads and simple and compound fishhooks of shell and bone. Shell and bone fishhooks are temporally diagnostic and can be attributed to specific cultural groups. Recent studies of possible culture contact in the Southern California Bight region (e.g., Arnold 2007; Jones and Klar 2005) are good examples of how these types of artifacts can be used to help understand possible culture contact. What is the evidence for shell or bone fishhooks in the Ballona? Was this technology used there? If so, were there changes in their use through time? If so, what might such changes suggest? What about shell beads? There is good evidence that they were manufactured on the northern Channel Islands. Were they also produced in the Ballona?

More generally, these questions are important not only for discussion of possible culture contact but also for a general understanding of fishing technologies used in the Ballona. What were the technologies used for fishing by the inhabitants of the Ballona? What is the evidence for these different technologies? Were there differences in technology that could have been adapted for particular environments (bay/lagoon, nearshore, or pelagic fishing)? Is the evidence of fishing in the Ballona based on technology similar to or different from that found in other areas? What do the results of this comparison suggest?

Finally, technology can be seen not simply through individual artifacts but also through their use and accumulation in feature contexts. Given the hundreds of features identified in the project area, what types of features were present at sites in the project area through time? How did particular types of features, such as thermal features, function through time and did those functions change? Were there differences in the function, organization, or spatial distribution of features through time? Were there specific feature types that may relate to a site's environmental setting (e.g., at the base of the bluffs vs. in the middle of the floodplain)? How do feature types and functions at sites in the project area compare to those of sites on the tops of the bluffs, other nearby Ballona-region sites, and sites farther away?

As suggested above, plank canoes in the Chumash region have been documented as least as far back as 1,300 years ago (Arnold 2007; Des Lauriers 2005; Fagan 2004; Gamble 2002). These plank canoes were designed to carry heavy loads and/or numerous passengers and were constructed from dozens of planed redwood planks. Arnold (2007), Gamble et al. (2001), and others have argued that plank-canoe ownership was associated with high-status individuals because of the difficulty in obtaining the construction materials and time and skill needed to build them. Arnold (2007:197–200) offered a detailed discussion of the material remains associated with plank-canoe construction, including large cakes of asphaltum, asphaltum plugs, redwood planks, planing tools (such as bone wedges and lithic or clamshell adzes), and milkweed fibers woven into line. Des Lauriers (2005) has documented other types of watercraft besides plank canoes, including tule and dugout canoes, which were simpler and less costly to build. Of course, plank canoes were much more seaworthy than tule or dugout canoes. What is the evidence, either direct or indirect, for plank canoes (including their production) and/or other watercraft in the Ballona?

Cultural Affiliation

Next, we tackled the critical question of the cultural affiliation of the people of the Ballona. According to various sources (e.g., Johnston 1962; McCawley 1996), the Ballona was occupied at the time of Spanish contact by the Gabrielino/Tongva, one of several Shoshonean groups (Takic groups) in southern California. Others (Sutton 2009; Van Horn and Murray 1985) have argued that the Shoshonean influence in the region is much older than previously recognized. Research questions related to cultural affiliation of indigenous groups in the Ballona area included the following:

1. Were the groups occupying sites below the bluffs culturally related to those residing on the bluff tops?

2. Is there evidence for pre-Gabrielino/Tongva or pre-Shoshonean occupation in the area?

3. Can any sites in the area be associated with Guaspet?

4. How far back in time can Gabrielino/Tongva cultural traits be identified in the Ballona?

Previous investigators have argued that throughout prehistory, the Ballona was used by small groups, none of whom lived there year-round. Today, we believe that the contemporaneous settlements above and below the bluffs formed a single larger community that, by the Intermediate period, was sedentary during at least a portion of the year (Altschul et al. 2007).

The important question of Shoshonean influence (that is, of Takic groups) in the region has been debated for more than 100 years. It has been consistently argued that there were two separate cultural groups living in the Los Angeles Basin over the past 8,000 years (Altschul and Grenda 2002). Early in the human habitation of the area, an unnamed cultural group arrived, probably coming down the coast either on foot or by boat, and established itself in the area for thousands of years. The arrival of groups from the Great Basin (the Shoshonean) influenced cultural patterns and traditions in the Los Angeles area and established the cultural group known today as the Gabrielino/Tongva. What evidence do we have for this cultural replacement, and if so, when did it occur? What are the traits associated with the Takic intrusion? What was the result of the Takic intrusion for local populations in the Ballona? Some researchers have noted that individuals of Chumash descent may have resided in the Ballona, along with the Gabrielino/Tongva during the Mission period (King 1994; King and Johnson 1999). Is there archaeological evidence for such cohabitation?

To help answer questions about cultural affiliation for the more-recent Mission period, we used information about Native Californian groups in areas of California documented by Spanish missions between 1769 and 1834. Cultural affiliation, although it can be discussed for all periods, can be more meaningfully addressed for the Protohistoric through Mission period, for which records are available. These records offer much information on cultural affiliation and ties between groups. For example, King (1994) has argued that there were Chumash surnames associated with the *ranchería* of Guaspet, located somewhere in the Ballona. In the same work, he identified Chumash surnames at the nearby *ranchería* of Comicrabit, located somewhere near Santa Monica, north of the Ballona. He has also suggested that there were strong marriage ties between Guaspet and Santa Catalina Island groups. Using this evidence, King (1994:11) has proposed that the presence of Chumash surnames at Gabrielino/Tongva villages in the San Fernando Valley (El Escorpión) and at Comicrabit indicate that "the language boundary between the Chumash and Tongva [Gabrielino/Tongva] did not preclude social interaction." King has also asserted that the Chumash village of Humaliwo was a political center for both Gabrielino/Tongva and Chumash groups. Certainly, mission documents, such as records of baptisms, marriages, and deaths of the inhabitants of the Los Angeles Basin, are important sources of data for understanding cultural affiliation and ties between groups. Other scholars, however, have suggested that once Native Californians moved to the missions and began living there, patterns of marriage changed dramatically from their pre-Hispanic origins (Lightfoot 2005).

During the Mission period, ethnic boundaries across southern California were in continuous flux as a result of a variety of social, economic, and political causes. Certainly, one strong effect on the movement of groups across the greater Los Angeles Basin was Mission San Gabriel. Soon after its establishment in 1771, Mission San Gabriel and, later, Mission San Fernando Rey recruited neophytes (i.e., Native Californians who had been recruited and baptized by the mission) from farther and farther away from the missions proper. As a result, some villages were depopulated, and other ethnic groups may have moved into those vacated areas. For example, the Serrano moved into traditional Gabrielino/Tongva territory. This was certainly true in the traditional eastern Gabrielino/Tongva territory during the latter Mission period, as detailed by Bean and Vane (1995). Important research questions for both LAN-62 and LAN-211 were the following: What evidence of ethnicity exists? Does the evidence suggest that only Gabrielino/Tongva were present at these sites, or is there evidence to suggest the presence of other ethnic groups, such as the Chumash? Along these same lines, what evidence is there of social organization? Are burial patterns similar to those seen in Gabrielino/Tongva territory, or are there elements of those from Chumash territory? Data to answer these questions were derived primarily from the burial ground.

Material culture is certainly one piece of the puzzle for identifying cultural affiliation. Basketry, for example, has been clearly associated with particular cultural groups. Weaving techniques and designs are two important basketry attributes related to cultural affiliation. Projectile points are another important marker of cultural identity. Although not necessarily distinctive to a particular group, in southern California, projectile points do tend to indicate ties to particular areas. In the Mojave Desert north of the San Bernardino Mountains, for example, Cottonwood and Desert Side-notched projectile point types tend to have specific geographic distributions that may indicate ethnic or social differences (Mark Sutton, personal communication 2008). In the PVAHP collection, there were hundreds of Cottonwood projectile points yet only a few Desert Side-notched points. Among Cottonwood projectile points in the PVAHP collection, there were only a few varieties of Canaliño points. What do these patterns indicate, if anything, about cultural affiliation? And, equally important, are these patterns meaningful indicators of cultural affiliations?

Finally, the burial area identified at LAN-62 has offered an opportunity to investigate issues of cultural affiliation, culture contact, social identity, and social organization. Although a large number of burial features in the burial area at LAN-62 could not be attributed to a particular time period, almost all of those that could be dated fell within the Protohistoric and/or subsequent Mission period. Among the many difficulties faced by Native Californians during the Mission period were fluctuating boundaries between ethnic and social groups. King and Johnson (1999) have discussed that, given the surnames in mission records, Chumash may have been living as far south as the Santa Monica area and even in the Ballona. Along the margins of Chumash and Gabrielino/Tongva territories, there was certainly interaction and intermarriage. Gamble et al. (2001), for example, have suggested that the Chumash chief at Humaliwo was from Santa Catalina Island (in Gabrielino/Tongva territory). Mission records suggest that at least one neophyte from Guaspet located in the Ballona, married a Chumash person from Muwu, located near Oxnard and north of Santa Monica Bay (King 1994:93–94). In addition, it is clear that during the Mission period, gentiles (i.e., Native Californians who had not been recruited or baptized by the mission) were working in the fields and homes of ranchos and for the inhabitants of the Pueblo of Los Angeles. Gentiles took on new, Hispanic roles as cowboys, field laborers, and house staff and performed other nontraditional jobs. These arguments and facts suggest that, during the Mission period, there was substantial social and political upheaval among the Chumash and Gabrielino/Tongva, relative to prehistoric times. The burial area at LAN-62 made possible close examination of the social, political, and economic patterns of those buried at that location during the Protohistoric through Mission period. What roles and identities were expressed in burial features at LAN-62? Were they all traditional, or were there examples of more-Hispanic roles and identities? What evidence was there in the burial area of Gabrielino/Tongva and Chumash identities, and how was this expressed? How were traditional and introduced goods and ideas incorporated into the burial area?

Prehistoric Settlement, Community, and Persistent Places

Prehistoric settlement patterns in the Ballona are important aspects of human-land relationships. Certainly, settlement can be viewed in a variety of ways, from the physical relationship between a settlement and the surrounding environment and how people placed themselves across the landscape (à la Willey 1953) to a more culturally focused understanding of how and why the prehistoric inhabitants of the Ballona lived where they did. Since the very beginning of the project, SRI has been interested in understanding both general types of research topics. Traditionally, sites like LAN-62 and LAN-63 have been viewed as "villages" by archaeologists, but the defining traits of villages in southern California and how we identify them archaeologically are unclear. Although we have found deep and extensive middens, hundreds of features associated with daily life, ritual loci, and a highly concentrated burial area at LAN-62, it has been difficult to identify occupation areas in the Ballona that clearly represent what most anthropologists would regard as a village.

Prehistoric communities in the Ballona also have been a topic of research. Early in the project, questions were raised as to whether the sites located on top of and below the bluffs were parts of the same community or were even temporally or culturally related to one another. As our understanding of site chronology in the Ballona has been refined over the years, it has become clear that the majority of sites in the Ballona were occupied during the Intermediate period and that most sites were abandoned during the subsequent Late period. Altschul et al. (2007) have proposed that the cluster of Intermediate period sites near the Lincoln Gap—LAN-62 and LAN-211 below the bluffs and LAN-61, LAN-63, LAN-64, and LAN-206 on top of the bluffs—were part of single large community that was founded in the Millingstone period and persisted into the Late period and included intensive occupations at LAN-62 and LAN-211 and minor components at LAN-61 and LAN-63. Other, smaller communities, such as the upper Centinela Creek community (LAN-60, LAN-193, and LAN-2768), represented a much shorter-lived and more-specialized occupation.

Of all the sites in the project area, LAN-62 appeared to have had the longest occupation, extending from the early nineteenth century back at least 6,000 years. The very thick midden contained strong examples of every major occupational component identified in the Ballona. Certainly, some sites, such as LAN-64, contained significantly older components; however, in the case of LAN-64, there appears to have been a roughly 4,000-year gap in occupation between the early Millingstone and the Intermediate periods. By contrast, LAN-62 appears to have been occupied almost continuously from the late Millingstone through the Mission period and appears to be an example of a persistent place (Schlanger 1992) in the Ballona (see Chapter 3, this volume).

Persistent places, using Schlanger's (1992:97) terminology, are "neither strictly sites (that is, concentrations of cultural material) nor simply features of a landscape. Instead, they represent the conjunction of particular human behaviors on a particular landscape." Schlanger (1992:92) has argued that persistent places can be created in three ways. First, they may be created through the recognition of unique qualities that make particular locations suitable for certain activities. These unique qualities may include the presence of freshwater, open marshland, good farmland, or vantage points. Second, persistent places may be created through cultural remains—such as hearths, shelters, or storage features—that allow and encourage reuse and reoccupation of an area. Third, persistent places may be created by the presence of cultural materials, such as grinding tools, which may be reincorporated into a systemic context through the process of reclamation, recycling, or reuse. Interestingly, Schlanger (1992:107) argued that persistent places evolve functionally through time. She argued that persistent places tend to form at former residential locations that later become peripheral (short-term camps), but others have more recently adapted Schlanger's concept in other contexts. For example, Littleton and Allen (2007) have argued that prehistoric burial areas are good examples of the persistence of place for aboriginal peoples. This concept is expanded further in relation to LAN-62 in the discussion section at the end of this chapter.

Culture Adaptation

Based on the strong evidence of a Protohistoric through Mission period occupation at LAN-211 noted in the testing results, we developed a model of cultural adaptation that could be tested with data from subsequent intensive archaeological investigations at these sites (Vargas 2003; Vargas et al. 2003). These models specifically focused on the late Protohistoric through Mission period. The cultural adaptation model combines the broad issues of subsistence, settlement, and technology under a larger rubric related to culture contact and also incorporates the archaeological, ethnographic, and historical data to present potential scenarios for Mission period occupation in the Ballona area, as well as the accompanying patterns that might be seen in the resulting archaeological record. The scenarios differ largely in the inferred degree of interaction between Native Californians in the Ballona and Missions San Gabriel and San Fernando Rey, the fledgling Pueblo of Los Angeles, or one of the Hispanic ranchos in the area (such as Rancho de los Quintos). The scenarios are Gentile or Renegade, Mission Support, and Rancho or Pueblo Support.

Gentile or Renegade Scenario

According to this model, LAN-62 and LAN-211 were occupied and used by non-Christianized gentiles, ex-neophyte renegades, or fugitive Gabrielino/Tongva. A gentile site is one that was inhabited by native peoples who were not part of the mission system or Pueblo of Los Angeles and lived a traditional lifestyle. Throughout the Mission period, there were hundreds, if not thousands, of native peoples in the Los Angeles Basin who lived outside the direct sphere of Missions San Gabriel and San Fernando Rey. A review of baptismal records clearly shows that although these missions had influence over many *rancherías*, in some cases only a few individuals were recruited, or baptized from these *rancherías*. As a result, although some *ranchería* members may have chosen to enter the mission system, at least some in that community may have decided to stay independent and outside the direct influence of the missions. Another possibility is that LAN-62 and LAN-211 were renegade or fugitive sites: that is, sites created by estranged neophytes or runaways from the missions living in the Ballona to escape retribution. Once natives entered the missions, were baptized, and became neophytes, it was understood that they were to maintain residence at the mission or mission establishment, except during brief trips to collect resources or to visit relatives (Engelhardt 1927a; Johnston 1962; McCawley 1996).

There are few written accounts of military forays to gather runaways or renegade individuals. Nonetheless, it is clear from the writings of the missionary fathers that desertion was a problem. At Mission San Gabriel, until the year 1817, almost 10 percent of all converts deserted. Several small military incursions, such as the one in 1811 to the *rancherías* east of Mission San Gabriel, were usually in response to attacks on the mission or on other neophyte groups.

If Gabrielino/Tongva renegades were only briefly associated with the mission, it might be nearly impossible to differentiate the signature of a renegade site from one that was occupied by Gabrielino/Tongva gentiles, and hence they are combined in this scenario. The difference between these occupations might be a matter of degree. An ex-neophyte renegade site might contain slightly more evidence of familiarity with mission commodities and practices, but there would be very little, if any, evidence of direct contact with Hispanic culture. Very few gentile settlements dating to the Mission period are known in the Los Angeles Basin, and those that have been identified are poorly represented in the literature. The archaeological work that has been done at these sites generally lack conclusions regarding important considerations such as site structure and integrity.

It would be expected that occupants at gentile and/or renegade sites would have a generalized procurement strategy and have used a variety of plant and animal taxa. Because of the constricted range in which these resources could be collected and the associated subsistence stress (overpredation), certain taxa might be represented by more-juvenile or smaller individuals. Diet breadth expands predictably in response to constricted environmental circumstances (see Raab 1996; Raab, Porcasi, et al. 1995). Domesticated animals probably would be found in gentile sites only in small quantities, if at all. At a renegade site, a slightly higher number of domesticates might be present because ex-neophytes might have been more familiar with introduced plants and animals. The presence of significant numbers of domesticated animal remains might indicate that the former neophytes were raiding cattle or other animals, a practice that was known to occur (Engelhardt 1927a; Lightfoot 1995), even in the Ballona (Mason 2004). If domesticates were found, however, the animals would likely have been butchered by traditional methods and a native tool kit.

In addition, in comparing this model to others discussed below, one would expect permanent, traditional settlement patterns, including structured use of space within the site; permanent houses in traditional styles; well-developed, diverse middens; numerous features representing a wide range of functions; and traditional burial practices and ceremonial features.

Overall, although the difference in the archaeological signature between a renegade and a gentile site may be a matter of degree, we do expect some indication of contact with Hispanic lifeways, even if indirect. At renegade sites, we would expect the Hispanic influence to be more profound. Renegades, we assume, had some type of early relationship with the mission or Pueblo of Los Angeles, however brief, and through this were exposed to Hispanic technology and goods. In both types of sites, the faunal collection should reflect a generalized subsistence strategy with permanent rather than seasonal occupation of the site, and many, if not most, of the lifeways expressed in the material culture found at the site should reflect the persistence of traditional practices.

Mission Support Scenario

In the Mission Support scenario, we hypothesize that neophytes in good standing and associated with Mission San Gabriel or Mission San Fernando Rey might have established a temporary camp in the Ballona for subsistence procurement or in support of mission activities, such as basketmaking or ceramic manufacture. This scenario follows the view that Native Americans during the Mission period were relatively autonomous and able to continue many of their traditional practices outside and inside Hispanic institutions during the Mission period.

Mission records (an admittedly biased source) from the early years of the mission system stated that native peoples were not forced into the Christian fold. Engelhardt (1927a), who wrote extensively on the practices at Mission San Gabriel, maintained that the Gabrielino/Tongva were free to choose whether to become Christians. Although once gentiles chose to become converted, they were obligated to remain at the mission, the image of impoverished natives incarcerated within the mission walls is clearly inaccurate. Recent studies have indicated that some native cultural practices were tolerated, if not encouraged, by the fathers inside the mission system. On occasion, generally when prompted by necessity, neophytes were encouraged to leave the missions temporarily so that they could return to traditional subsistence practices to supplement meager diets. Mission Support sites, we expect, would have been short-term camps located within easy traveling distance from the host mission and established for the acquisition of traditional resources in areas where these had been traditionally exploited. There, neophytes might have pursued such activities as fishing, hunting, plant harvesting, shellfish collecting, and basketmaking.

Site camps would have lacked permanent structures, and middens would have been poorly developed and relatively homogeneous, with a limited number of animal and plant species. Because these sites would have been used for only a short period, they should reflect temporary (possibly seasonal) use and should contain evidence of highly focused subsistence activity and moderate or sustained contact with the missions. There would also be limited evidence of ritual activity or structured use of space. In addition, there would be evidence of a focused strategy of procurement and a low diversity of faunal remains. Although neophytes would probably have had greater access to domesticated plants and animals than gentiles, scant evidence of domesticates should be found in these temporary camps, especially if the function of the camps was to supplement the mission diet during times of shortage. We expect that during the early years of the missions, neophytes would have used a traditional tool kit, particularly in pursuit of traditional foods and raw materials. Lithic technology should reflect expedient manufacture and use of stone, and debitage should dominate the lithic assemblage at these types of sites.

If nontraditional artifacts are found, they probably would be objects associated with mission-related tasks or beliefs, such as crucifixes or rosary beads. Human burials should be few or absent at a Mission Support site because Catholic practices necessitated burial at the mission cemetery. If people died away from the mission or their native *ranchería*, they might have been cremated. If an interment did take place at a Mission Support site, we hypothesize that mortuary practices might mimic Christian styles, with few or no native artifacts interred with individuals. We would not expect to find evidence of traditional ritual activity at the site, following a neophyte's conversion to Christianity. However, Hackel (2003) and Douglass et al. (2007), among others, have argued that although neophytes were generally well tied to the mission and performed Catholic rituals, they also maintained strong Native American identities and continued to perform traditional rituals and practices. Raab (2009a) has argued that the Chinigchinich ceremonialism that flourished during the Protohistoric through Mission period, though containing attributes rooted strongly in traditional ritual behavior, was also a "crisis religion," serving as a reaction to the intrusion of Hispanic colonialists. As a result, even in a temporary, seasonal habitation site occupied by neophytes, there might have been a mixture of Catholic and traditional ritual activity and paraphernalia.

In conclusion, a Mission Support site may appear very similar to a prehistoric seasonal or temporary resource-extraction camp, except for the presence of Hispanic items and perhaps Christian burial practices. Settlement would probably have been temporary, with little site structure, a poorly developed midden, few features representing a restricted range of functions, and few or no burials located in an unstructured fashion or with possible Christian emphasis on burial position and ceremony. A close relationship with either Mission San Fernando Rey or Mission San Gabriel may be reflected in the faunal collection, if evidence of a focused procurement strategy is discovered. That said, there probably would be few or no remains of domesticated fauna or plants, but rather the subsistence record should show evidence of a procurement strategy focused on a small set of native plant and animal foods.

Rancho or Pueblo Support Scenario

Finally, in the Rancho or Pueblo Support scenario, we hypothesize that the Mission period components of LAN-211 and LAN-62 were created by a group of gentiles, or possibly ex-neophytes, who were employed by Hispanic landowners. This scenario departs from the previous two scenarios in that the defining factor is not the type of cultural interaction between natives and the padres at Missions San Gabriel and San Fernando Rey but the relationship between Native Californians and their employers.

Native labor was economically important throughout California, and it was especially so in the Los Angeles Basin. Most of the labor involved in the founding of the Pueblo of Los Angeles was performed by non-Christian Gabrielino/Tongva (Engelhardt 1927a). The pueblo was founded at the location of the Gabrielino/Tongva village of Yaanga in 1781; not long after, gentiles were regularly employed in the pastures, fields, and vineyards surrounding the little town. Communications between mission fathers, as well as journals and the recollections of visitors to the area, described the economic relationship between the budding pueblo and its native laborers (Engelhardt 1927a; Greenwood 1989; Phillips 1980). Around the Pueblo of Los Angeles, gentiles were able to establish labor relationships with pueblo settlers and to maintain a certain autonomy from the mission system. These laborers may have had a difficult time maintaining traditional subsistence practices once they entered this system and, as a result, those practices may have become supplementary. Gentiles worked as laborers in the fields and received one-third to one-half of the crops they harvested (Hackel 2005:311). These crops primarily were domesticated wheat, barley, and corn. During the late eighteenth and early nineteenth centuries, gentile Gabrielino/Tongva also worked as *vaqueros* and cooks and in a variety of other economic capacities and became important parts of the pueblo community (Hackel 2005:311). The settlement of Yaanga remained on the outskirts of the pueblo for many years, inhabited by native laborers and domestic servants. Mission records documented 65 baptisms at the village of Yaanga itself (as opposed to the normal pattern of baptism at the mission), and those baptized were from a large number of other villages, suggesting that Yaanga was a destination for Gabrielino/Tongva, perhaps those looking for work (Douglass 2009).

In 2003, when we wrote the research design for LAN-211, we knew that there was anecdotal evidence of Native Californian workers at Rancho la Ballona having lived at the base of the bluff (Stoll et al. 2003). However, as determined from the evidence collected during data recovery at both LAN-211 and LAN-62, it is now clear that those workers, who resided in the Ballona from roughly 1820 through perhaps the 1830s or 1840s, were not native to the Ballona and had probably been brought to the area from elsewhere. Stoll et al. (2003) has argued that some of these native laborers may have been Luiseño from the Temecula area well to the east of the Ballona. In addition, Stoll et al. (2009) have documented that one baptism performed at Rancho la Ballona was actually of a neophyte from Mission San Diego rather than a Native Californian from the Ballona region. By contrast, archaeological and archival research indicates that LAN-211 and LAN-62 were used by the native Gabrielino/Tongva inhabitants until sometime in the 1810s, before the establishment of Rancho la Ballona. Native Californian remains from the Rancho period at the Hammock Street site (LAN-194) have been identified, but little documentation of this work is available. We found no evidence of Gabrielino/Tongva occupation in the Ballona after this time. Stoll et al. (2009:6) have suggested that from perhaps 1801 to 1809, Rancho de los Quintos operated in the Ballona and, as discussed in the previous chapter, the Quinto Zúñiga family had close contact with the inhabitants of the *ranchería* of Guaspet. Mason (2004) has documented the Rancho de los Quintos, noting that it is not exactly clear when the rancho was established, although it was likely around the time that Tapia's Rancho Malibu Topanga Sequit was established, ca. 1804. If the inhabitants of LAN-62 and LAN-211 had close contact with a rancho, it is clear that it probably would have been Rancho de los Quintos.

There are two possible site types for this scenario: permanent and temporary. In a permanent setting, native laborers essentially "belonged" to a rancho, working and living there permanently. In the temporary site type, native laborers were employed temporarily, perhaps seasonally, and when released, returned to their native village, or *ranchería*. We suggest that the length of employment would have had a significant bearing on site structure: temporary sites would not have the same depth of deposit or diversity of features and artifacts that would be expected at a permanent workers' settlement. The Hammock Street site may represent an encampment of Native Californian ranch workers, as might the isolated evidence found at LAN-193 and LAN-2678.

The subsistence remains for this scenario ought to be distinct from the other proposed scenarios. Although some traditional subsistence practices probably continued, one of the defining characteristics of this site type would be relatively large quantities of domesticated animals in the faunal collection. As discussed above, native ranch workers and fieldworkers were often paid for their services in goods, such as a portion of the crops they grew (Engelhardt 1927a; Greenwood 1989; Hackel 2005; Johnston 1962; Kealhofer 1991; McCawley 1996; Phillips 1980). Beef would be expected to have made up a significant portion of the rancho workers' diet. Processing of food and other materials would probably also be different in this scenario; a much larger percentage of the faunal material would probably have been butchered using Hispanic techniques and metal tools. Thus, domesticates would be expected to make up a much larger percentage of this collection relative to those from the other scenarios.

Stone tools found in Mission period sites should reflect a transition toward lower-quality, more-expedient tool types. Lithic collections should be dominated by debitage and utilized flakes and include little in the way of formal tools. Metal knives would have been present at ranchos and might have been given in payment to native laborers; thus, stone tool collections are likely to be dominated by expedient cutting and processing artifacts, such as utilized flakes used for processing meat rather than butchering. Locally available materials would probably dominate the collection, and nontraditional materials, such as ceramics and glass, would have been introduced.

In summary, the Rancho or Pueblo Support scenario would in some ways appear similar to the Mission Support model, with perhaps a temporary habitation area and expedient technology dominating the lithic collection. Unlike either the Mission Support or the Gentile or Renegade scenario, however, we would expect to find a much larger collection of domesticated plants and faunal remains at such a site, as well as a more diverse array of Hispanic tools, clothing, building materials, and other implements. Burials and ritual activity may be traditional, but burials may contain a wider array of Hispanic items, perhaps associated with particular trades related to ranching and farming.

Discussion

On the basis of testing, we expected to find Mission period components at LAN-211 during data recovery. Data recovery at LAN-211 (Van Galder et al. 2006) exposed a multicomponent site with evidence of occupation during the Intermediate, Late, Protohistoric, and Mission periods. Previous investigations (Freeman et al. 1987; Peck 1947) did not uncover any evidence of a Mission period occupation at LAN-62. Because our evaluation of the site was based largely on these previous studies, a Mission period occupation was not suspected until after full-scale data recovery investigations had been started. Data recovery at LAN-62 (Vargas et al. 2005), however, revealed a deep, stratified midden dating to the late Millingstone through Mission periods in addition to a large, complex burial area dating to the Late through Mission periods.

Given the data we collected at LAN-62 and LAN-211 during data recovery, the three models proposed in 2003 and described in the previous section may not provide sufficient contexts for evaluating aspects of the remains identified at these sites. In part, this possible insufficiency is due either to new data identified at the sites (such as the burial area) or to new archival information that has come to light (e.g., Stoll et al. 2009). For example, these three models are portrayed generally in black-and-white terms; that is, LAN-211 was modeled to have been used by either Gentile or Renegade groups, Rancho or Pueblo Support groups, or Mission Support groups. By extension, the burial area at LAN-62, would have been used by one of these groups. Although there are expected to be blurred lines between the three types, in reality these areas may have been used by a mixture of these groups at any given point in time. Additionally, over the course of the Mission period, individual natives probably changed their identities in a fluid manner. The burial area at LAN-62 contained a mixture of burials, including some with artifacts of Hispanic origin and others with only aboriginal artifacts. It also is likely that the burial area drew Native Californians from a much larger area than the sites in the project area. As a result, the grave goods associated with burials may suggest that there were Gabrielino/Tongva buried at LAN-62 who were renegades and/or gentiles, workers at nearby ranchos and the Pueblo of Los Angeles, and possibly individuals associated with Missions San Gabriel or San Fernando Rey. In the case of LAN-211, the Mission period component probably was used before and after the rancho nearest to the site, Rancho de los Quintos, was in existence. Rancho de los Quintos was in operation in the Ballona from approximately 1804 to roughly 1809. Although there were a few baptisms of Guaspet residents during the 1790s, a large spike in baptisms occurred between 1803 and 1805, during the early years of Rancho de los Quintos (Stoll et al. 2009). This was probably not a coincidence. As a result, there may be evidence at LAN-211 for gentiles, neophytes, and/or Native Californians who worked on ranchos or at the pueblo. As mentioned above in relation to the LAN-62 burial area, identities of individuals from LAN-211 may have evolved during their lives. During the early part of the Mission period prior to 1790, the residents of Guaspet may have had very little direct contact with the padres or ranchers. Contact may have increased in the 1790s when the Ballona was used for grazing the herds of the Pueblo of Los Angeles, and gentiles from LAN-211 may have begun working at Rancho de los Quintos once it was established, creating a pattern at the site of both gentile and rancho-supported people.

Generally, these three models of cultural adaptation are important, as they are guidelines for interpreting the contexts of LAN-211 and LAN-62. There was probably a plurality of social identities at present both sites, rather than a single identity. Following Silliman (2005, 2009), the Mission period in southern California was a time of colonialism rather than simple culture contact. Rather than short-term encounters, as culture contact implies, the Mission period was a time of sustained and severe alteration of the physical, social, and political arena in which Native Californians in the Los Angeles Basin had lived for thousands of years. The colonialism of the Los Angeles area was a process of cultural entanglement in which the native inhabitants were incorporated into a system of labor, religious conversion, and exploitation (Silliman 2005:62). During this period, Native Californians adapted to colonialism in a variety of ways, including the three models discussed above but they also probably changed their identities and adaptations multiple times through their lives as their situations changed. Although the Mission period started in the Los Angeles Basin in 1771 with the establishment of Mission San Gabriel, this was too far removed to have much influence in the Ballona. Even after the establishment of the Pueblo of Los Angeles in 1781, it wasn't until the early 1800s—roughly a generation after the establishment of the mission—that native residents of the Ballona were incorporated more formally into colonial systems such as the pueblo, the missions, and local ranchos.

Overall, then, we have used these three models as guides to our understanding of the Mission period as expressed archaeologically within the project area. As discussed above, however, the complexities of the patterns found at LAN-211 and LAN-62 are numerous and require additional consideration beyond what the models offer. We are interested in how the inhabitants of the Ballona responded to colonialism during the Mission period. In the face of new economies, damage to and restriction of traditional lands and resources, and religious conversion surrounding them, we seek to answer how they resisted, adopted, and navigated in response to those changes. How did the identities of the native peoples change? The burial area at LAN-62 and the domestic context at LAN-211 offer complementary, as well as distinct, insights into these questions.

An important part of our studies of LAN-62 and LAN-211 focused on how to identify cultural and personal identity and culture change in the archaeological record. Take, for example, material culture and European artifacts found at Native Californian sites. At the Russian colony of Fort Ross, north of San Francisco (Lightfoot et al. 1998), the Rancho (Mexican) period Rancho Petaluma in northern California (Silliman 2004), and the Chumash Mission period burial ground at Humaliwo (Bickford 1982; Gamble et al. 1996; Gamble et al. 2001), native peoples used and adopted European goods for either everyday use or special purposes but used them in ways that were indigenous, not European. At the Chumash burial area at Humaliwo, for example, Bickford (1982:19–22) documented parts of three European weapons buried with Native Californians. One of these, a pistol, was coated in part with asphaltum and was altered to be used as a receptacle of some sort. Similarly, at LAN-62, parts of several weapons were found, including a gun barrel containing shell and glass beads. Two copper chocolate pots were identified in the burial area at LAN-62. One of these was wrapped in traditional textiles, and the bottom was smashed in a way similar to the deliberate ritual destruction of ceramic and stone vessels by Native Californians. Silliman (2005:66) suggested that examples such as these argue for little indication of acculturation, despite the presence of European artifacts at Native Californian sites. He argued for studying material culture as not simply "native" or "European" but as items "taken up by individuals to forge their way in new colonial worlds" (Silliman 2005:68). These items and the identities created by Native Californians during the Mission period represent—and are part of—both the resistance to and residence in colonial worlds (Silliman 2005:68).

Along these same lines, subsistence data from these sites offer much information regarding how the inhabitants of the Ballona reacted to colonial pressures. Certainly, there was a new economic landscape created during the Mission period, one that offered alternatives to traditional foods and uses of plants. At the same time, as Hackel (2005), Milliken (1995), and others have pointed out, this new economic landscape also placed pressures on traditional foods and plants via the introduction of animal herds and landscape-altering farming methods. Reddy (2009) published some preliminary macrobotanical data from LAN-62 and LAN-211 and has argued that, although introduced plants were used by the inhabitants of these sites during the Mission period, they appear to have been used in particular fashions (see also Chapter 4, this volume). For example, there was a mixture of both native and introduced seeds in domestic contexts at LAN-211, indicating that specific introduced foods were consumed alongside traditional ones that had been collected for thousands of years. It is unclear whether Native Americans cultivated these introduced foods or obtained them as payment for labor. In contrast, the remains of domesticated plants and animals were present in much lower frequencies in the mourning-ceremony area at LAN-62 and the feasting area at LAN-211 (see Chapter 4, this volume; see also Reddy 2009). The incorporation of some introduced plants into some aspects of everyday life and the exclusion of them in other contexts are other examples of how the native residents of the Ballona wove their way through these new economic and political systems imposed on them during the Mission period.

The concept of history is an important aspect of understanding these patterns during the Mission period. History is something very different from the simple, linear ordering of events through time. In our view, history structures daily life. History dictates the meaning of places on the landscape and how they are used, how people relate to places and each other, and the ways in which people perform ceremonies and other activities. History is also a complex process through which the interactions of activities, practices, events, and circumstances create cultural and social change (Pauketat 2001, 2003). History refers to how activities, practices, intentions, and events are woven within a web of relationships that connect people to each other, to their ancestors, and to the world in which they live. The social and historical webs in which people live provide the foundation for understanding social life and social change. We view history as a means for understanding social relationships among people and places, who people are, where they came from, and the meaning of the past. Therefore, history was an important part of daily life to the inhabitants of the Ballona and played an important part in the identity and actions of these people during the Mission period.

It is within this context that we consider LAN-62 a persistent place on the landscape of the Ballona. As discussed earlier in this research design, persistent places (Schlanger 1992) are components of systemic landscapes that are reused over long periods. Through time, these persistent places change in function as the settlement moves and reorganizes (Schlanger 1992:107). For thousands of years, LAN-62 located on an alluvial fan on the edge of the Ballona lagoon, was occupied as a seasonal resource-procurement site or perhaps a habitation site. It is possible that the alluvial fan on which the site was situated, as well as a seasonal spring running downslope from above, may have offered an advantage over other locales for early use areas below the bluffs. The bluffs overlooking the Ballona were occupied several thousands of years earlier, but LAN-62 appeared to have been the first locale occupied below the bluffs. Whereas family members who died at LAN-62 were buried in irregular distributions at the site during the Millingstone and Intermediate periods, a specific and confined portion of the site began to take on a new function as a burial area during the Late period. Through time, this burial area became more and more compact, and its boundaries were demarcated by pieces of upright whalebone and perhaps a fence. It is possible that one factor in the creation of this area as a special location for burials related to the social memory and history of the site and its long occupational history—much longer than that of any other site in the Ballona.

Site Function, Settlement, and Community Organization in the Ballona

Richard Ciolek-Torello and Christopher Garraty

Introduction

In this chapter, we focus on the issues of site function, changing settlement patterns, and community organization through time in the Ballona. Although the emphasis is on the five sites investigated during the PVAHP, we also use information from earlier investigations by SRI and Van Horn and Associates at other sites in the Ballona to develop a more complete picture. We begin with a review of previous settlement studies in the greater region and the settlement models derived from those studies. Within that context, we then discuss the models of settlement applied to the Ballona. With the establishment of that background information, we move on to examine the function and structure of the investigated sites in the Ballona through analyses of the diversity and distribution of domestic feature types and the density and diversity of artifacts and fauna. Also considered is the changing structure of mortuary and ritual activities as they relate to site function. We conclude this chapter by examining the various settlement models in light of the Ballona data and their implication for understanding changing community and social structure through time.

Archaeologists have long been interested in prehistoric settlement and community structure in the coastal region of the Southern California Bight. Most have focused on the Late and Protohistoric periods, drawing heavily on ethnohistoric records and ethnographic analogy. As Altschul, Gregory, and Doolittle (1998:16) have pointed out, however, "ethnographic analogy is at the same time a powerful inferential tool and an overworked explanatory paradigm (Altschul 1991; Raab 1993). By knowing the structure of indigenous societies in the eighteenth century, we can plot an evolutionary trajectory from some point in the past to arrive at the correct cultural configuration. However, uncritical use of ethnographic analogy has its pitfalls."

Altschul, Gregory, and Doolittle (1998:17) also noted that the documented ethnohistoric-period cultures were not the outcome of an inevitable evolutionary process involving the shift from small, mobile groups to aggregation in sedentary villages. Rather, they were the outcome of processes involving environmental change, population growth and movements, changes in technology and belief systems, and interactions with surrounding peoples. Furthermore, it must be recognized that the ethnohistoric and ethnographic records are imperfect. The former were gathered by soldiers, missionaries, and settlers, who often exaggerated their descriptions to impress their superiors or for other self-serving purposes. Equally important is that it is unknown to what extent the cultures documented by both early observers and later ethnographers were influenced and altered by Spanish contact.

Ethnohistoric accounts have aided in the interpretation of the structure and arrangement of sites found in the archaeological record within the Gabrielino/Tongva and Chumash regions. In a review of house function and site structure, however, Ciolek-Torrello (1998) demonstrated that the range of variation evident from ethnohistorical accounts is not represented in the archaeological record, and archaeological evidence, albeit limited, does not always support early historical accounts (see also Raab 2000). Similarly, Ciolek-Torrello concluded that ethnohistoric accounts do not reflect the full range of variation found in the archaeological record, and even ethnohistoric and ethnographic accounts can be in disagreement. Thus, ethnohistoric and ethnographic records should be used with caution and not as blueprints for interpreting the past.

Settlement Patterns in the Los Angeles Basin: A Review

Chace (1969) developed one of the first models of settlement for the area encompassed by the coastal regions of Los Angeles and Orange Counties, arguing that coastal shell middens represent winter camps used by inland groups. Using ethnohistoric accounts and archaeological data from several coastal sites in Orange County, Chace argued that coastal sites were used almost exclusively to collect shellfish, whereas villages were restricted to inland areas. Also using ethnohistoric reports, Hudson (1969, 1971) took a much broader approach that focused on the environmental diversity of the southern California coast and linked settlement type and community organization to macroenvironmental regions (see also McCawley 1996:27). Hudson (1971:56) defined four macroenvironments: the interior mountains and adjacent foothills, an exposed coast from San Pedro south to Newport Bay, a sheltered coast from San Pedro northwest to Topanga Canyon, and interior prairies between the coast and the mountains. In general, the subsistence-settlement system of the Gabrielino/Tongva is generally characterized as one of semisedentary hunting and gathering (McCawley 1996). Family groups moved seasonally to obtain the different resources in the different zones of their territory. Hudson (1971:65) proposed two types of settlements. Settlements of the first type, *rancherías* or villages, were situated along sheltered coastal areas, inland prairies, and mountain areas, where a diversity of resources were concentrated. By contrast, settlements of the second type, temporary single-family gathering camps, were concentrated on the exposed coast, inland from sheltered coasts, and scattered throughout the inland prairies and mountain areas. Larger and more-permanent, multifamily settlements were situated near permanent sources of water. Hudson (1971:69–70) concluded that the northern and southern portions of the Los Angeles Basin were characterized by two distinct settlement patterns. Primary villages along the sheltered coast from San Pedro to Topanga Canyon were occupied by aggregates of clans that exploited the rich marine resources of the region and traded with Catalina Island. During the winter, when storms and high seas made fishing impossible, those villages dispersed into smaller family groups and moved to inland areas. The opposite pattern characterized the exposed southern coast, which was occupied primarily by small family groups residing in shellfish-gathering camps during the winter and aggregating in inland villages in summer.

Although Hudson did not exclude the possibility that villages may have been present on the exposed southern coast, others have suggested that larger and more-permanent residential sites were situated in that region, especially in the Newport Bay area. For example, Drover interpreted ORA-119 as a year-round habitation whose inhabitants moved seasonally to inland foothill areas. In the first major synthesis of the Newport Bay area, Koerper (1981) took a similar approach and argued that ORA-119a and ORA-64 both represented central bases or semipermanent villages throughout their long occupations. He also argued that settlement of the area followed a centrally based wandering pattern during the early periods and a semipermanent village system later in prehistory.

It was almost 15 years before another synthesis was attempted by Mason and Peterson. Drawing heavily on the ethnohistoric research of Earle and O'Neil (1994), Mason and Peterson (1994b) developed a model of Late period regional settlement that is distinct from the more-fluid and mobile system described by Hudson. Mason and Peterson (1994b) argued that the major estuaries in the Los Angeles Basin were the centers of territories "owned" by particular clan-based groups based in *rancherías*: "Each rancheria was a discrete bounded territory and had a principal village which was the residence of the clan chief. The principal village was a permanent year-round residential center with ceremonial enclosures and a cemetery" (Mason and Peterson 1994b:327; see also McCawley 1996:25). Newport Bay was considered the center of the Genga territory, whereas another territory was centered on the *ranchería* of Puvunga, at Alamitos Bay. Mission records and ethnographic accounts have suggested that each *ranchería* had a population of 100–250 people. As Mason and Peterson (1994b) pointed out, however, the archaeological record contains far too many Late period sites for such a small population. To account for the discrepancy, they suggested that there were two types of sites: a single principal village site, where the chief and the majority of the people lived for most of the year (Genga in Newport Bay), and numerous small habitation sites occupied by family groups that dispersed throughout the *ranchería* territory during the spring, summer, and early fall in order to gather resources (Mason and Peterson 1994b:328). Probably, no two campsites were occupied simultaneously, as families shifted among the camps from year to year as resource availability changed (Altschul and Grenda 1998).

Mason and Peterson (1994b) examined that model using the large database generated by the Newport Coast Archaeological Project (NCAP). In a comprehensive and sophisticated study using multivariate statistical analyses of the frequencies of different types of artifacts found at sites along the Newport Coast, Mason and Peterson defined three types of sites for the Late period: major residential bases, minor residential bases, and specialized-activity loci. Activity loci were divided into those containing primarily flaked stone tools, those containing primarily ground stone tools, and those containing both types of tools. They then used the site types to examine other cultural materials, such as the densities and proportions of debitage materials and types and subsistence remains, such as fish and terrestrial-faunal bone and marine-invertebrate remains. They found that the densities of such materials at major residential bases were different from those at sites of the other types; however, the density measures failed to differentiate between the minor residential bases and the different specialized-activity loci. The major residential bases also had the highest taxonomic richness (number of faunal taxa) among the site types. Despite those differences, they argued that variations among individual functional artifact types were the best distinguishers of site function, whereas the aggregation of artifact categories into functional classes (e.g., manufacturing or processing) and the density of subsistence remains did not distinguish the different site types beyond relative site size. The density measures, however, did reveal differences between the Millingstone and Late periods.

Mason and Peterson (1994b) also used the same analytic methods to examine Millingstone period sites in their sample (Intermediate period sites and components were poorly represented in the NCAP project area). According to Koerper, Mason, and Peterson (2002:73), the San Joaquin Hills and the Newport Coast were abandoned during the Intermediate period, and settlement was concentrated among a few sites in more-interior locations near permanent water sources (see also Altschul and Grenda 1998:246). Mason and Peterson (1994b) identified only two site types for that period—minor residential bases and specialized-activity sites—despite differences in the proportions of artifact types from the comparable Late period site types. Overall, they found that the densities of tools, debitage, bone, and shell at Millingstone period residential bases fell between those at Late period major residential bases and those at Late period sites of the other types. Differences in faunal taxa suggested intensification of resource procurement during the Late period, when smaller animals that provided less meat per individual were emphasized.

Overall, Mason and Peterson (1994b) argued that the village of Genga controlled a territory that included Newport Bay and the nearby northern San Joaquin Hills. The Late period major residential bases in the NCAP sample represent the dispersal of settlement and activities into the northern San Joaquin Hills during late spring, summer, and fall. That seasonal residential occupation of the hills represents intensification of the use of resources within the Genga territory, probably as a result of population increase and territorial circumscription. They suggested that the location of sites in the hills, away from easy access to marine resources; the increasing use of smaller terrestrial taxa; and the transport of marine resources into the hills to support residence and procurement of terrestrial plants and animals in that area are all evidence of resource intensification that most likely resulted from increasing population size.

Mason and Peterson (1994b) contrasted the Late period pattern to settlement in the NCAP area during the Millingstone period, when sites were almost entirely confined to the marine terraces along the open coast. Lower densities of tools and subsistence remains combined with longer periods of site use, as indicated by radiocarbon dates, suggested a less intensive occupation of the earlier sites and their surrounding habitats. They also suggested that Millingstone period residential bases represented only part of a seasonal round and that those sites were single-season bases occupied during the summer to procure rocky-shore shellfish and marine resources. Those sites were part of a wider settlement system that included Newport Bay, where Millingstone period settlement was concentrated at the large site ORA-64, situated on a bluff overlooking the mouth of the bay and most likely occupied on a multiseasonal or semipermanent basis (Koerper 1981). Mason and Peterson (1994a:17) proposed that the Millingstone period sites in the NCAP area either represent summer camps of a residentially mobile population that wintered in Newport Bay or field camps of collectors who resided in the upper Newport Bay.

More recently, Koerper, Mason, and Peterson (2002:73) distinguished three types of settlements in the Late period occupation of the San Joaquin Hills: major residential bases, minor residential bases, and specialized-activity sites. Although many of the major residential bases were small and were contained within rock shelters, they were distinguished by the presence of a full complement of tools (used by both men and women), beads, and high densities of subsistence remains collected from a variety of habitats. By contrast, minor residential bases lacked many of the types of tools found at the major residential bases (although tools used by both sexes were present), contained orders-of-magnitude-lower densities of subsistence remains, and contained few or no beads. Finally, specialized-activity areas were primarily single-gender activity areas. Most were male-oriented flaked-stone-production areas, although two were work areas where ground stone food-processing tools and the tools used to maintain them were used, presumably by women. Koerper, Mason, and Peterson (2002:73–74) suggested that this three-tiered site hierarchy represented a structured approach to the intensive use of resources in the San Joaquin Hills during the Late period. The small sites that made up that settlement system lacked burials and contrasted in size to the much larger Intermediate period sites. The presence of larger Late period sites outside of that area suggested to Koerper, Mason, and Peterson that the San Joaquin Hills sites were only part of a pattern of seasonal resource exploitation by small, dispersed family groups within a larger territory controlled by a village located elsewhere. Like Mason and Peterson (1994b), they argued that the village of Genga, represented by ORA-58 and other nearby sites along the lower Santa Ana River, was the central village where the dispersed family groups aggregated during the winter. ORA-58, which at 75,000 m^2 was orders of magnitude larger than any settlement in the San Joaquin Hills or on the Newport Coast, yielded hundreds of burials and elaborate, nonutilitarian artifacts not found anywhere else in the area (Koerper, Earle, et al. 1996:9). Similar patterns, albeit on a smaller scale, have been evident in the Aliso Creek drainage south of the Newport Bay–San Joaquin Hills area (Koerper, Mason, and Peterson 2002:74–75).

Grenda and Altschul (1994a, 1994b) proposed a somewhat different model of Late period settlement than the one described by Koerper, Mason, and Peterson (2002). In their study of Puvunga in Alamitos Bay, they also argued for a *ranchería*-type settlement system, but one focused more on social stratification and less on settlement mobility. They argued that the primary village was located so as to control or access the most productive resource areas in the territory and was occupied by the richest and most-powerful families. By contrast, the outlying settlements were located in more-resource-poor areas and were occupied on a permanent basis by lower-status residents of the territory.

Despite their differences, the Grenda and Altschul model shared important similarities with the Koerper, Mason, and Peterson model. They both focused on the presence of a primary village that was probably the most-complex settlement in each territory and that served as each territory's center for economic, political, and religious activities (Ciolek-Torrello 1998:220). Primary villages should contain the largest houses, which may have served as the residences of leaders and as communal centers, shrines, dance floors, and gaming areas. Primary villages should also contain larger and more-formal burial areas that reflect either the greater wealth and social standing of the residents of those settlements (in the social-stratification model) or places to which all community members returned (in the residential-mobility model). By contrast, the remaining settlements should contain only domestic facilities directed toward residential and subsistence activities. Primary villages should also exhibit more structure, with houses arranged in linear or clustered patterns (Ciolek-Torrello 1998:221; Gamble 1991; Hudson and Blackburn 1983:326).

Altschul and Grenda (1998) also focused on the poorly represented Intermediate period occupation of the Newport Bay region and suggested a different settlement pattern for that time period than the Late period model of settlement described by Mason and Peterson (1994b) and Koerper, Mason, and Peterson (2002). The number and sizes of sites diminished during the Intermediate period, which suggests a reduction in population size from the preceding Millingstone period and a smaller population than in the succeeding Late period (Altschul and Grenda 1998:246–247). Despite that reduction, Altschul and Grenda identified two clusters of sites dating to the Intermediate period: those that overlooked the San Joaquin Marsh in upper Newport Bay and those in the San Joaquin Hills. The sites in the two clusters appeared to represent different types of settlement systems. Altschul and Grenda (1998) argued that the 13 Intermediate period sites identified as overlooking the marsh all appeared to have been small habitation sites rather than a mixture of small habitation sites and temporary camps, as others (Hurd and Macko 1989) have suggested:

> People came to the freshwater marsh and remained for substantial periods. Whether these occupations covered periods of months or years is unclear. Our point is that groups that came to the marsh meant to stay. They settled not only with a full complement of tools to pursue economic resources but also as domestic groups comprising people of all ages and both sexes. The presence of a feature interpreted as a sweat lodge at ORA-116 suggests that the groups there practiced a wide range of social and religious activities. These settlements constituted viable social groups, not subsets oriented toward specific resources or tasks [Altschul and Grenda 1998:247].

Based on the discovery of 11 house structures at ORA-116 and the examination of refuse-disposal patterns (Grenda et al. 1998), Altschul and Grenda (1998:247–248) suggested that the sites represented small settlements occupied on multiple occasions by no more than two domestic groups, each consisting of five to eight individuals. The domestic groups focused their subsistence on local resources; subsistence data indicated a heavy emphasis on plant and animal resources from the marsh, as well as fishing, and there was little evidence of the transport of resources from the hills to those sites.

The 17 sites identified in the San Joaquin Hills cluster exhibited much greater diversity, with 5 habitation sites, 10 seasonal camps, and 2 resource-extraction sites (Altschul and Grenda 1998:248). Two habitation sites, ORA-106 and ORA-225, were significantly larger than their marsh counterparts and contained deeper cultural deposits, more-diverse artifact collections, and greater varieties of plant and animal taxa. Fewer marsh resources were found at those sites, and frequencies of shellfish, waterfowl, and marsh plants were lower, whereas grasses and berries from the hills were abundant. Surprisingly, no features were found at those sites, although Altschul and Grenda (1998:249) suggested that the lack of features might have been a product of the small excavation sample.

By contrast, the seasonal camps had small artifact collections with little diversity but much-more-diverse subsistence remains, which suggests that no single resource-procurement activity was dominant (Altschul and Grenda 1998:249). The evidence further suggested to Altschul and Grenda that all age groups and both sexes were represented at the sites and, therefore, that the social unit represented was a domestic group and not a specific task group or workgroup. The paucity of artifacts also suggested that subsistence-related activities predominated, and there was no evidence of social or religious practices. Although the seasonal nature of the camps could not be demonstrated, Altschul and Grenda argued that the small artifact collections and the lack of features at the sites reflected the short-term or temporary nature of settlement.

Altschul and Grenda (1998:250) argued that the different types of sites in the two Intermediate period site clusters functioned as part of a larger and more complex settlement system. Intermediate period subsistence focused on resources located in two distinct ecozones. One cluster focused on the wetland resources, such as fish, shellfish, waterfowl, and aquatic plants, of the San Joaquin Marsh. The other cluster focused on the terrestrial plants and animals of the upland grasslands of the San Joaquin Hills. Taking a diachronic perspective, Altschul and Grenda contended, however, that Intermediate period settlement was not based on either the wetlands or the uplands (although this may have been the case during particular periods of time) and that in the long term, people used the entire landscape. For example, flooding in wet years may have degraded wetland resources while enhancing upland resources. At such times, settlement shifted to the larger upland sites, and wetland sites were exploited by task groups or work parties. In dry years, people resided more permanently in the small settlements spread around the marsh and only sporadically visited the uplands. Thus, the coexistence of both large habitation sites and seasonal camps in the uplands is not paradoxical but "is the logical outcome of a dispersed settlement pattern in which mobility and dispersion are the key mechanisms for ensuring the success of human adaptation" (Altschul and Grenda1998:250). From the evidence, Altschul and Grenda (1998) concluded that Intermediate period society was organized at a simple level and that there was no evidence of major villages, status differential, political centralization, or trade or exchange with other groups. Population density was low, and the concept of territory was low, but mobility was high.

Farther north, recent work in Orange County, at Landing Hill, near Alamitos Bay, has provided additional insights into changing settlement patterns in the greater Los Angeles Basin. Millingstone period occupation was widespread throughout the Landing Hill area, although low artifact density and a paucity of hearths, refuse-disposal features, and specialized-activity areas suggest little evidence of organized residential activity (Cleland et al. 2007). The presence of burials, however, suggests that "people spent sufficient time at Landing Hill for people to die and be buried there" (Cleland et al. 2007:329). Furthermore, Cleland et al. (2007) suggested that a cluster of three Millingstone period burials at ORA-264 might represent a burial location for individuals with some social relationship. The early Intermediate period was characterized by a sharp decline in occupation, as indicated by the paucity of radiocarbon dates for the period, although Cleland et al. (2007:330–331) suggested that occupation may have shifted to the Anaheim Bay side of Landing Hill, where additional sites have been located, outside their investigated area. They suggested that the most likely cause of the settlement shift was a shift in the course of the San Gabriel River. The late Intermediate period was notable for much-more-intensive habitation characterized by the reoccupation of several sites; the development of a dense, deep midden and intensive exploitation of lagoon shellfish at ORA-261; and the construction of a large mourning feature with cremated human bone at the nearby site of ORA-263. In contrast to the Newport Bay and Aliso Creek areas, occupation of Landing Hill was greatly reduced by the Late period, when ORA-261 was abandoned, and there was only limited use of ORA-263 and ORA-264 (Cleland et al. 2007:331–332). Significant Late period occupation of the area was limited to ORA-262, which was used repeatedly until the Mission period. This settlement history closely mirrors that of the Ballona (see Chapter 8, Volume 1, this series; Altschul et al. 2005), where Millingstone period occupation was also widespread but was limited to small camps associated with a highly mobile population, the early Intermediate and Late periods were characterized by population growth, and the late Intermediate period occupation was the most intense. Depopulation of the Ballona has been, at least in part, attributed to shifts in the course of the Los Angeles River. Settlement in the Ballona was distinguished, however, by an intensive Protohistoric through Mission period occupation.

Cleland et al. (2007:334) suggested that the depopulation evident in many areas of coastal Orange County during the Intermediate period reflects settlement reorientation more than it reflects abandonment of large areas. They suggested that the reorientation involved a shift from wide-ranging movements among resource patches in the Millingstone period, through a more organized and possibly more restricted land-use pattern focused on specific locations. They added that in the Newport Bay area, that shift has been seen as the beginnings of the semisedentary settlement system that characterized the Late period and involved stable inland settlements that sent procurement parties on logistical forays to the coast (Koerper, Mason, and Peterson 2002). Furthermore, the shift reflected a reduced focus on wetland and estuarine settings and an expansion in exploitation to include a wider range of coastal and terrestrial resources (Cleland et al. 2007:334). Although the patterns may reflect events in the Newport Bay area, they do not account for the more substantial Intermediate period occupation of the Landing Hill and Ballona areas.

Erlandson (1994) argued that most early Millingstone period settlements in the Santa Barbara region were occupied on a relatively permanent basis by people subsisting on small seeds and shellfish. Others, however, have argued for a much more mobile settlement pattern in which populations moved between a variety of coastal and inland habitats (Jones 1991; Mikkelson et al. 2000:181) in a pattern similar to that noted in the Los Angeles Basin. The nature of the settlements, mainly residential bases (as argued by McGuire and Hildebrandt [1994]), rather than a more complex network of smaller specialized camps (Glassow 1996), is still being debated. Population densities increased dramatically after 5400 b.p. (Mikkelson et al. 2000:183); more-complex settlement systems constituted larger residential bases, and smaller short-term camps were interspersed over the landscape. Between 3900 and 2000 cal b.p., the Santa Barbara coast witnessed a further increase in population associated with an increase in maritime orientation (fishing and regional exchange with the islands) (Glassow et al. 2007). Important technological developments occurred between 2000 and 950 cal b.p., including the introduction of the plank canoe and the bow and arrow. Many scholars (e.g., Arnold 1992a, 1992b, 2001a; Gamble 2005; Glassow et al. 2007; King 1990) have argued that there was a development of social complexity during that time. Chumash and Gabrielino/Tongva cultural systems were in place by 650 cal b.p., and according to Arnold (1992a, 1992b, 2001a), a ranked society emerged between 750 and 650 cal b.p. This trend was associated with a general trend toward larger villages over time; villages in the Chumash area grew about two- to fivefold, especially in locations that could be used as ports (Gamble and Russell 2002:108; King 1980).

Leonard (1971:127–128) suggested that the interior areas of the Santa Monica Mountains were first used systematically during the Intermediate period, as evidenced in the appearance of temporary campsites. That pattern continued into the Late period, with more-intensive occupations in rock shelters that were similar to those of the San Joaquin Hills during the same time. Van Horn (1987) argued that coastal groups used the inland sites as temporary camps, whereas Clewlow et al. (1978) argued that they were occupied by independent populations that interacted with the coastal groups. Dillon and Boxt (1989) further suggested that the independent inland populations shifted between larger, inland winter villages and smaller seasonal camps occupied by family groups. The larger coastal villages at the foot of the Santa Monica Mountains are believed to have been permanent settlements occupied over a long period of time, as suggested by the presence of large burial grounds (Gamble and King 1997) and subsistence remains indicating year-round occupation (King 1994). As evidenced at Pitas Point and Muwu, these coastal villages were composed of houses clustered in linear arrangements along the shore, with a burial ground at one end of the cluster and a sweathouse at the other end (Gamble 1991, 1995; Gamble and Russell 2002).

The settlement history of lagoons and estuaries of the San Diego coastline are much better documented than are the settlement histories of other areas of the southern California coastline. In contrast to the pattern noted in the Los Angeles Basin, large, semisedentary populations focused on resource-rich bays and estuaries of the San Diego region during the Millingstone period (Gallegos 1985, 1992; Warren 1968). As noted for the Orange County area, however, a major abandonment or depopulation of the coast occurred after 3500 b.p. and has been attributed to extensive infilling of local lagoons and estuaries, which caused a decline in shellfish populations. Similarly, the population is believed to have shifted inland to river valleys, where the exploitation of small terrestrial animals and plant resources was intensified. Coastal occupation was limited to seasonal or short-term occupations, with a possible slight increase between 1600 and 1200 b.p. (Byrd and Reddy 1999, 2002:41, 44). More-recent evidence from the northern San Diego coast, however, has suggested that the occupation flourished throughout the Late period (Warren et al. 2008). According to Byrd and Reddy (2002:42), site density increased, the distances between major residential sites decreased, and numerous specialized, short-term-occupation sites appeared. This strong, logistically organized coastal settlement pattern was associated with a shift toward increased reliance on smaller, less "optimal" resources.

For example, late Holocene sites in the Batiquitos Lagoon area have occasionally contained thick midden deposits, but most are best described as special-function or limited-use processing and consumption locations (Byrd and Reddy 2002:53, 57). By contrast, occupation along the estuaries of the northern San Diego coast appears to have peaked in the late Holocene and included major residential bases and numerous specialized sites (Byrd and Reddy 1999, 2002:47). Characteristics of the Late period included increased site density, shorter distances between major residential sites, and greater numbers and types of specialized, short-term occupations. Byrd and Reddy (1999, 2002:53) have interpreted this pattern as indicative of the emergence of a more complex settlement pattern, with major residential bases surrounded by clusters of specialized sites along key drainages. Byrd and Reddy have suggested that these trends represent greater settlement permanence, a decline in territorial range, and a more thorough exploitation of the littoral zone. They have attributed the development of a more-complex settlement system to increased population pressure, increased territoriality, and greater settlement permanence. Limited data from sites in the San Luis Rey, Buena Vista, and Agua Hedionda drainages, located between the Batiquitos and Las Flores drainages, have provided evidence to support Byrd and Reddy's (1999, 2002) reconstruction. Those drainages contained major settlements as well as special-function and limited-use sites dating to after the presumed decline of estuaries 4,000 years ago.

Based on this review, a number of specific issues relating to Ballona settlement can be generated:

1. What types of site functions can be distinguished in the Ballona? Do those change over time?

2. What is the evidence of intensity and duration of occupation—that is, are sites permanent, semipermanent, or temporary occupations?

3. Does the Millingstone period occupation consist of small, temporary camps used by a highly mobile population or a more intensive occupation by a more permanent residential population?

4. Is there evidence of a shift in settlement between the Millingstone and Intermediate periods, either from temporary camps to semipermanent occupation or toward depopulation in the Intermediate period?

5. What is the nature of Late period occupation? Is there evidence of the development of a complex settlement hierarchy or of depopulation?

6. What is the nature of Protohistoric and Mission period occupation? Is there a large coastal village?

7. How does occupation of the Ballona relate to that of surrounding regions—that is, were sites in the Ballona part of a larger settlement system at any point in time, or was the region relatively autonomous?

We attempt to address these questions in the following sections.

Identifying Site Function and Settlement Types in Coastal Southern California

As the previous discussion has indicated, understanding whether people resided in large permanent villages, smaller seasonal camps, or temporary gathering camps or other special-purpose camps is as important to reconstructing settlement patterns as are the locations and distribution of these settlements. To paraphrase Peterson (2000:93), in order to reconstruct settlement patterns, it is necessary to understand four variables: contemporaneity of sites; the activities or functions of those sites; the relationships of the sites to one another and to the surrounding environment; and the human demography at each location. In addition, one must also know the seasons and intensity or duration of occupation, the site features, the technology, and the subsistence activities. Architectural information is often the best guide in determining site function and the nature of an occupation. Unfortunately, intact architectural remains are rarely found at southern California coastal sites (for reviews, see Ciolek-Torrello [1998] and Gamble [1991]), as was the case in the Ballona. In the absence of architecture, however, other lines of evidence can be brought to bear on the issues of site function and settlement type.

Again, Hudson was among the first to use an analytic approach to this subject in his settlement study. Building upon the work of King et al. (1968) at Century Ranch, Hudson (1971:62–63) focused on subsistence activities and artifacts associated with extraction and maintenance activities to model two site types: villages and camps. He argued that artifacts associated with extraction activities suggest specialized food-collection activities or gathering camps, whereas maintenance artifacts suggest generalized subsistence activities and more-permanent camps or villages. He also distinguished between primary and secondary subsistence activities:

> Sites reflecting secondary subsistence and habitation by small, nuclear families should contain artifacts of a specialized nature, because the exploitation emphasis was being directed toward a particular food type. Such sites would be termed gathering camps. . . . In contrast, sites of primary subsistence should reflect generalized artifacts. Sites in this category would be termed villages or rancherias [Hudson 1971:63].

Hudson (1971:63) grouped extraction and maintenance artifacts into four broad subsistence activities, which he termed "factors," and listed the extraction and maintenance artifacts as well as the fauna and flora for each, including

- maritime-oriented fishing and sea-mammal hunting,
- shellfish gathering,
- plant-food gathering, and
- land-mammal hunting.

He went on to suggest that sites that contain artifacts associated with two or more of these factors and "that are of reasonable size, and that contain ceremonial artifacts" are villages or *rancherías*, whereas those that contain artifacts associated with only one factor, that are of small size, and that include few maintenance artifacts are gathering camps.

Mason and Peterson (1994b) and Peterson (2000) took a much more systematic and comprehensive quantitative approach incorporating data from 23 Late period site components in the Newport Bay area. Using a multivariate statistical analysis, they examined the proportions and diversity of functionally different tool types, the diversity of species and habitats represented by faunal collections, and the features found at the sites in order to categorize them into three functional types: multiseasonal residential bases, single-season residential bases, and field camps/locations. Mason and Peterson (1994b:24–25) used six functional artifact categories to distinguish site function:

- procurement tools: projectile points, fishhooks, gorges, barbs, and net weights;
- food-processing tools: manos, metates, mortars, and pestles;
- general-utility tools: knives, blades, scrapers, picks, axes, saws, edge-ground flakes, choppers, blunt bone tools, bone smoothers, and bone scrapers;
- manufacturing tools: drills, reamers, perforators, gravers, awls, hammers, abraders, flakers, grooved stones, tarring pebbles, anvils, small ground slabs, and wedges;
- primary lithic reduction by-products: cores, core fragments, and decortification flakes; and
- social/ceremonial and exchange artifacts: beads, pendants, charmstones, rattles, pipes, incised stones, quartz crystals, effigies, cogged stones, discoidals, gaming stones, and eccentric crescentrics.

Mason and Peterson (1994a:32) also suggested that the presence of fire-affected rock (FAR) was an indicator of field camps and residential sites and that the latter have higher densities of FAR. They further suggested that hearth features should be more discrete at field camps than at residential sites, which were occupied for longer periods, and that residential sites should have higher densities and wider distributions of FAR, because hearths used only a few times should remain more compact and intact, whereas repeated use of hearth rocks should result in a more scattered spatial distribution, indicative of a palimpsest. Furthermore, infrequently occupied field camps should be characterized by more deposits of primary refuse—artifacts discarded at their location of use—whereas more-frequently occupied residential sites should have more secondary refuse—refuse moved to another location as a result of maintenance and cleaning activities (Schiffer 1987:58).

The subsequent analysis revealed that these functional artifact categories, density measures, and subsistence remains were not useful in predicting the three defined site types (Peterson 2000:96). Peterson concluded that only a subset of 12 artifact types out of the original 43 used in the analysis was useful in predicting site types. Using that smaller subset, Peterson (2000) identified five site types for the Late period and two for the Millingstone period. None of the site types included what could be characterized as a "village," as described in ethnohistoric records (Peterson 2000:97). The Late period sites included major residential bases, minor residential bases, and three types of specialized-activity loci: male-activity loci, containing primarily flaked stone tools and debitage; female-activity loci, containing primarily ground stone tools; and sites with both flaked and ground stone tools.

Major residential bases contained all 12 of the diagnostic artifact types and were distinguished from the other site types by large numbers of beads, ornaments, projectile points, and awls. By contrast, beads, ornaments, and awls were rare at or absent from the other site types. Densities of tools, debitage, shell, and mammal and fish bone were several orders of magnitude higher at major residential bases (Peterson 2000:103). FAR and hearths were common at each major residential base, and internal site structure was evident in the hearths, which formed a circle or semicircle around a central midden that contained a high density of refuse. Minor residential sites contained only 4 of the 12 diagnostic artifacts, which included both male- and female-related tools: projectile points, cores, manos, and metates (Peterson 2000:104). Densities of all tools and subsistence remains at minor residential sites were much lower than at major residential sites. Minor residential sites also lacked evidence of site structure and high-density refuse deposits. The three types of specialized-activity loci contained much lesser varieties of artifact types than did the minor residential bases and were primarily male-oriented work areas.

Models of Settlement Patterns in the Ballona

Several different settlement models have been applied to the Ballona, including the village model, in which settlement was concentrated in a single large settlement; hierarchical settlement models, in which a primary village was associated with smaller seasonal or permanent camps; and the community model, in which settlement was dispersed among groups of similar settlements. A fourth model involves a settlement system made up only of temporary camps, with no major residential sites.

The Village Model: Sa'an and Sa'angna

The village model derives largely from ethnohistoric depictions of Chumash and Gabrielino/Tongva settlement at the time of contact. For example, McCawley (1996:25) described Gabrielino/Tongva settlement as distributed among territories, each of which contained a single permanently occupied, primary settlement that was the heart of the community as well as subsidiary settlements. The primary settlement was located at the interface of several environmental zones that provided a diversity of food resources to help ensure against seasonal fluctuations, a reliable water source, and a measure of protection against flooding. According to McCawley (1996:27–28), the primary settlements were organized along a regular pattern. At the center of each settlement was an unroofed religious structure known as the *yovaar*, which was surrounded by the large homes of the chief and elite members of the community. Beyond those lay the smaller homes of commoners and poorer members of the community. Adjacent to the settlements were large, cleared areas used as playing fields. Special huts used by women during menstruation were located near the outskirts of the settlement, and sweat huts were commonly located near streams. Burial grounds were also an important element of a primary settlement and may have been located outside but near the settlement (McCawley 1996:31).

Lagoon settlements after a.d. 1000 have traditionally been described as similar large, permanently occupied villages that housed complex, stratified residential groups (Grenda and Altschul 2002b:129). Thus, it was not unexpected that when Kroeber (1925:Plate 57) plotted the Gabrielino/Tongva place name "Sa'an" on the northern bank of Ballona Creek, above the marsh where the creek meets Santa Monica Bay, the question would arise as to whether that name represented a large village, such as those described in ethnohistoric accounts. Kroeber apparently derived the name from Jose de los Santos Juncos, a Juaneño informant often used by J. P. Harrington and Kroeber, rather than a Gabrielino/Tongva. Although Kroeber's map was captioned "Native Sites in part of Southern California," he may not have been referring to specific villages but to a general area (Van Horn and White 1997a:1). In regard to his map, Kroeber (1925:616) commented, "Many of the latter [i.e., place names] no doubt originally denoted villages; but it is usually impossible to determine . . . . Some were the designations of the principal village on the grant, others of the particular spot on which the ranch headquarters were erected, still others of the camp sites, or hills, or various natural features."

Swanton (1953:491) later apparently mistook Kroeber's idea of "Sa'an" as a regional referent and interpreted the name as an actual village. In her study of the Gabrielino/Tongva, Bernice Johnston (1962) took this one step further and placed "Sa'angna" on her map of the Gabrielino/Tongva territory at the time of the Portolá expedition. By adding the Gabrielino/Tongva locational suffix *-gna* to the place name, Johnston changed what was a regional referent into the name of a specific village. Importantly, Johnston also moved the location of Sa'angna to the bluff tops. Earlier, W. W. Robinson (1939a:104) had attributed the name "Guacho" or "Huacho," a native term roughly translated as "high place," to those bluffs, based on information from Cristobal Machado, who was descended from the Spanish ranchers who had obtained the original land grant in the area (see Chapter 8, this volume). Machado stated that it was against those bluffs that Indians had traditionally placed their huts, a fact supported by the *diseño* for the Rancho la Ballona land grant, which showed a small group of native huts against the hills beneath present-day Loyola-Marymount University (Robinson 1939a:109). Johnston attempted to integrate Swanton's and Robinson's interpretations in her placement of Sa'angna. Although Johnston (1962:94) conceded that "'Sa-an' does not seem to appear on the Baptismal Registers," she argued that the huts noted by Machado were "the late survivors of settlements of which archaeological surveys have found the remains of at least 14 along Ballona Creek and the bluffs to the south. One of these could perhaps have been the traditional village, Sa-an, root-name of a village placed by Swanton 'on the coast south of Santa Monica.'"

The issue of the existence of Sa'angna on the bluff tops was of particular interest to Van Horn and his associates when they undertook investigations at several bluff-top sites, especially because three glass trade beads dating to the late eighteenth and early nineteenth centuries were found during their excavations at LAN-63 (the Del Rey site). Van Horn and White (1997a, 1997b), however, concluded that neither LAN-63 site nor any of the other bluff-top sites were plausible candidates for Sa'angna. They argued that the few Late and Protohistoric period artifacts found on the bluff tops were rare and usually were found on or near the surface. Although the bluff tops may have been visited during that time, they were largely abandoned by a.d. 1000 (Van Horn and White 1997a:5).

Others believed that LAN-47 (the Admiralty site), located on the southern edge of modern Marina del Rey, was the location of Sa'angna. Excavation of that site, however, revealed that it had been abandoned by a.d. 1200, more than 550 years before the Portolá expedition (Altschul, Homburg, and Ciolek-Torrello 1992), although a plaque commemorating the postulated relationship was subsequently placed on a remnant of the site. Finally, King and Singer (1983) proposed that LAN-62 (the Peck site) was the location of Sa'angna, although they confused the name with "Suangna," a village Johnston had placed in the San Pedro area. Until SRI's excavations at LAN-62, that proposition remained untested. Prior to this investigation, however, Johnson (1991) found no mention of Sa'angna in the lists of Gabrielino/Tongva village names in mission registers and concluded that instead of a village name, Sa'angna represented either a Gabrielino/Tongva place name or the name of a settlement of Native Californian laborers at a nearby rancho. It was not until McCawley's (1996) modern treatise on the Gabrielino/Tongva that the name "Sa'angna" was finally abandoned and replaced with "Guaspet" as the name of the native settlement of the Ballona during the Mission period (see Chapter 8, this volume). The discovery of a new name for the native settlement in the Ballona, however, left the question of the nature of the settlement unanswered. Was Guaspet a single large settlement or a group of small, dispersed settlements? Or did it represent a group of both large and small settlements?

As in the case of the Ballona, the identification of villages described by early Spanish explorers and in ethnohistoric accounts of coastal California has often proved problematic, and archaeologists have struggled to connect particular archaeological sites to villages named in ethnohistorical accounts (Dillon and Boxt 1989; King 1975; King et al. 1982; Raab 1993). Several sites in the Ballona have been considered to be "villages" by archaeologists (Johnston 1962; King and Singer 1983). Such prehistoric sites in coastal southern California, however, are more typically referred to as residential sites (Byrd and Reddy 2002), habitation sites (Grenda et al. 1998), or seasonal camps (Altschul, Homburg, and Ciolek-Torrello 1992). The term "village" is used more often when discussing Mission period settlements, such as the Chumash sites of Humaliwo, Helo', and Muwu (Gamble 2008; Gamble et al. 1996, 2002); Luiseño sites, such as Topomai (York et al. 2002); and Kumeyaay sites, such as Otai (Gallegos 2002) (but see Arnold [2001b] for prehistoric Chumash complexity). However, Raab (1993:146), among others (see Dillon and Boxt 1989; Gallegos 2002), has remarked that the criteria for categorizing sites as villages have not been made clear; that "village sites have almost invariably been identified on the basis of ethnographic criteria" that "are not archaeological at all"; and that the ethnographic data on which they are based "contain inaccuracies and distortions."

From the above discussion of previous settlement studies in the region, two types of residential sites are usually distinguished in the archaeological record. There are the large primary villages, each of which was probably the most complex settlement in its community and served as its center for economic, political, and social activities. Then there are the communities composed of a larger number of smaller settlements focused on residential and maintenance activities. The smaller settlements may represent either the seasonal residences of family groups that returned to the primary village or the residences of other members of the community.

Gamble (1991:54, 70; 2008:114–123) summarized much of what we know of the structure of coastal villages from early-historical-period accounts in her comprehensive study of Chumash settlements. Many of her observations are applicable to Gabrielino/Tongva villages, as well (see McCawley 1996). All of these settlements consisted of a variety of structures, including domestic houses, sweat lodges, menstrual huts, puberty huts, childbirth huts, smoke houses, dance and gaming areas, shrines, and burial grounds (Ciolek-Torrello 1998:209). Early-historical-period accounts have provided little precise information about the structure of villages, beyond the fact that houses were situated close together and arranged like towns (Gamble 1991:54). Gamble inferred from those accounts that the villages were highly structured, with houses arranged in rows and passageways or streets between the rows of houses (see also Brown 1967:4; Hudson and Blackburn 1983:326; King 1969:41). Gamble (1991) presented maps (derived from the earlier work of others) of a number of Chumash settlements to bolster her arguments about the structure of villages. Those maps lend some support to the observations by early investigators that a variety of structures constituted the Chumash village. However, the evidence of linear arrangements of houses and streets was equivocal. For example, half the houses at Muwu formed a single linear arrangement, but the remaining houses were clustered (Ciolek-Torrello 1998).

A mixed pattern of linear and clustered houses was also evident at SCRI-326, which contained Middle and Late period houses. Most of the identified Late period houses formed a broad arc around the western side of a large, open space with a suspected dance floor. The four identified Middle period houses formed a smaller arc between the Late period houses and the possible dance floor. Ciolek-Torrello (1998:211) referred to the type of arrangement in which houses are arranged around an open space as a courtyard (see Wilcox et al. 1981). As described by Wilcox et al. (1981) in discussing Hohokam household structure, the courtyard served as a common living and work area shared by the residents of the houses, and it persisted beyond the use life of the individual houses associated with it. The succession of houses around the open space supports the notion that the courtyard was the focal point of the residential group over time. Further evidence of the persistence of the courtyard was the presence of possible doorways that opened onto it from houses assigned to the Middle and Late periods.

An entirely different settlement structure was evident at SCRI-330, where all the houses were clustered into a single group, in no apparent linear arrangement, and there was a smaller suspected dance floor at the edge of the house cluster (Ciolek-Torrello 1998:212). That pattern fits closely with the household arrangements that Harrington suggested for smaller *rancherías*, which were compact and lacked streets and courtyards; in some cases, houses were not even arranged in rows (Hudson and Blackburn 1983:326).

On the basis of such ethnohistoric evidence, we can postulate that primary villages should contain the largest houses, which would have served as the residences of the community leaders or as communal sweat lodges. Public facilities, such as shrines, dance floors, and gaming areas, should be restricted to primary villages, and burial grounds would be larger and more formal in primary villages, reflecting a larger population and the greater wealth and social standing of its residents (Ciolek-Torrello 1998:220–221). Primary villages also may be represented by the highly structured settlements in linear or courtyard arrangements, such as those evident at Muwu and SCRI-236. By contrast, the more-common clustered arrangement, as seen at SCRI-330, may represent the smaller residential site types. SCRI-236 and SCRI-330 are part of a group of Middle and Late period settlements on the western part of Santa Cruz Island that may represent components of a single larger community. SCRI-236 is a large site covering 7,000 m^2 and containing 17 house depressions and a large area interpreted as a possible dance floor (Ciolek-Torrello 1998:221). Also present, however, are two large houses (about 14 m in diameter) located closest to the beach; they may represent sweat lodges or the houses of the village leaders. Most of the houses are approximately the same size (8–10 m in diameter) and probably served as typical domestic structures. These houses were arranged around an open space or courtyard containing a large feature identified as a possible dance floor. Also present at the periphery of the site was a small house believed to be a specialized structure, such as a menstrual hut. By contrast, SCRI-330 contains 13 house pits clustered in an area half that of SCRI-236. Although a possible dance floor was also identified at SCRI-330, it was only slightly larger than the average house and was a fraction of the size of the postulated dance floor at SCRI-236; its small size and its location at the periphery of the site suggested that it served a different function. There was little diversity in house sizes; all of the house depressions measured between 8 and 11 m in diameter and probably represented typical domestic structures. The tight clustering of the houses and the absence of internal structure suggested an organic growth pattern with little functional or social differentiation.

A clustered arrangement similar to that of SCRI-330 was evident at ORA-116, located in the upper Newport Bay area. At ORA-116, up to 11 house pits were found tightly clustered on the edge of a hill overlooking the San Joaquin Marsh. The pits ranged from 5 to 11 m in diameter, a size that compares favorably with other house pits in the coastal region (Grenda et al. 1998:238; see Gamble 1991:Table 3.2). Two of the smaller houses had been constructed during the Millingstone period and were similar in size to contemporary houses at SCLI-1215 (the Nursery site), on San Clemente Island (Salls et al. 1993). That evidence was consistent with the observation that house size increased dramatically over time in the region (Ciolek-Torrello 1998:222). Most of the remaining houses, which are believed to date to the Intermediate period, may represent typical domestic houses, although none of the interior features indicative of this function was preserved. Feature 3, however, contains four central postholes that may have supported a conical, earth-covered structure similar to a sweat lodge (see Gamble 1991; Rogers 1929). Grenda et al. (1998:40) interpreted ORA-116 as a small residential locus occupied at any one time by no more than two or three small family groups. They also concluded that the site was occupied intermittently, on a seasonal basis.

Galdikas-Brindamour (1970:130–131) outlined more-specific archaeological criteria for recognizing primary villages in the region. As presented by Dillon and Boxt (1989:153), the criteria are as follows:

- They are sites that were never completely abandoned.
- They were occupied for lengths of time spanning more than one generation.
- Permanence of occupation is signaled by the presence of a burial ground with both sexes and all ages.
- Differential social status should be detectable within burial populations.
- Architectural evidence should be recoverable.

- Different subsistence and extrasubsistence activities performed at different seasons of the year by both sexes should be discoverable.

- A diversity of manufacturing and maintenance activities should be discernable.

Dillon and Boxt (1989:155) believed that many Protohistoric period Chumash and Gabrielino/Tongva settlements along the coast satisfied Galdikas-Brindamour's criteria for village status, but the smaller settlements in the inland Santa Monica Mountains region did not. Although the Spanish encountered population concentrations in the mountains, Dillon and Boxt did not consider them to merit the status of "villages." Dillon and Boxt may have been overly optimistic, however, in restricting this problem to the Santa Monica Mountains region, because the same can be said of much of the Southern California Bight. Several investigators (e.g., Dillon and Boxt 1989:157; Raab 1993:147) have suggested that the colonial Spanish term *ranchería* may be much more appropriate to describe most of the smaller historical-period settlements in the region. According to Dillon and Boxt (1989:157), *ranchería* in its eighteenth-century frontier usage best translates to "rural encampment" but has come to be routinely misused as a direct equivalent to "village." Although the two terms have often been used interchangeably, Harrington (Hudson and Blackburn 1983:326) wrote that "there were only a few houses in a rancheria" and "rancherias were, however, quite compact." Thus, the term *ranchería* can be used to refer to the many small, less-structured clusters of dwellings found in the smaller residential sites recognized by many archaeologists. Unfortunately, *ranchería* has also been used to describe the dispersed communities in Gabrielino/Tongva territories, which may contain primary villages and subsidiary settlements (Altschul and Grenda 1998; Grenda et al. 1994; Mason and Peterson 1994b; McCawley 1996).

Hierarchical Settlement Models

Altschul and Ciolek-Torrello (1990) presented the first detailed model of settlement in the Ballona wetlands, arguing that changes in settlement were directly tied to the Holocene evolution of the wetlands. When people first entered the region, the Ballona was an open body of water and part of Santa Monica Bay. Their visits were short and confined to the only stable landforms—the Westchester Bluffs, at that early time. When the Ballona evolved into a lagoon, it became more attractive to settlement, and seasonal camps were established along the length of the bluff tops to the Baldwin Hills. As the Ballona developed into a resource-rich estuary, people abandoned their scattered bluff-top settlements for larger settlements along the edges of the lagoon. One important corollary of this model was that, as the lagoon gradually shrank in size over time, lagoon-edge settlement appeared to shift westward.

Based on their work at Puvunga and in the Ballona, Grenda and Altschul (1994a, 1994b) took a different stance, suggesting that prehistoric settlement in the Ballona and elsewhere along the Los Angeles coast was variable, though generally organized hierarchically around estuaries (see also McCawley 1996:27–28). They stated that

> over time, interlocking social, political, and environmental parameters led to a flexible, and highly variable, settlement system that reflected social status. At some estuaries, the population was aggregated in large habitation sites located on elevated landforms outside of the flood zone. One way social status was expressed at these sites was in the placement of houses, with higher-status families maintaining residences closer to the *yovaar* [ceremonial area]. In other estuaries, the population lived in small habitation sites dispersed throughout the wetlands. Here, social status was reflected in the location of houses relative to environmental features, with higher-status members living on elevated landforms and lower-status residents occupying flood-prone areas adjacent to the wetlands [Grenda and Altschul 2002b:129].

Grenda and Altschul argued that the particular pattern that applied to the Ballona depended heavily upon local environmental parameters, which may have changed over time.

Altschul et al. (2005) revisited the original 1990 model after SRI had completed an environmental reconstruction of the Ballona and archaeological testing at the Playa Vista sites. Although the broad outlines of the original model were supported, the timing and nature of environmental and cultural events were different from what was originally expected, which was that the population grew in step with the increasing diversity and density of wetland resources. Instead, it was found that the lagoon formed earlier than had been expected. The population also grew very rapidly during the Intermediate period and was spread throughout the Ballona, rather than restricted to the bluff tops (Altschul et al. 2005:285). Furthermore, much of the Ballona was abandoned after a.d. 1000, when the wetlands were still mature and presumably remained attractive. Altschul et al. (2005:285) suggested that the dispersed Intermediate period population aggregated into a single village at the edge of the lagoon, rearranged itself into small camps on the shore, or abandoned the Ballona, returning only periodically and in small groups.

Incorporating the results of the earlier work of Van Horn and his associates, Altschul et al. (2005) suggested that during the Millingstone period, use of the Ballona was intense enough for middens to develop. However, the sparseness of tools and faunal remains in early middens, such as those at LAN-206 (the Berger site), has indicated that this early occupation was restricted to short-lived camps that were presumably occupied for no more than a few weeks at a time.

The evidence from LAN-206, however, revealed that the earliest occupants of the Ballona practiced a littoral adaptation similar to that of contemporaneous populations of the Los Angeles and Orange County coasts, one that involved the exploitation of near-shore and lagoon fish and shellfish by small, highly mobile groups. No large settlements that date to this early time, such as the Millingstone period occupation at ORA-64, have been found in the Ballona.

Perhaps the most striking problem with the 1990 model is the notion that Millingstone and Intermediate period occupation of the Ballona was confined to the bluff tops because stable landforms had not been established in the wetlands by that time. The revised environmental reconstruction, however, revealed that by 5000 cal b.p., stable alluvial fans had been created at the base of the bluffs (Figure 39). SRI's testing further revealed that at least two sites had been established on those alluvial fans and at the edge of the lagoon by the Millingstone period and that three more had been established by the Intermediate period. The relationship between the lowland sites and the Intermediate period sites on the bluff tops became a central issue (Altschul et al. 2005). Faunal-exploitation patterns of lowland and bluff-top sites were quite different: lowland sites focused on terrestrial fauna, sometimes to the exclusion of fish and shellfish, whereas bluff-top sites exploited fish, especially lagoon species, and shellfish to a much greater extent. Furthermore, lowland sites appear to have been primarily small, seasonal camps or specialized resource-procurement sites, whereas larger and more-permanent settlements appear to have been present on the bluff tops.

Altschul et al. (2005:290–291) proposed several hypotheses to account for the differences in settlement types and faunal-exploitation patterns. One proposed hypothesis was that the two groups of sites were not really contemporary, that bluff-top sites dated to the early Intermediate period, and lowland sites dated to the late Intermediate period. Thus, the lagoon focus of the bluff-top sites was related to the larger extent of the lagoon during the early Intermediate period, whereas the greater terrestrial focus of the lowland sites was the result of shrinkage of the lagoon. That hypothesis, however, was not supported by the chronological analysis, which indicated that both bluff-top and lowland areas were occupied periodically throughout the Intermediate period (see Volume 2, this series). A second proposed hypothesis was that the two groups of settlements represented the activities of two distinct populations or social groups that used the wetlands at different times of the year. One group that practiced a typical coastal littoral adaptation settled on the bluffs, and another group that was more oriented toward terrestrial resources settled in the lowlands along Centinela Creek. A third proposed hypothesis was similar to one proposed for Newport Bay, that a single large social group resided most of the year in the larger bluff-top settlements and seasonally split into smaller task or residential groups to visit the lowlands. A proposed variant of that hypothesis was that the occupation of the Ballona was part of a seasonal round within a much larger territory, and each time people visited the Ballona, a decision was made to live either in the lowlands or on the bluff tops, depending upon the prevailing conditions.

With less substantial evidence, Altschul et al. (2005:292) could only speculate concerning the Late period occupation of the Ballona. Seasonal camps, such as LAN-47 and possibly LAN-54 (the Deane's Broken Mortar site) (*Note*: Subsequent investigations by SRI failed to find evidence of Late period occupation at LAN-54), were located along the edge of the lagoon, where subsistence focused on the plants and animals of the marsh and nearshore, including shellfish, fish, small mammals, and waterfowl. They also recognized LAN-62 as the most viable candidate for a large, permanently occupied village. If that were true, then Late period settlement of the Ballona would have fit the prevailing model of Late period village settlement proposed by Mason and Peterson (1994b). However, following on the ideas of Grenda and Altschul (1994a, 1994b), Altschul et al. (2007) believed that settlement in minor estuaries such as the Ballona was more likely to have been characterized by dispersed settlement than by the aggregated village pattern.

The Community Model

Altschul et al. (2005) proposed the community model to account for the diversity of settlement types in the Ballona without resorting to the village model. They suggested that there were five clusters of settlements that represented viable communities in 2000 b.p.: the West Bluffs community (LAN-63, LAN-64 [the Bluff site], and LAN-206), located on the bluff tops west of the Lincoln Gap; the Loyola-Marymount community (LAN-61A [the Loyola site], LAN-61B [the Marymount site], and LAN-61C), situated on the bluffs east of the Lincoln Gap; the lower Centinela Creek community (LAN-62 and LAN-211), located at the foot of the bluffs; the upper Centinela Creek community (LAN-60 [the Centinela site], LAN-193, and LAN-2768); and the East Bluffs community (LAN-59 [the Hughes site]), located at the eastern end of the bluffs. Previous research had suggested that settlements along the base of the bluff were functionally distinct from those on the bluff tops and might have represented dependent components of a larger contemporaneous community. Settlements at the base of the bluff appeared to have been resource-procurement sites focused on the intensive exploitation of terrestrial resources, whereas bluff-top sites appeared to have been small habitation sites with an estuarine subsistence focus. Although subsequent research suggested that sites in the two locations were much more similar to one another, Altschul et al. (2005) were still not able to determine whether the different communities were independent and contemporaneous settlements or independent but sequentially occupied settlements.

For example, the three communities around the Lincoln Gap (the West Bluffs, Loyola-Marymount, and lower Centinela Creek communities) were separated only by the slope

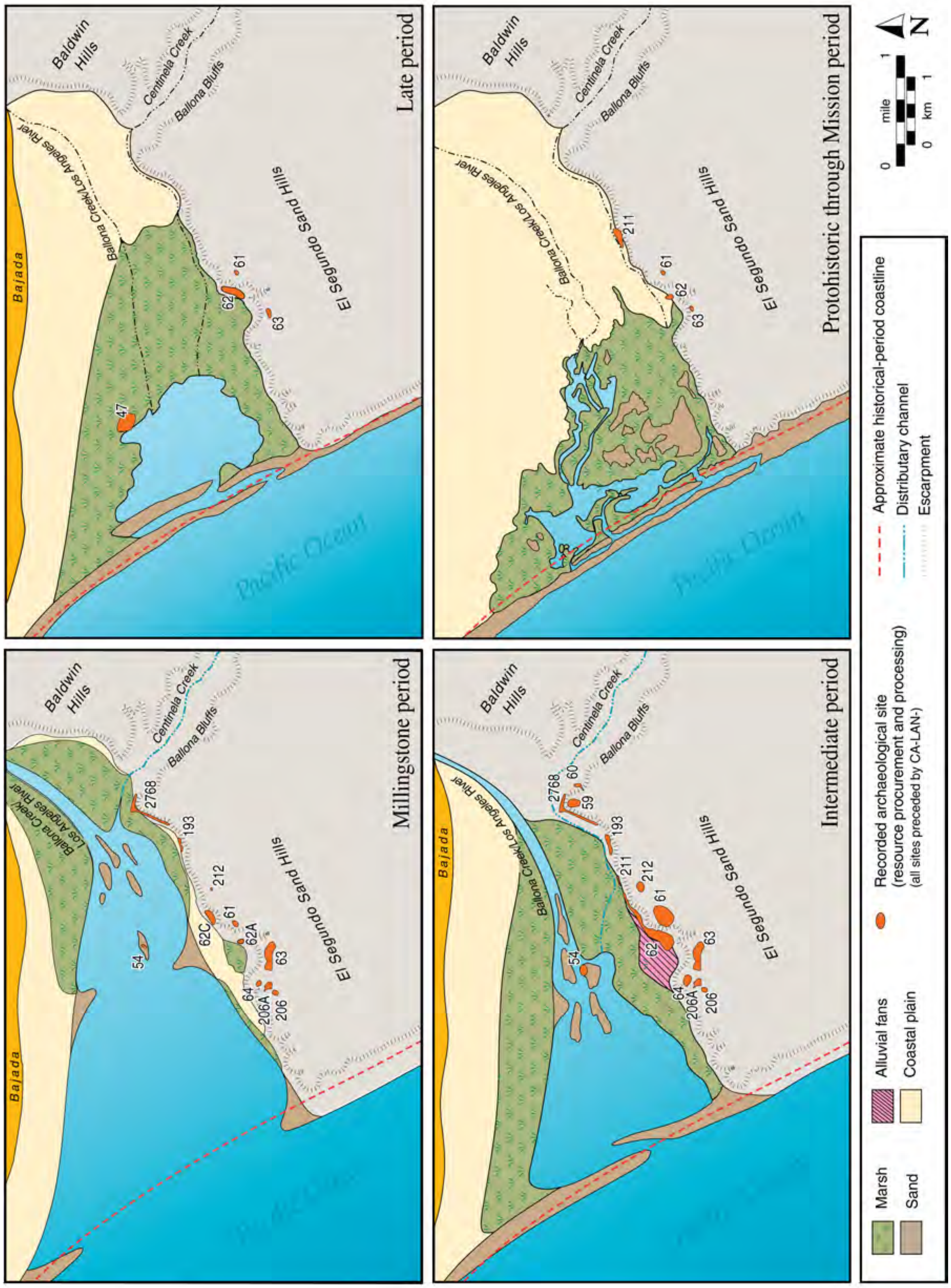

Figure 39. Reconstruction of the evolution of the Ballona from the Millingstone through Mission period.

of the bluff, and people could have moved easily from one site to the next on a daily basis through the gap. Thus, it is possible that the three constituted a single, larger, long-lived community representing occupation from the early Millingstone through Mission periods. Either the residents of that larger Lincoln Gap community moved periodically en masse from the top to the bottom of the bluffs and back again or the three settlements were occupied simultaneously. A third possibility is that one cluster of sites represents the primary residential area, and the other clusters represent seasonal occupations. That possibility is distinct from the village model in two important ways. First, the location of the primary residential cluster shifted over time, and second, residence was in a dispersed cluster of settlements rather than a single aggregated settlement.

The Temporary-Camp Model

The extensive excavations undertaken at the West Bluffs sites and other bluff-top sites by Van Horn and Associates and SRI (Douglass et al. 2005) have made it possible to take a more in-depth look at site structure and settlement function in that area. Van Horn (1987:272) suggested that the bluff-top sites were created by repeated, intermittent, short-term visits by one or two families over the course of thousands years during the Millingstone and Intermediate periods. Those small groups occupied the sites either as temporary camps or as logistical base camps primarily for resource-procurement activities in the Ballona. That function has been supported by evidence of a restricted set of activities largely focused on estuarine and grassland resources. Lithic and faunal data, along with numerous hearths, appear to support that view. The presence of nonutilitarian, ritual-related features and artifacts, however, does not (Altschul et al. 2000).

Van Horn (1987) recognized that discrete activity areas could be discerned at the bluff-top sites; specifically, cooking areas were discrete from middens. That pattern was best identified at the three West Bluffs sites, which are situated on the northern edge of the bluffs, overlooking the Ballona to the north and two large, natural depressions and the coastal prairie to the south—what we term the nexus between the wetlands and prairie. The larger, western depression, which separates LAN-64 and LAN-206 from LAN-63, held water for various lengths of time and may have been a vernal pool that provided a variety of important freshwater wetland resources during wet years. No features and few cultural materials were found in that area. The smaller, eastern depression, located south of LAN-63, was a large refuse dump that contained large quantities of shell. The western, northern, and eastern slopes of the smaller depression contained hundreds of thermal features and artifact concentrations. Three mourning features, one about 10 m in extent, were scattered near the western edge of the smaller depression (see Chapter 5, this volume). A cluster of inhumation and cremation burials was found at the western end of LAN-64, possibility representing the burial ground of a particular social group. Other inhumations were scattered around the peripheries of LAN-63 and LAN-64, suggesting isolated burial practices.

Thus, contrary to Van Horn's model, the living area in the West Bluffs community was highly structured and segregated into a number of distinct activity areas. Resource procurement was focused around the western depression (and in the lowlands), whereas resource processing (and probably residential activities) took place on the higher landforms bounding the two depressions. Refuse disposal was concentrated in the eastern depression. Communal ritual activities involving the mourning ceremony took place in the central portion of LAN-63, and a small-group burial area was found at the western end of LAN-64 (Douglass et al. 2005; Hull et al. 2013; Hull et al. 2006). In addition to this well-defined structure, analysis of the artifacts and fauna from the midden and features revealed a highly diverse set of activities strongly suggestive of an intensively or even permanently occupied site. The presence of small rock cairns that have been interpreted elsewhere as post supports for houses and other structures (Winterbourne 1967), together with ground-stone-artifact caches, were also indicative of settlements that were more-intensively occupied than has been suggested by Van Horn.

Finally, chronological analysis suggested that those sites were occupied primarily for a relatively brief period of time during the Intermediate period (there were other minor components at these sites, as well). An early Millingstone period occupation underlay the Intermediate period deposit at LAN-64, and Millingstone, Late, and Mission period occupations were identified at LAN-63 (Hull and Douglass 2005). However, almost all of the features at both LAN-63 and LAN-64 apparently dated to the Intermediate period, and many of those at LAN-63 may represent only about 200–300 years of occupation, based on the limited number of radiocarbon dates available from both sites (see Douglass et al. 2005; Hull and Douglass 2005). Taking this evidence together, Van Horn's model of short-term, intermittent occupation is probably apt prior to 3000 b.p. After that date, settlement underwent a fundamental change toward greatly reduced residential mobility and long-term occupation by multiple domestic groups. Sites in the Loyola-Marymount community, where a similar range of cultural materials and features were found, may reflect a similar situation (Douglass and Ciolek-Torrello 2007). Such evidence of site structure and intensive occupation during the Intermediate period, however, is not evident anywhere else in the Ballona, with the possible exception of LAN-62.

Evaluating the Models

Criteria for distinguishing the models can be summarized as follows:

- Village model
  - Population was concentrated in a single large, permanent settlement—the "primary village" as defined by Galdikas-Brindamour (1970:130–131)—commanding a communal territory;
    - Specialized resource-procurement stations and small, temporary camps also may have been present in outlying locations distant from the village;
      - As defined by Van Horn (1987), these camps were short-term, intermittent occupations by one or two families;
      - These camps focused on a narrow range of resources, with a low diversity of activities represented.
- Hierarchical settlement model
  - A primary village also commanded a communal territory and was located in the richest resource area;
  - Smaller, seasonal or permanent residential sites situated in locations with poorer resources;
    - Smaller residential sites are indicated by the presence of site structure and a diversity of activities and resources exploited;
    - Otherwise, these sites lack the indicators of the primary village.
- Community model
  - Settlement was dispersed among one or more clusters of smaller, seasonal or permanent residential sites in a general location;
  - A single aggregated, primary village was not present.
- Temporary Camp model
  - No major residential sites, seasonal or permanent, were present;
  - Settlement was dispersed in temporary and seasonally used, specialized resource locations and small campsites.

Native Settlements in the Ballona

Since the time that Nels Nelson made his first foray into the Ballona in 1912, 17 native sites have been found and investigated. Of those, only 5 (LAN-54, LAN-62, LAN-193, LAN-211, and LAN-2768) are included in the PVAHP. Most of the other sites, however, have been investigated previously, many by SRI. To gain a more complete picture of settlement and community organization in the region, it is necessary to discuss all of these sites (see also Volume 1, this series). Unfortunately, some of the non-PVAHP sites were only observed prior to their destruction or were merely tested, using methods and sampling strategies completely different from those used by SRI during the PVAHP. Thus, direct, quantitative comparisons are not always possible. Nevertheless, these sites can provide important information regarding native settlement in the Ballona.

The sites were not randomly distributed throughout the Ballona but were clustered, apparently to take best advantage of the Ballona's natural landscape. The majority of the sites were situated either on low hills along the northern edge of the ancient dunes that make up the Westchester Bluffs or at their base, on alluvial fans projecting from the canyons that drain the bluffs. Sites on the bluff tops would have been ideally situated to take advantage of both the vernal pools and the vast prairies of the Coastal Plain to the south and the Ballona Lagoon and wetlands to the north. Sites along the base of the bluff were situated on elevated fans that would have provided safety from rising waters and floods in the wetlands. At the same time, residents of these sites would have had direct access to the resources of the lagoon, marshes, and Centinela Creek, a spring-fed stream that follows along the base of the bluff from Centinela Canyon, which divides the Westchester Bluffs from the Baldwin Hills to the east (see Figure 2).

The greatest concentration of sites with the longest history of occupation was located in the area we term the Lincoln Gap, a natural ravine in the Westchester Bluffs that empties into the southeastern corner of the lagoon and that serves today as the primary corridor connecting the modern communities of the Ballona with Westchester and Los Angeles International Airport, via Lincoln Boulevard (see Figure 2). LAN-63, LAN-64, and LAN-206 were clustered on the bluff tops west of the gap; LAN-61 and LAN-212 were located on the bluff tops east of the gap; LAN-62 was also situated east of the gap, but at the base of the bluff below LAN-61. Prior to construction of the Hughes Aircraft Company plant and the extensive earthmoving activities associated with it, sites along the base of the bluff may have represented a continuous band of occupation from LAN-62, at the lagoon edge, to LAN-60, at the opening of Centinela Canyon at the eastern end of the bluffs. That occupation was concentrated on the alluvial fans and was interrupted only by the gullies draining the bluff slopes. A similar band of occupation may have been present from LAN-206, west of the Lincoln Gap, to LAN-59, at the eastern tip of the bluffs. By contrast, no occupation of the bluff tops has been found west of LAN-206 or along its base west of the eastern edge of the lagoon. Surprisingly, only two sites, LAN-54 and LAN-194 (the Hammack Street site), were located along Ballona Creek, and only one other site (in addition to LAN-62) was located on the edge of the lagoon, although LAN-47 was isolated from all the other sites along the northern edge of the lagoon. Other middens with prehistoric materials were found along the eastern edge of the lagoon during SRI's testing phase, suggesting that this was an important occupational zone. Data recovery, however, determined that the middens were redeposited from the base of the bluff as part of Hughes Aircraft Company's construction activities (see Chapter 11, Volume 2, this series).

In the following sections, we provide brief summaries of relevant background information about these native sites (Table 1). For further details, the reader is directed to Volume 2, this series.

Table 1. Native Sites and Temporal Components in the Ballona, Including Excavation Units Used in Functional Analysis

Temporal Component, by Site	Used in Site-Function Analysis	Control-Unit Volume (m^3)	Feature Volume (m^3)
LAN-47			
Late period	X	26.3	
LAN 54			
Millingstone period	X	3.24	0.74
Intermediate period	X	7.6	1.5
LAN-59			
Millingstone period			
Intermediate period			
LAN-60			
Intermediate period	X	10.8	
LAN-61A and LAN-61B			
Millingstone period			
Intermediate period			
Protohistoric/Mission period			
LAN-62[a]			
Millingstone period	X	6.4 v, 5.1 iv	0.56
Intermediate period	X	5.28 v, 6.24 iv	
Late period	X	0.1	
Protohistoric/Mission period	X	2.14 v, 2.3 iv	9.55
LAN-63			
Millingstone period			
Intermediate period	X	16.74 v, 14.43 iv	
Late period			
LAN-64			
Millingstone period			
Intermediate period	X	20.78	
LAN-65			
Unknown			
LAN-193			
Millingstone period	X	3.7	
Intermediate period	X	1.51	0.38 v, 1.12 iv
LAN-194			
Rancho period			
LAN-206 and LAN-206A			
Millingstone period			
Intermediate period			
LAN-211			
Intermediate period	X	4.2 v, 3.8 iv	0.77 v, 0.12 iv
Protohistoric/Mission period	X	0.2	4.16 v, 2.26 iv
LAN-212			
Millingstone period			
LAN-1118			
Unknown			
LAN-1716			
Unknown			
LAN-2768			
Intermediate period	X	10.0 v, 17.6 iv	5.18 v, 0.77 iv
Rancho period			

Key: iv = invertebrates; v = vertebrates.
[a] Does not include burial features.

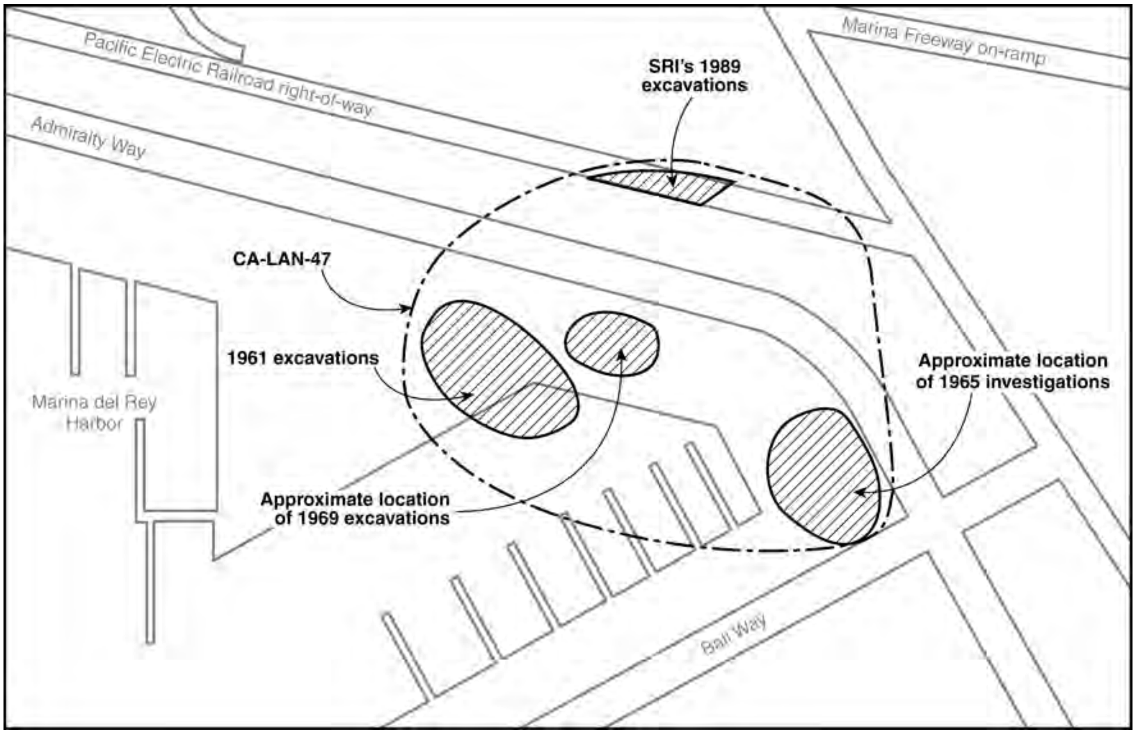

Figure 40. Site plan for the Admiralty site, LAN-47 (adapted from Altschul, Homburg, and Ciolek-Torrello [1992]).

LAN-47 (Admiralty Site)

Located in Marina del Rey, LAN-47 was originally recorded in the 1940s, but all information from that survey has been lost (Dillon et al. 1988:35) (Figure 40). LAN-47 was the only site located in the northern Ballona and on the edge of the ancient lagoon and wetlands; almost all of the other sites were on top of bluffs or along their base (see Figure 2). During the construction of the marina in 1961, Keith Johnson excavated a portion of LAN-47 in a salvage operation and discovered a midden containing four burials, stone-bowl fragments, projectile points, debitage, choppers, hammerstones, scrapers, a pestle, ground stone fragments, bone tools, antler harpoons, shell beads, and abundant shellfish and vertebrate-faunal remains (Meighan 1961). Additional human remains were found in two subsequent salvage operations in 1965 and 1969. The site was believed to have been destroyed by the construction of the marina and associated buildings and infrastructure, but more than 20 years later, Brian Dillon and colleagues (Dillon et al. 1988) located a shell deposit that contained an abundance of artifacts and subsistence remains dating to the Late period near the edge of the marina and the location of previous investigations.

That portion of LAN-47 was subsequently investigated by SRI in 1989 (Altschul, Homburg, and Ciolek-Torrello 1992), at which time they excavated a total of 81 m^2 of the small area of preserved midden, which they estimated covered an area of 1,223 m^2. The site was found to have been occupied intermittently for a relatively short period of time between approximately a.d. 1050 and 1150. The prehistoric inhabitants of the site subsisted on plants and animals found in the marsh, particularly shellfish, waterfowl, fish, small mammals, and various seeds and berries. Surprisingly, despite the proximity of the site to Santa Monica Bay, little evidence of pelagic exploitation was found. Four flaked stone technologies were identified at the site, ranging from finely controlled bifacial and microlith industries to the manufacture of expedient flake tools. Although bone-awl tips were identified in the collection, there was little evidence of technology related to the manufacture of other goods, including fishhooks and shell beads. No burials were found during the SRI excavations, although a few fragmentary human remains were found at the edge of the investigated area nearest the earlier investigations.

LAN-54 (Deane's Broken Mortar Site)

This site, investigated as part of the PVAHP, was another isolated site located near the historical confluence of Ballona Creek and the Ballona Lagoon (see Figure 2). It was originally recorded in 1949, but prior to SRI's work, no subsurface investigations had been performed. In 2000, SRI conducted a limited testing project at LAN-54 (Vargas and Altschul 2001) designed to identify intact site deposits and to determine the limits of those deposits. A series of six small trenches was placed in the vicinity of LAN-54, along both sides of Culver Boulevard. One trench (Trench [TR] 2) encountered an intact and largely undisturbed site deposit close to the recorded site boundary.

SRI conducted data recovery at LAN-54 in June and July 2002 (Keller and Altschul 2002), ahead of planned widening of Culver Boulevard. The project consisted of trenches, control-unit blocks, stripping units, and the investigation of 37 identified prehistoric and early-twentieth-century features and their surrounding matrixes (Figure 41). A total of 43.1 m^3 was excavated in hand-excavation units. Artifacts included a wide variety of items, from manos, metates, pestles, and possible mortar fragments to hammerstones, cores, flakes, flaked stone tools, dart-sized projectile points, a large number of pieces of FAR, and manuports, as well as worked-bone tools. Faunal remains appeared to have been well preserved and were dominated by bay and estuary shell species (predominantly scallop [*Argopecten* spp.], native Pacific oyster [*Ostrea lurida*], and venus clam [*Chione* spp.]) but also included fish, bird, marine-mammal, and terrestrial-mammal bones. Upper fill and mixed levels also contained significant numbers of cow or horse remains likely related to early-twentieth-century use of the site area.

Of the 37 features investigated at LAN-54, 4 probably date to the early twentieth century, 3 were prehistoric burial locations (containing four adult individuals), 3 were soil stains possibly indicating prehistoric structural features that had been dug into the C horizon, and the remainder were concentrations of prehistoric artifacts containing a variety of materials, such as FAR, manuports, flaked and ground stone tools, marine shell, bone tools, and faunal remains (Keller and Altschul 2002). Unlike at most of the sites in the Ballona, no intact hearths were identified.

In total, 20 radiocarbon assays from shell specimens were used to identify four discrete occupational episodes at LAN-54 that ranged from the late Millingstone period through the early Intermediate period, between ca. 2750 and 80 cal b.c. The majority of the dates were derived from features dating to the episode that spans the transition between the Millingstone and Intermediate periods.

LAN-59 (Hughes Site)

LAN-59 was located at the eastern tip of the bluffs, overlooking current-day Sepulveda Boulevard and the historical-period course of Centinela Creek (see Figure 2). It was originally recorded by Malcolm Farmer in 1936 and was rerecorded by Charles Rozaire and Russell Belous in 1950. The site was also known to private collectors in the area, who removed many artifacts over the years. In addition, the site was badly damaged by mechanical grading prior to 1950. Apparently, soils from the site were scraped up and used to fill nearby erosional gullies. LAN-59 underwent data recovery by Archaeological Associates in 1984, under the direction of David M. Van Horn. Based on three radiocarbon dates, LAN-59 was estimated to have been occupied during the late Intermediate period (ca. a.d. 400–1000) (Van Horn 1984a:47). However, three complete crescent-shaped objects and Lake Mojave and Gypsum projectile points were also identified during data recovery work, suggesting a much earlier San Dieguito or early Millingstone period (ca. 5000 b.c.) component. Nine features were identified, six of which were concentrations of fragments of FAR (some of which were reused ground stone fragments) and other artifacts; one other feature was a stone-bowl fragment associated with faunal bone, and two were caches of abalone- (*Haliotis* spp.–) shell bowls.

The lithic-artifact collection was indicative of a full range of production and processing activities at LAN-59. The majority of the lithic finds at the site, not unexpectedly, consisted of simple flakes bearing no clear signs of retouch or reuse (Van Horn 1984a:15). The majority of the lithic artifacts were produced from locally available materials, although jasper, fused shale, and obsidian were recovered in small numbers. The identification of 265 tarring pebbles indicated that waterproofing baskets was an important activity performed by the site's inhabitants. In addition to the earlier point types, Rose Spring–series points, leaf-shaped Cottonwood points, and Desert Side-notched arrowheads were also identified. The Cottonwood and Desert Side-notched projectile points, along with the presence of 10 steatite fragments of *comales* (flat steatite vessels found only in Mission period contexts in the Ballona), suggested that LAN-59 may also have had a Protohistoric or Mission period component.

LAN-60 (Centinela Site)

LAN-60 was an Intermediate period site located at the base of the bluffs, below LAN-59, at the eastern end of the PVAHP area (see Figure 2). The site was first recorded in 1936 by Malcolm Farmer during a survey he conducted in 1934 with Eugene Robinson (Farmer 1936) and was later recorded by Charles Rozaire and Russell Belous (1950). The site was believed to have been destroyed, but in 1991, while monitoring construction at LAN-59, SRI discovered intact midden deposits at LAN-60 (Figure 42). SRI then performed a 4-day salvage operation during which 1.3 m^3 were excavated from what was designated Area C of the site. A 1-m-thick midden deposit was found to have been occupied for a relatively brief time during the Intermediate period, ca. 2100 cal b.p. (Grenda et al. 1994). The materials from the site indicated relatively short-term, seasonal occupations. In addition to recovering flaked and ground stone tools, shellfish, and the remains of waterfowl, fish, and small mammals, a single feature—a hearth—was recorded in the small excavated area. Stone beads were also found, but no shell beads were present.

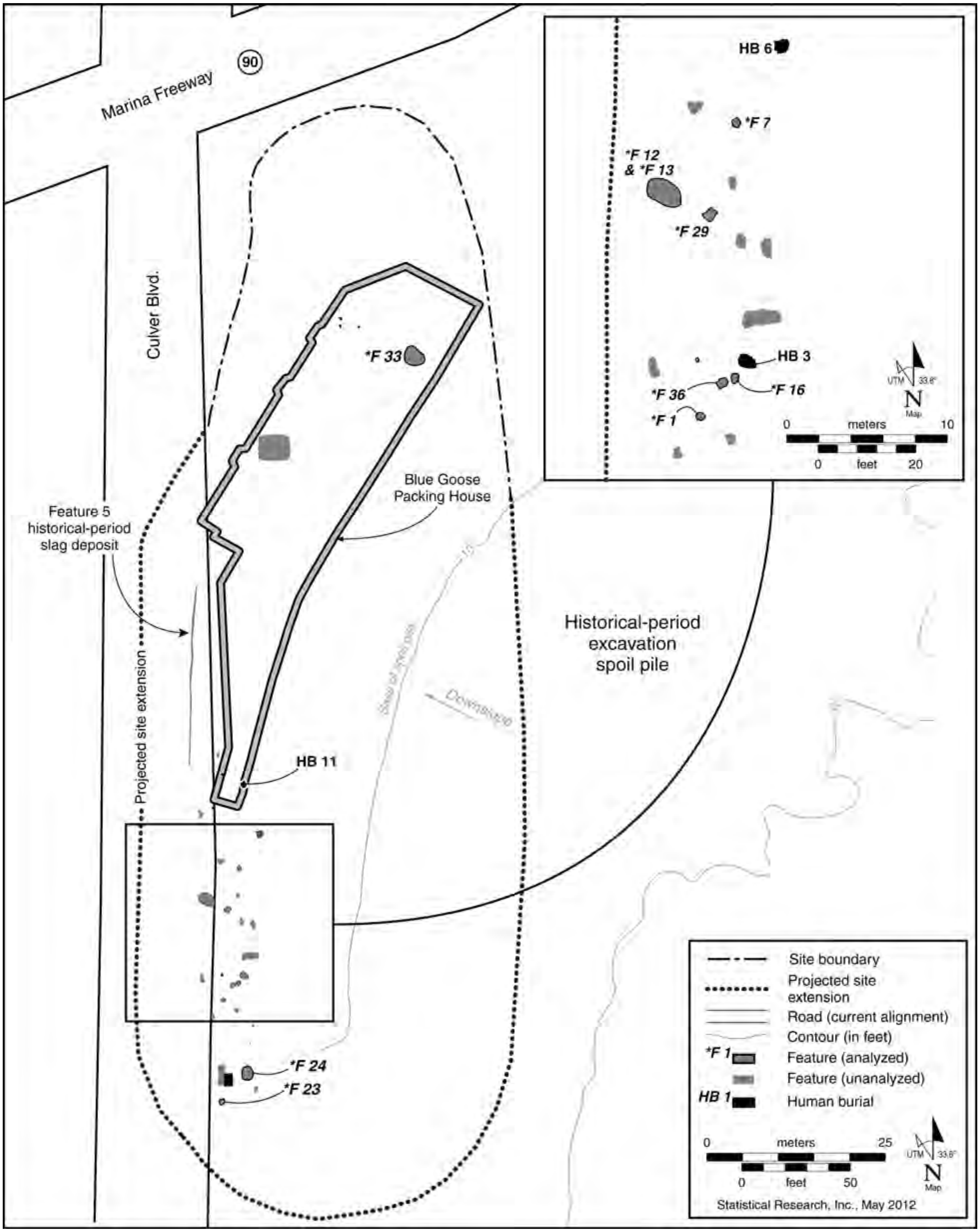

Figure 41. Site plan for the Deane's Broken Mortar site, LAN-54.

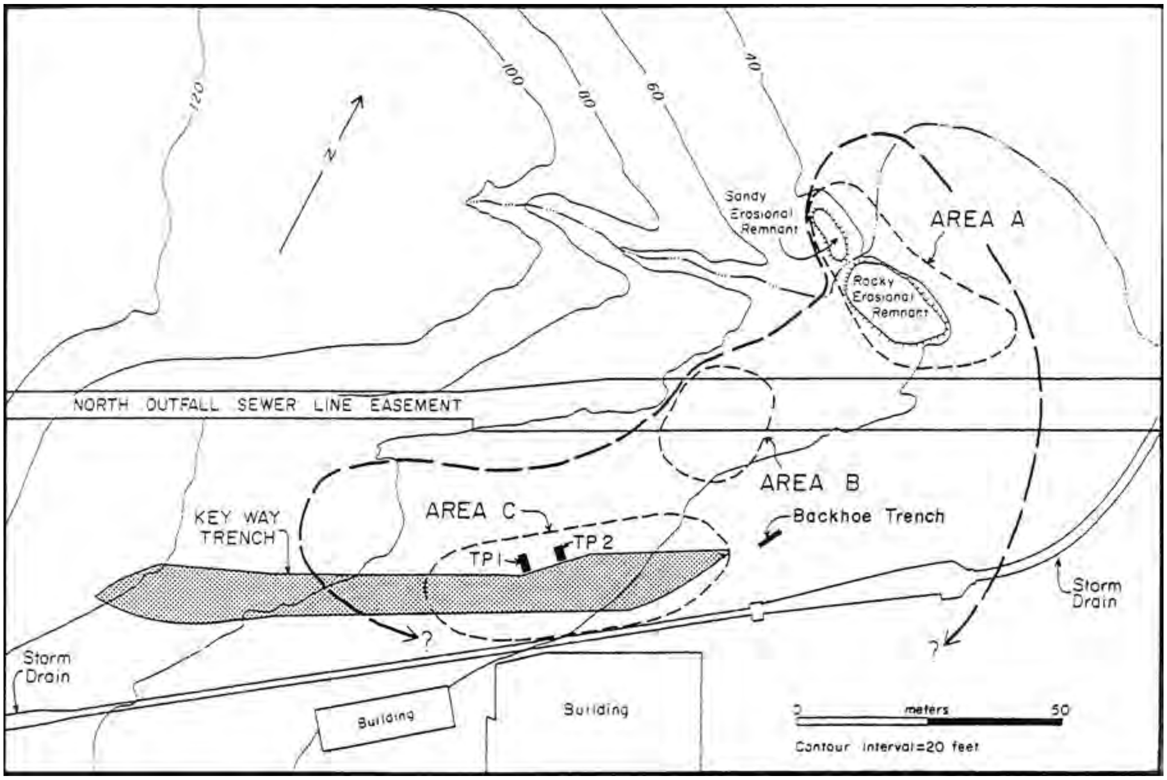

Figure 42. Site plan for the Centinela site, LAN-60 (adapted from Grenda et al. [1994]).

LAN-61A and LAN-61B (Loyola and Marymount Sites)

LAN-61 was located on the bluff tops, on the eastern side of the Lincoln Gap, overlooking LAN-62. Testing and data recovery at the site in the 1980s by Archaeological Associates revealed three loci (Loci A–C) with thick, intact deposits (Van Horn and Murray 1985). LAN-61A has become known as the Loyola site, LAN-61B has become known as the Marymount site, and LAN-61C remains unnamed. Although different activities took place at those different loci, all appeared to have been contemporaneous. Data recovery excavations directed by David M. Van Horn resulted in the identification of 32 features (13 at LAN-61A, 19 at LAN-61B, and none at LAN-61C) (Figure 43). SRI continued data recovery at LAN-61 in 2007 and 2008 in an area just east of where Van Horn conducted his investigations (Van Galder and Douglass 2013). There, SRI excavated a total of 19 units in two general areas, in addition to trenching and mechanical stripping, and identified 3 prehistoric features, all rock clusters containing fire-affected artifacts.

Feature types identified in both excavations included both large and small hearths, artifact scatters, ground stone caches, and a burial. Many of the features were associated with subsistence and production activities at the site. Only a single burial (Feature 9 at LAN-61A) was described; however, four distinct “clusters” of human bone were found at LAN-61A and contained a total of 191 human elements, and two additional distinct “clusters” of human bone were found at LAN-61B and contained a total of 65 human elements. Two of the clusters at LAN-61A, located in the same trench, only 0.3 m apart from one another, consisted of unburned human-cranial fragments and may represent a single burial. Almost all of the human bone at LAN-61B had been burned and may represent individual cremations.

The single reported burial feature, Feature 9, consisted of a concentration of burned objects and a peripheral scatter of artifacts, cobbles, and human bone. The entire feature measured approximately 2.9 by 2 m. Artifacts included a compact, oval pile of ground stone and cobble fragments; all were fire affected. Fragments of some ground stone (including a metate and a bowl) could be partially refitted, indicating that whole artifacts had been broken and tossed into a fire. This feature may represent a mourning feature similar to those found at LAN-63 (see below).

Subsistence analyses at all three loci of LAN-61 suggested a focus on the fish and birds of the lagoon; shellfish played a relatively small role in the subsistence practices of the site’s occupants. Shellfish remains were very sparse throughout LAN-61, but an abundance of fish remains suggested that the

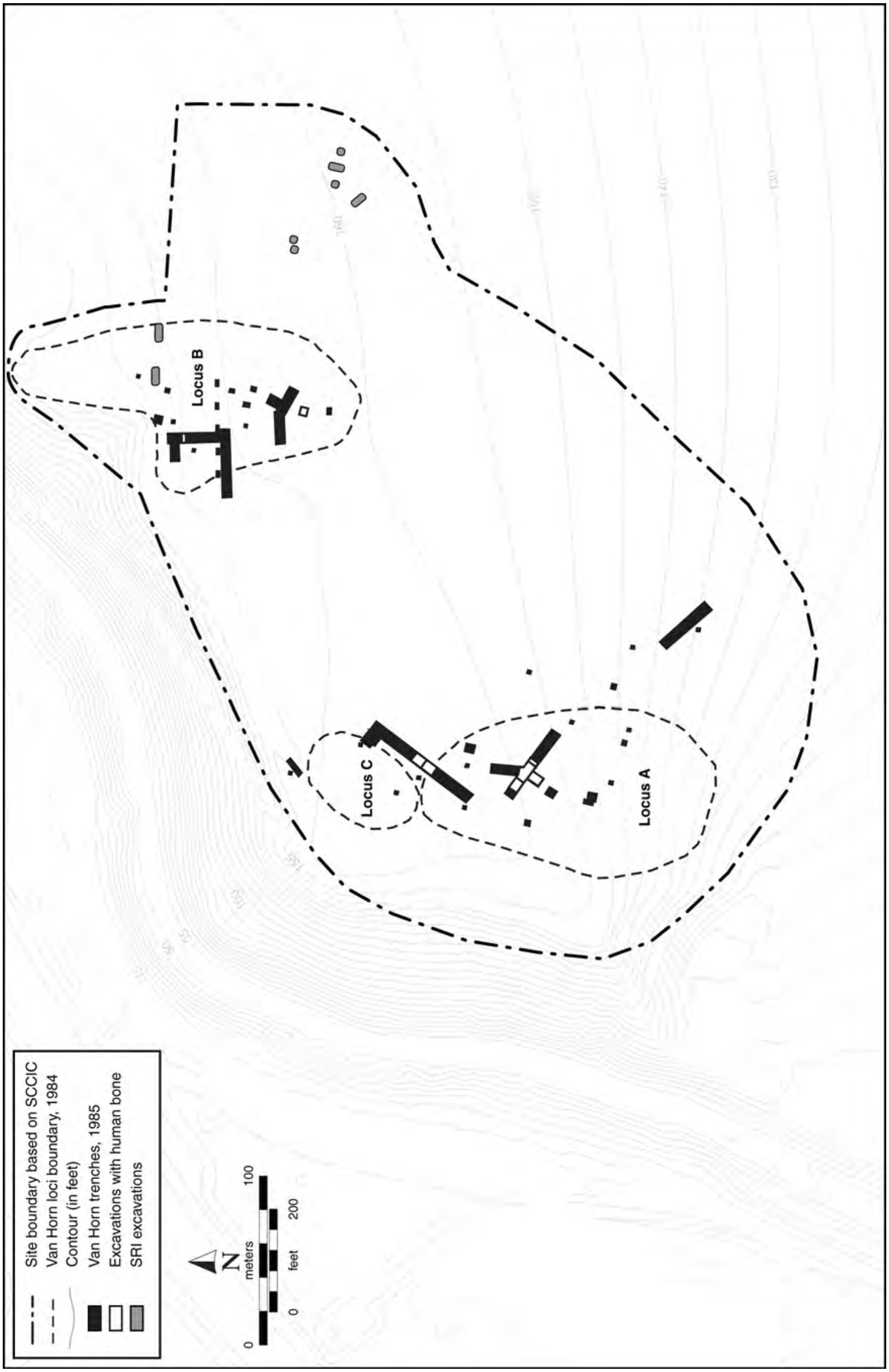

Figure 43. Site plan for the Loyola and Marymount sites, LAN-61 (adapted from Van Horn and Murray [1985]).

site's inhabitants focused on species obtained from nearshore and shallow lagoon habitats. The complete absence of artifacts made from marine shell was notable. The abundance of ground stone and terrestrial-faunal remains, especially those of deer and rabbit, also suggested that plants and animals from the nearby coastal prairie contributed an important portion of the local diet.

The presence of hundreds of tarring pebbles and numerous clumps of asphaltum and pointed bone tips suggested that the manufacture of tar-lined baskets was an important activity at this site. The presence of steatite bowls and *comales* in all portions of the site suggested that trade with Catalina Island was important to the residents of the site. Based on the lack of site structure and an undeveloped midden, Van Horn and Murray (1985) argued that LAN-61 was occupied on a short-term, intermittent basis during the fall and winter months but was not occupied year-round.

Nine radiocarbon and 19 obsidian-hydration samples were collected from the site as a whole and were analyzed as part of Van Horn and Murray's (1985) data recovery investigations. The radiocarbon dates for LAN-61 ranged from 4710 ± 80 to 580 ± 60 cal b.p., and the majority dated to the Late Millingstone and Intermediate periods (ca. 3500–1600 cal b.p.). Hull et al. (2013) reinterpreted the obsidian-hydration data using Basgall's (1990) conversion of raw Coso Volcanic Field hydration measurements and a rate formula developed for the Ballona and West Bluffs projects (Hull 2008; Hull and Douglass 2005) with a rate-correction factor for individual depth below surface based on Santa Monica Pier temperature data. The resulting dates fell into five possible clusters (ca. 3900 b.c. [5850 b.p.], 3125 b.c. [5075 b.p.], 2390–1785 b.c. [4340–3735 b.p.], 670 b.c.–a.d. 270 [2650–1680 b.p.], and a.d. 825 [2775 b.p.]) (Hull, Van Galder, and Douglass 2013:Table 11.3, Figure 11.1). Several of the oldest dates in the sample, however, were from contexts that were stratigraphically above more-recent dates, whereas two others represented two bands on one artifact, suggesting artifact scavenging and reuse. Given these observations, Hull, Van Galder, and Douglass (2013:11-4) suggested that the obsidian-hydration dates that defined the oldest temporal clusters from Van Horn and Murray's (1985) excavations may reflect cultural or natural site-formation processes rather than evidence of early site use. Taking that into consideration, the remaining clusters were consistent with the radiocarbon dates.

Artifactual evidence not considered by Van Horn and Murray suggested the possibility of later components. Ten glass trade beads were recovered from three different trenches at the site (Van Horn and Murray 1985:147–148), and at least one feature contained examples of *comales*. In addition, Cottonwood projectile points were also identified in the collection, and those generally date to between the Late and Mission periods.

SRI conducted additional archaeological testing and data recovery in the northeastern portion of the site between 2007 and 2008, when a total of 20.8 m^3 was excavated in 18 test units (Douglass and Ciolek-Torrello 2007; Van Galder and Douglass 2013). Three prehistoric rock clusters were identified and recorded as consisting of clusters of modified and unmodified cobbles that lacked evidence of thermal alteration. A single radiocarbon date (360–200 cal b.c. or 2310–2150 cal b.p.) obtained from the excavated area was consistent with the primary Intermediate period occupation documented by Van Horn and Murray (1985) at this site (Hull, Van Galder, and Douglass 2013:11-2)Hull HH. Nine obsidian-hydration dates were also obtained from SRI's investigations; they fell within a range of 5115–1360 b.p. Two clusters were apparent within that span, at ca. 2325–2640 b.p. and 1360–1880 b.p., and the earliest date (5115 b.p.) was a distinct outlier. These ranges are consistent with the dates obtained from the earlier excavations by Van Horn and Murray (1985).

Analysis of soil samples from the upper strata of this site revealed the presence of domesticated wheat and barley seeds along with carbonized native seeds, providing additional evidence of a Mission period component at the site (Douglass and Ciolek-Torrello 2007:5–7; Van Galder and Douglass 2013), a combination also documented in Mission period contexts at LAN-62 and LAN-211 (see Chapter 4, this volume). Unfortunately, the seeds were likely from mixed contexts, and therefore, it is unclear whether there was a discrete Mission period deposit at LAN-61 or simply scattered evidence of Mission period use of the site. Taken together, the various lines of evidence indicated primary occupation of LAN-61 during the Intermediate period, lesser occupation in the late Millingstone period, and possible occupations in the middle Millingstone, Late, and Mission periods.

LAN-62 (Peck Site)

LAN-62, the Peck site (also known as the Mar Vista site), was located at the base of the Lincoln Gap, on an alluvial fan extending from the base of the Westchester Bluffs below LAN-61. This site was the most important component of the PVAHP. It was first formally excavated by Stuart Peck as an Archaeological Survey Association of Southern California (ASA) field project in the 1940s (see Figure 2). Luhrs and Arris (1948) completed the site-record form for the ASA. Peck (1947) excavated in the area we have denoted as Locus B, which was subsequently destroyed during the Hughes era. In that area, Peck noted two distinct occupations that possibly related to Intermediate and Late period components. The upper occupation contained cremations; obsidian; soapstone bowls; large, deep mortars and pestles; pelagic fish; and shellfish (mostly scallops and "cockles"). The earlier occupation contained inhumations, small mortars, manos, large metates, and shellfish (mostly Pismo clam [*Tivela stultorum*] and abalone). LAN-62 was later investigated by Dillon (1982a, 1982b; see also Dillon et al. 1983), King and Singer (1983), Archaeological Associates (Freeman et al. 1987; Van Horn 1984b), and SRI (Altschul 1991; Altschul, Homburg, and Ciolek-Torrello 1992; Altschul et al. 2003; Grenda et al. 1999; Vargas et al. 2005). All of those investigations indicated that

LAN-62 was the best candidate in the Ballona for a "village" site, as characterized in ethnohistoric records, and appeared to have the deepest and densest midden, suggesting a long and intensive occupation.

SRI conducted limited testing at LAN-62 on separate occasions in 1998, 1999, and 2001 and developed a testing plan that included the use of mechanical bucket augers and trenching. Generally, deposits were found to be thick along the base of the bluff and, depending on the exact location, sloped deeper the farther the site extended north from the base of the bluff. Testing revealed that a significant portion of the site had been truncated and disturbed during the Hughes era, especially in Locus B, and that site deposits had likely been used as fill for an extension of the runway built by Hughes in the 1940s (Peck 1947) (see Figure 36).

SRI conducted data recovery at LAN-62 Loci A–C, between September 2003 and August 2004 (Vargas et al. 2005) (Figures 44–46). Excavations at Loci D and G occurred in September 2005 and April–May 2006, respectively (Van Galder et al. 2006; Vargas and Douglass 2009). Hundreds of test pits, totaling 1,424.5 m^3 in volume, and numerous mechanical-stripping units were excavated. Archaeologists excavated almost 600 features, including over 370 discrete burials, numerous mortuary and ritual offerings, 3 animal burials, numerous discard areas, activity areas, pits, and thermal features. A dense burial area containing hundreds of burials appeared to have been established at some time during the Late or Protohistoric period (see Chapter 6, this volume). The burial area, however, was probably used most intensively during the subsequent Mission period.

As discussed in greater detail in Chapters 1 and 2, this volume, and in Volume 2, this series, analyses of materials from Locus A revealed four major temporal components: a Mission period (a.d. 1771–1834) component, a Late period (ca. 1000–400 cal b.p.) component, and Intermediate period (ca. 3000–1000 cal b.p.) and Millingstone period (ca. 6000–3000 cal b.p.) occupations (Vargas et al. 2005; see Chapter 2, this volume). Faunal specimens—which dominated the sample, regardless of test pit, level, or stratum—represented a minimum of 35 shellfish, 5 fish, 1 amphibian, 3 reptilian, 4 bird, and 20 mammalian taxa. Also included in the collection were several starfish and coral fragments, along with nearly 400 freshwater-snail shells. Marine-shell fragments—particularly bay clams, such as the common California venus clam (*Chione californiensis*)—accounted for nearly 60 percent of the collection. Other economically important shell taxa included oysters (Ostreidae), scallops, Pacific littleneck clams (*Protothaca staminea*), and abalone. Fish bones were present but in limited numbers (Vargas et al. 2005). The inhabitants of LAN-62 almost exclusively relied on locally available Franciscan chert, basalt, and metaquartzite cobbles to meet their stone-tool needs. Other identified materials included rhyolite, granite, and, occasionally, obsidian. Bifacial tools included numerous Cottonwood Triangular arrow points.

By contrast, the excavations at LAN-62 Locus D revealed highly disturbed deposits with scant cultural materials (Van Galder et al. 2006). Excavations at Locus G, located north of and adjacent to Locus A, revealed a relatively intact but sparse deposit overall and few features. Interestingly, the Locus G excavations, located farther out on the alluvial fan from Locus A and closer to the lagoon, revealed prehistoric features on the edge of the wetlands, which prehistorically interfingered with the alluvial fan. Despite the scarcity of cultural materials in Locus G, the deposit was relatively thick, measuring more than 2 m deep in many places. Soil stratigraphy was complex at the site and included more than 16 identifiable stratigraphic breaks (Vargas and Douglass 2009).

Overall, LAN-62 is viewed as the most important site in the Ballona; it had the longest occupational history, beginning at least 7,000 years ago. Although other sites contained evidence of occupation at least 2,000 years earlier, the occupational history at LAN-62 was more continuous and intensive. The use of Locus A as a major burial ground was also unique to the Ballona, and the site can be considered a persistent place (see discussion in Chapter 2, this volume). Thus, it is not surprising that most of the research for the PVAHP discussed in the volumes of this series focuses on LAN-62.

Eight occupational episodes were distinguished at LAN-62, based on radiocarbon assays, stratigraphic relationships, and temporally diagnostic artifacts. The first episode encompasses the early Millingstone period between 4990 and 4280 cal b.c. and represents the earliest occupation of the Ballona below the bluffs, where an earlier Millingstone period occupation was found at LAN-64. That occupation was followed by a hiatus of over 1,000 years before the Ballona was reoccupied in the late Millingstone period. The ensuing seven occupational episodes at LAN-62 represent a continuous occupation from that time (ca. 3010 cal b.c.) to the end of the Intermediate period (ca. cal a.d. 980). For purposes of analysis, Episodes 2–4 and Episodes 5–7 (for a detailed discussion of these episodes, see Volume 2, this series) were merged into more-broadly defined Millingstone and Intermediate period groups, because the finer episode and subepisode distinctions resulted in reduced sample sizes that rendered them impractical for artifact and ecofact analyses. Furthermore, the resolution of the radiocarbon dates was not always sufficient to support detailed episode and subepisode distinctions. Following a brief 200-year hiatus, LAN-62 was again reoccupied from ca. cal a.d. 1190 until the 1800s. The vast majority of features and other materials in Episode 8, however, probably postdated cal a.d. 1450 (Episode 8B/C), in the latter part of the Late period, as corroborated by temporally diagnostic artifacts, such as shell and glass beads and other European introductions.

LAN-63 (Del Rey Site)

LAN-63 was situated on the edge of bluffs overlooking the Ballona and just to the west of the Lincoln Gap, opposite LAN-61 (Figure 47; see Figure 2). The site was first excavated by Archaeological Associates (Van Horn 1987) in

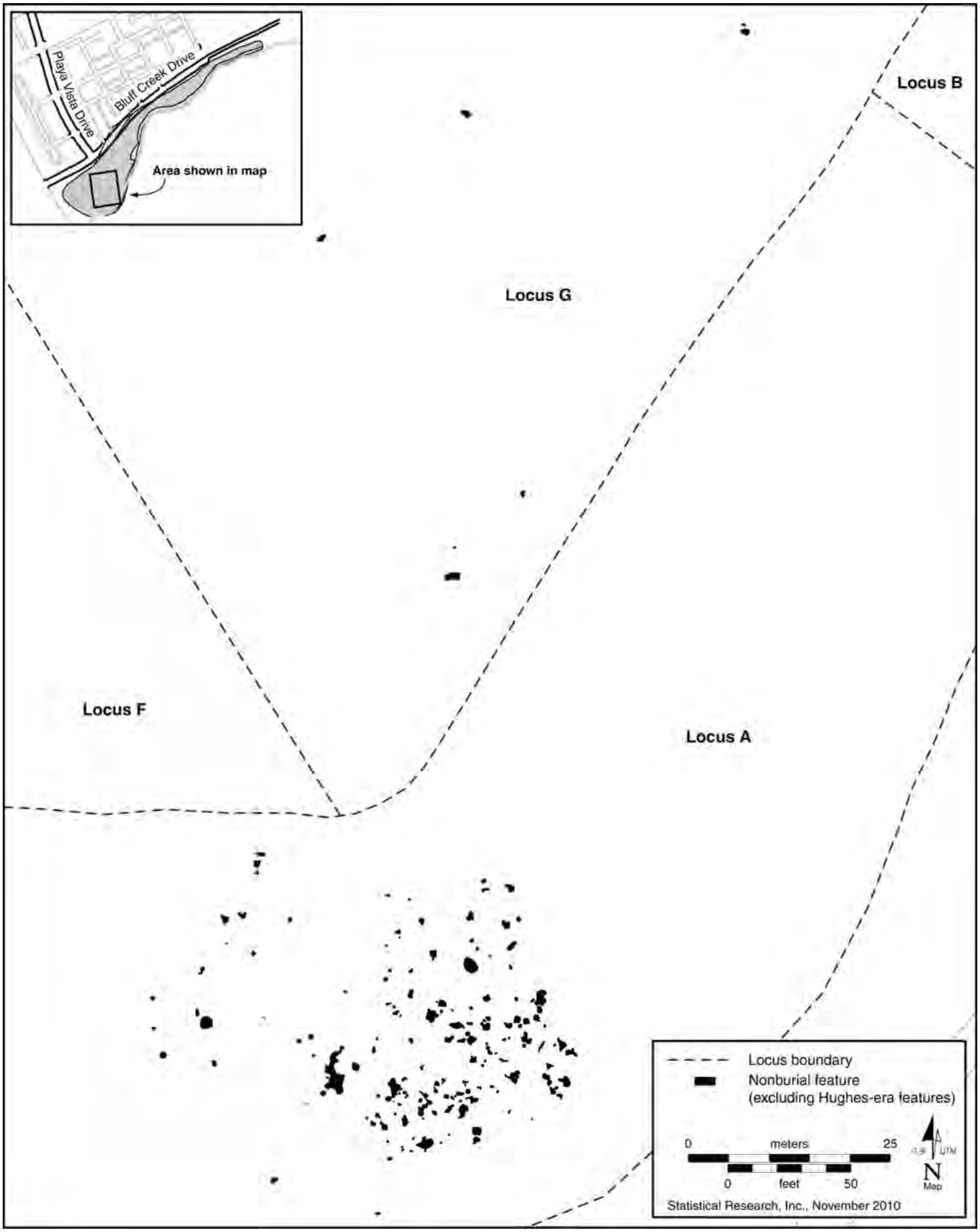

Figure 44. Site plan for the Peck site, LAN-62 Locus A/G.

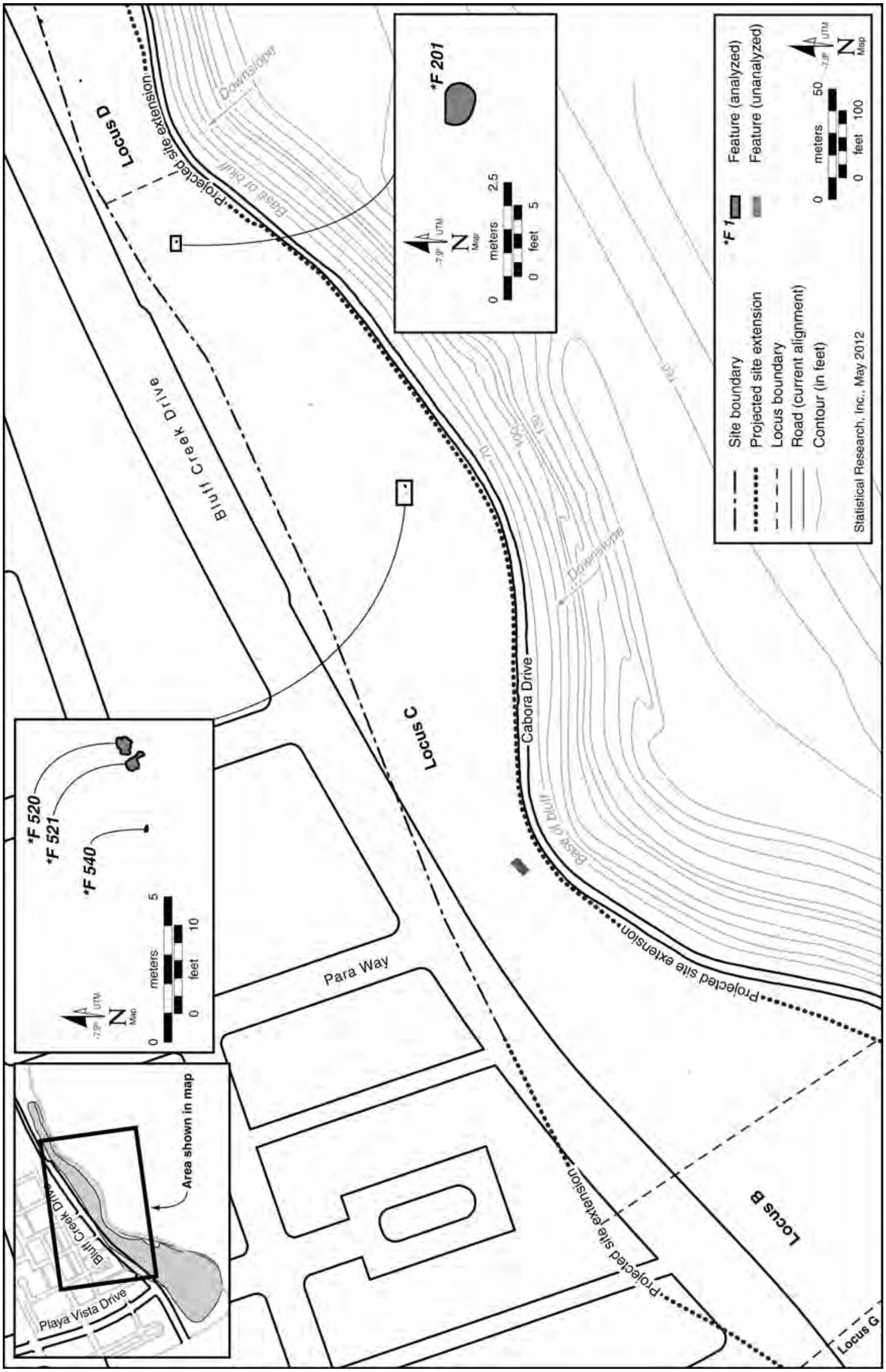

Figure 45. Site plan for LAN-62 Locus C.

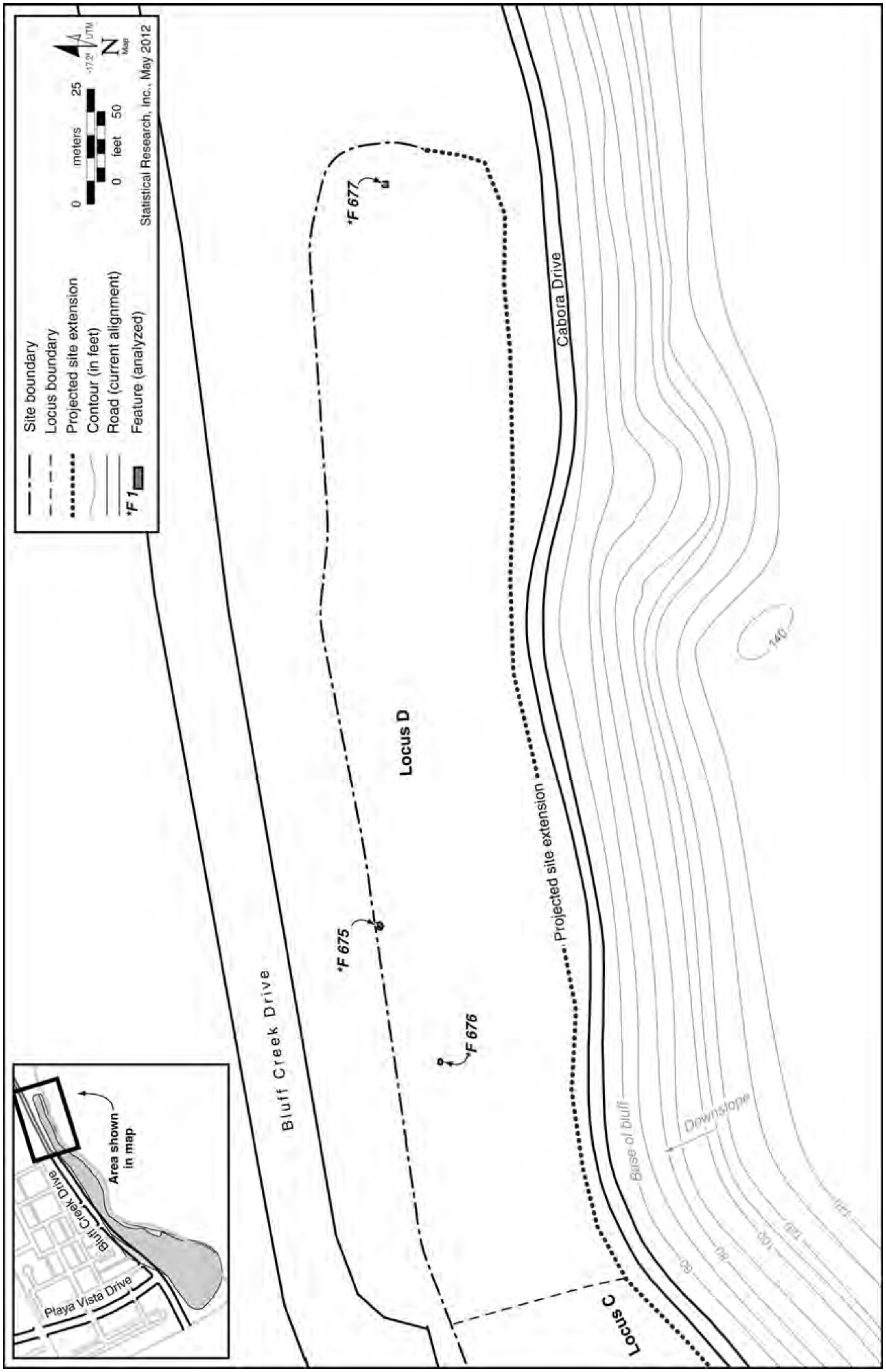

Figure 46. Site plan for LAN-62 Locus D.

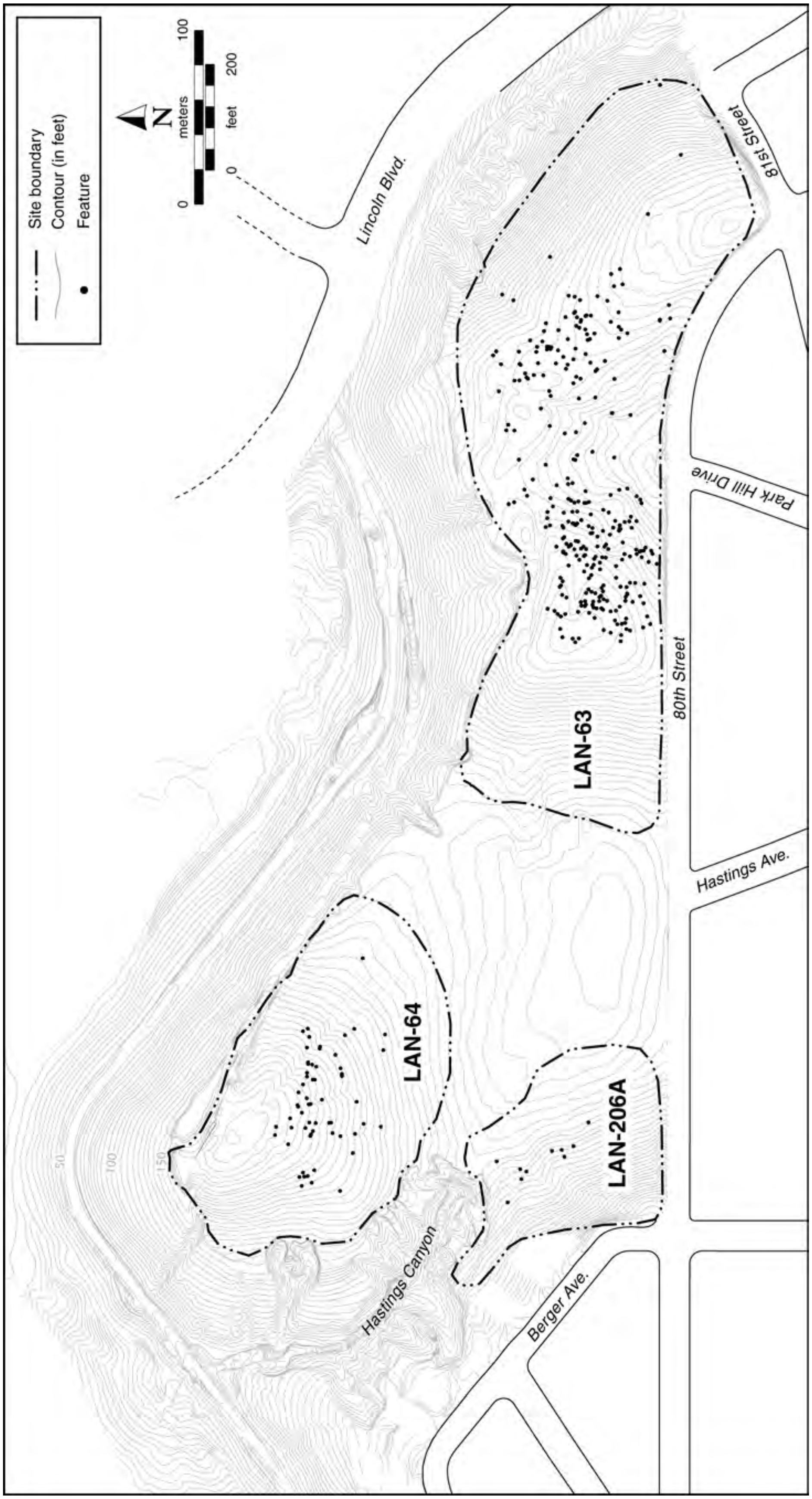

Figure 47. Site plans for LAN-63, LAN-64, and LAN-206A (adapted from Douglass et al. [2005]).

anticipation of residential development on the property and later underwent additional data recovery and intensive monitoring by SRI. Excavations by Van Horn (1987) recovered a large artifact collection that included thousands of pieces of lithic debitage and tools, including drills, reamers, choppers, scrapers, crescents, knives, and projectile points. The presence of crescents, cog stones, and a variety of projectile points—which included Gypsum and Marymount, as well as later leaf-shaped Cottonwood points (also called Canaliños) and Cottonwood Triangular arrow points—suggested a long span of occupation. In addition to those tools, excavations also recovered large numbers of ground stone tools, digging-stick weights, net weights, hammerstones, tarring pebbles, and stone anvils, as well as bone tools, such as awls, spatulas, gorges, compound hooks, and atlatl spurs. Van Horn's excavations also produced a large number of faunal remains of terrestrial animals and fish, especially those that might have inhabited the lagoon. In addition, large numbers of shellfish were also recovered. The majority of identified shellfish were venus clam, along with smaller numbers of Pacific oyster, littleneck clam, and scallop. Van Horn's excavations also uncovered 15 features at LAN-63, including 8 hearths, 6 ground stone and shell caches, and what Van Horn referred to as an "earth oven." Van Horn (1987) interpreted most of the features as related to food processing, although he interpreted the earth oven and 2 of the caches as having had ritual functions. Five radiocarbon dates obtained from shell suggested a brief occupation ca. 2000 b.p. during the Intermediate period. However, the crescents, cog stones, and discoidals were indicative of a Millingstone period occupation, and the Cottonwood points and several glass trade beads pointed to Late and Mission period components.

In 2000, SRI conducted block excavations at LAN-63 and excavated 21 features and a number of control units within the midden area. The features included the same range of features identified by Van Horn in his earlier excavations, including a mourning feature similar to the earth oven described by Van Horn. This excavation was followed in 2003 by a large-scale, intensive monitoring program in which SRI directed the controlled grading of the project area for development (Douglass et al. 2005). That work resulted in the mapping and excavation of 286 additional prehistoric features, including several burials and a much larger mourning feature. The features were distributed on the slopes of two small knolls flanking a small, trash-filled depression to the south. A total volume of 64 m^3 was hand-excavated in features and controlled test units during all phases of SRI's investigations at the site.

Seven radiocarbon dates from shell recovered from features and an additional five from excavation units and control columns suggested that the features and deposits were relatively contemporaneous to one another and dated to a brief period in the first few centuries a.d. (Hull and Douglass 2005). Five of the seven dates from features represented a relatively tight temporal cluster, and chi-square analysis using OxCal (v. 3.10) radiocarbon-analysis software strongly suggested that they had a combined date of 1919 ± 25 b.p. Radiocarbon dates from two excavation units produced dates of 2112 ± 53 and 1880 ± 29 b.p. Those two dates were sufficiently different to indicate at least a 230-year span of use for the site. However, the radiocarbon date from burial Feature 475 suggested that the use of the site may have been as long as 410 radiocarbon years (Hull and Douglass 2005:14.5). Apart from the latter date, dates obtained by SRI were generally similar to those reported by DiGregorio and Linscheid (1987) as part of previous work at the site by Archaeological Associates.

Other chronological evidence, however, has indicated a much longer span of occupation for LAN-63. Obsidian-hydration analysis of samples obtained by SRI at LAN-63 and reinterpretation of results reported by Archaeological Associates from the 1980s indicated a date range of between approximately 2580 and 290 b.p. Considering only debitage, which may be a better indicator of overall use of the site than tools that may have been curated, the range was reduced to 2577–1190 b.p., although Hull and Douglass (2005:14.7) indicated that production activity at the site was especially strong prior to 1920 b.p. Reanalysis of obsidian-hydration dates published by DiGregorio and Linscheid (1987) suggested, with the exclusion of outliers, dates between 5375 and 610 b.p, and all but six samples dated to less than 3700 b.p. (Hull and Douglass 2005:14.7). Although there was a wide range of dates in each of the four trenches excavated by Archaeological Associates, the mean obsidian-hydration age for each trench was similar overall to the conventional radiocarbon dates derived by both SRI and Archaeological Associates.

Temporally diagnostic artifacts were consistent with the chronological data. Excavations by SRI and Archaeological Associates produced numerous projectile points, including 1 Great Basin Stemmed point; 31 Canaliño (leaf-shaped Cottonwood), 8 Marymount, 9 Gypsum, 1 Pinto, 1 Cottonwood Triangular, and 28 untyped leaf-shaped dart points; 19 side-notched dart or arrow points; 12 foliate dart points; 9 tanged points; and 1 triangular dart-sized point (Freeman and Van Horn 1987; Hull and Douglass 2005:14.8). The Canaliño, Marymount, and Cottonwood Triangular points were confined to the northern portion of the site, within Trench A, and indicated a post–a.d. 1000 through Mission period occupation. Those points, as well as corresponding obsidian-hydration dates, suggested that the post–a.d. 1000 use of the site was very different from how it was used during the Intermediate period occupation, because no associated features were identified (Hull and Douglass 2005:14.9). The glass beads identified by Van Horn (1987) provided additional evidence of Mission period occupation.

By contrast, the presence of two cogged stones, five discoidals, and the Great Basin Stemmed point (which is a San Dieguito marker) at LAN-63 suggested ephemeral use of the site during the Millingstone period. That early use of the site was corroborated by six obsidian-hydration dates from that time period (DiGregorio and Linscheid 1987).

Rigby (1987:10) argued that stone beads found at the site dated to several time periods (2750–2150, 2150–1650, 1250–1050, and 900–800 b.p.) that represented a wider range of dates than the range suggested by radiocarbon analysis. By contrast, a small number of *Olivella*-shell beads recovered from Features 475 and 587 were consistent with radiocarbon dates that indicated a primarily Intermediate period occupation of the site.

Radiocarbon assays and the bulk of the material culture recovered from LAN-63 by both Archaeological Associates and SRI suggested that the site was primarily occupied during a short interval of time within the Intermediate period. Reanalysis of obsidian-hydration dates and a number of temporally diagnostic artifacts has pointed to a much wider range of occupation that spanned the Millingstone through Mission periods. No radiocarbon dates were obtained from LAN-63 to confirm the presence of these other components; thus, their nature is not well understood. The Late through Mission period artifacts, however, were restricted to the northern portion of the site and were not associated with any features, suggesting that they represent the presence of temporary, isolated campsites. The smaller number of diagnostic Millingstone period artifacts were more widely scattered but, again, could not be associated with any features. Thus, despite the presence of these older and younger artifacts, features at LAN-63 probably dated primarily to a roughly 200–400-year period in the Intermediate period, between 2200 and 1800 b.p.

The bluff tops on which LAN-63 and its neighbor, LAN-64 (see below), were located were long held as part of Howard Hughes's properties in the Ballona. Unlike the sites in the PVAHP that were heavily impacted by Hughes's construction and maintenance activities, however, LAN-63 and LAN-64 were preserved, along with other areas of the bluffs, as buffers from the encroachment of development and were used for farming. Although the upper 2 feet of the site had been disturbed by plowing, both sites were much better preserved and not affected by the cut-and-fill activities that impacted all of the sites along the base of the bluffs. Thus, SRI was able to expose almost the entire intact prehistoric occupation areas at both sites, along with hundreds of features and thousands of artifacts. As a result, those sites have provided one of the best opportunities to study prehistoric settlement and site structure in southern California and an excellent comparative perspective for studying site structure at the PVAHP sites, especially during the Intermediate period. The large number and great diversity of features and artifacts found at those two sites suggest that both were used on a periodic basis by multiple family groups, as base camps for the collection of resources from the Ballona Lagoon and wetlands to the north as well as the vernal pools of the coastal prairie to the south. The large mourning features at LAN-63 further suggest that it was occupied by larger social groups, at least on a periodic basis. Spatial analysis also revealed a strong pattern of site structure, especially at LAN-63. For example, burials were segregated from domestic areas and were scattered about the periphery of the site. Domestic refuse was scattered throughout the site, but kitchen refuse, primarily shellfish remains, were concentrated in the small depression at the center of LAN-63, and the mourning features were clustered among the dense concentration of features in the western part of the site.

LAN-64 (Bluff Site)

LAN-64 was located on the bluff edge a short distance west of LAN-63, separated from that site only by a large depression that may have been a large vernal pool during periods of increased moisture (see Figures 2 and 47). Van Horn (1987) investigated LAN-64 as part of the same residential development as LAN-63. He recovered similar materials from this site but found only one feature. A single radiocarbon date from LAN-64 suggested that the two sites had been occupied about the same time during the Intermediate period, although Van Horn also identified cogged stones at the site.

SRI also conducted additional data recovery and monitoring at LAN-64 (Douglass et al. 2005). Hand-excavations did not identify a single feature, but the intensive monitoring and controlled grading of the site revealed 60 features, including burials, hearths, and shell dumps. A total of volume of 10.6 m^3 was hand-excavated at this site in features and controlled test units, during all phases of SRI's investigations. In contrast to LAN-63, no mourning features were found at LAN-64; however, a larger number of burials were clustered in the western part of the site, rather than scattered on the periphery.

Radiocarbon dates indicated a primarily Intermediate period occupation that was contemporary with the primary occupation at LAN-63. The shell dumps, however, were found at the base of the midden, and several radiocarbon dates obtained from these features indicated the presence of an early Millingstone period occupation between 8200 and 7000 cal b.p. The shell dumps provided information on the earliest recorded prehistoric use of the Ballona. Although cogged stones and discoidals were also found at this site, none was associated directly with these features or indirectly, in the same stratum. The use of the shell dumps, however, may have been associated with the deposition of those artifacts. We understand little about this early occupation other than its having been a temporary camp for collecting and processing shellfish (primarily a mixture of venus clam and scallop) from the adjacent Ballona Lagoon.

LAN-193

LAN-193 was situated on an alluvial fan between two small channels that drain the slopes of the bluffs (see Figure 2). This site has often been confused with LAN-62. For example, whenever Pence (1979) discussed LAN-193, he referred to Peck's (1947) report on the Mar Vista site, which clearly described LAN-62 (Altschul and Ciolek-Torrello 1997). It is doubtful that Peck ever excavated at LAN-193, and no professional archaeologist ever saw the site, which had been paved over before it was recorded in 1952 (Altschul et al. 1991:Figure 37; Van Horn 1984b). R. L. Beals is purported to have excavated at LAN-193 in 1939 (Altschul and Ciolek-Torrello 1997:18), but in that case, as in those previously mentioned, the artifacts he collected were more consistent with LAN-62 than with the sparse midden site that SRI found at the recorded location of LAN-193.

SRI conducted remote sensing and testing at LAN-193 in 1998 (Figure 48). Twelve 3-inch cores were excavated into the parking lot under which LAN-193 was located. Although it was impossible to correlate the core stratigraphy with the remote-sensing data, both methods pointed to undisturbed soils immediately below the parking lot. The initial phase of testing was followed by the excavation of 20 1-foot-diameter bucket augers to determine whether the dark soils found in the core samples represented a midden. Archaeological materials were noted in 10 of the augers. Based on those data, the boundaries of the site were established around an area measuring 225 m east–west by 40 m north–south. Site depth ranged from 0.9 to 4.3 m below the ground surface, with an average of about 1.1 m. The data from the bucket augers suggested that the site was a low- to medium-density artifact scatter with a high density of lithic and faunal material but an extremely low density of shell.

Data recovery was conducted in 2000, at which time an activity surface dating to the Intermediate period was identified. That large and complex surface contained an extensive scatter of FAR and ground stone, as well as over 50 discrete features. A total volume of 40.1 m^3 was hand-excavated at the site during data recovery. The features consisted primarily of discrete domestic discard areas with only a few intact hearths and rock cairns. Three burials and a single ritual feature were also identified. Artifact and ecofact data confirmed the results from testing that indicated a focus on terrestrial plants and animals. Together, the data suggested that LAN-193 was a plant- and faunal-processing area on the edge of the Ballona wetlands that included almost no exploitation of fish or shellfish. Control units were used to sample the entire midden, and a large portion of the activity surface was mechanically exposed and then hand-excavated in two block excavations. Monitoring of construction associated with the Riparian Corridor in 2005 revealed additional prehistoric features (including 3 burials) and extended the site boundary to both the east and the west.

Data recovery confirmed the findings from the testing program, suggesting that LAN-193 was a plant- and faunal-processing site dating largely to the Intermediate period. Data from the control units revealed that the vast majority of materials from this site dated to that time period, although a small Millingstone period component was also present. In total, 17 radiocarbon samples (16 shell specimens and a single artiodactyl bone) were submitted for analysis. The resulting dates suggested four occupational episodes: late Millingstone period (2450–1500 cal b.c.), early Intermediate period (1040–190 cal b.c.), middle Intermediate period (510 cal b.c.–cal a.d. 230), and late Intermediate period (cal a.d. 400–720). Most of the prehistoric features and other materials found at LAN-193 likely dated to sometime in the Intermediate period. Ross (see Volume 4, this series), however, reported 14 glass and ceramic beads that indicated some kind of occupation or use of the site area during the Mexican Rancho or early American period between the mid and late 1800s. None of the glass or ceramic beads was found in association with features, and most postdated the Mexican Rancho period. Thus, that use of the site area was most likely associated with later, nineteenth-century farming activities and probably was not associated with the prehistoric materials at the site. Finally, a large early-twentieth-century trash dump was also investigated at the eastern end of the site. The dump was apparently related to a 1920s hog farm known as the Kitahata Hog Ranch. A horse burial found at the site was probably associated with ranching or farming activities in the area.

LAN-194 (Hammack Street Site)

LAN-194 was located on the southern bank of Ballona Creek, to the north and east of the PVAHP (see Figure 2). The site was tested by Chester King (1967) as part of his search for an Early Man site in the Ballona–Baldwin Hills area. Instead, King found a large number and variety of European manufactured items, especially glassware and metal artifacts, along with horse and cattle bone. He also observed native Mission period ceramics, stone tools, and projectile points, as well as the remains of shellfish, fish, and native artiodactyls. The amount of domesticated animal remains, however, was high, and the bones showed the marks of European-style butchering practices (Altschul et al. 2003:53). From that evidence, King (1967) concluded that the site dated to the Mexican Rancho period and represented an encampment of Native Californians who either worked at the Rancho la Ballona for the Machado and Talamantes brothers or stole horses and cattle from that rancho or others nearby. Either way, LAN-194 postdated the Gabrielino/Tongva occupation of the Ballona, which had ended by the time the Rancho la Ballona was established (see Chapter 8, this volume). With the exception of the single feature at LAN-2768, no other evidence of this period of occupation has been encountered in the Ballona to date.

LAN-206 and LAN-206A (Berger Site)

LAN-206 and LAN-206A were located west of the Lincoln Gap and a short distance south of the bluff edge, near LAN-64 (see Figures 2 and 47). LAN-206 was the main part of the site, and LAN-206A was found nearby after the main site had been destroyed and was believed to be an extension of LAN-206. By the time Pence (1979) visited LAN-206 in the late 1970s, it had already been extensively looted and was also

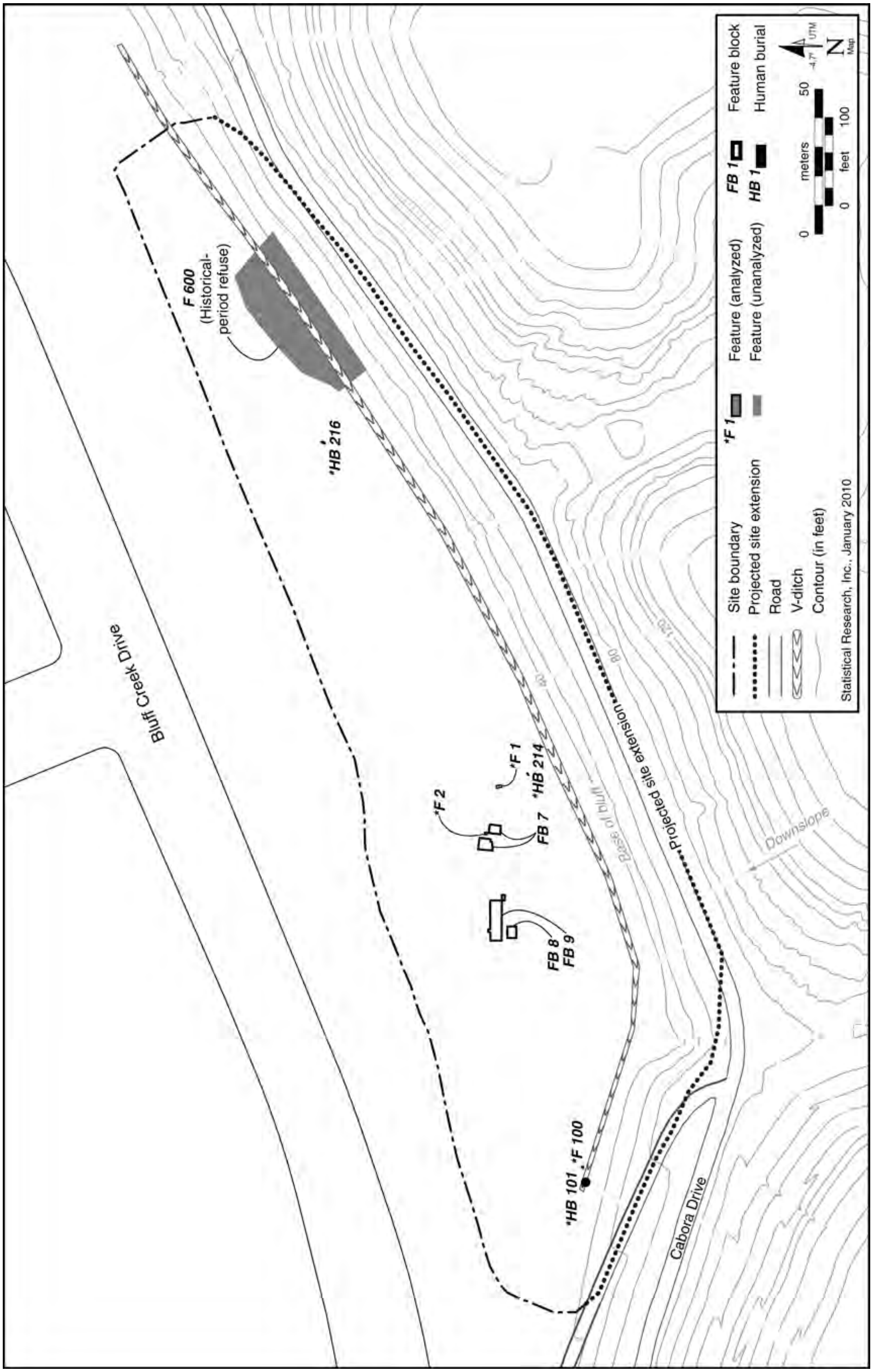

Figure 48. Site plan for LAN-193.

being destroyed by development. Pence recommended immediate data recovery, because he suspected that the site was a single-component Millingstone period occupation. In 1983, staff from Archaeological Associates, together with volunteers, conducted limited data recovery at LAN-206 (Van Horn and White 1997a).

Van Horn and White (1997a:21) reported that LAN-206 had been principally occupied during the early Millingstone period, given the single radiocarbon date of 6750 ± 80 b.p. The excavations also produced a total of five cogged stones and other ground and flaked stone tools and debitage, including manos, metates, abraders, a discoidal, cores, choppers, scrapers, drills, and a single projectile point. All of the stone tools were made from local materials—Monterey chert, metavolcanics, and quartzite. Also found were hammerstones, FAR, ocher, and asphaltum. The large faunal collection included 24 terrestrial-mammal species, a sea otter (*Enhydra lutris*), several species of birds and reptiles, and 19 fish species (of which 8 were cartilaginous taxa). The marine shellfish consisted primarily of 3 species native to mudflats and intertidal zones: Venus clam, speckled scallop (*Argopecten aequisulcatus*), and Pacific oyster.

Although Pence (1979) suspected that the site dated to the Millingstone period, Van Horn and White (1997a) concluded that there were in fact three components: Millingstone, early Intermediate, and late Intermediate. The Millingstone period component appeared to have focused on intensive fishing and shellfish collecting, whereas the early Intermediate period emphasized seed processing and hunting of terrestrial mammals. The late Intermediate period occupation was distinguished by substantial quantities of lithic debitage, suggesting intensification of stone-tool-production activities during the final occupation.

In addition to the main locus of LAN-206, another locus, designated LAN-206A, was later identified a short distance to the northeast and adjacent to LAN-64. Based on survey and testing, Van Horn and White (1997a) argued that LAN-206A was peripheral to the main part of the site and had little research potential. SRI monitored controlled grading at LAN-206A in 2003 as part of data recovery operations at LAN-63 and LAN-64, and that monitoring resulted in the recording of 10 prehistoric features, including a partial burial (Douglass et al. 2005). A total volume of 0.9 m^3 was hand-excavated during SRI data recovery excavations at this locus. No absolute dates were obtained from the excavations, although the presence of cogged stones and discoidals suggested that this locus dated to the Millingstone period (Hull and Douglass 2005). The proximity of all 10 features to LAN-64 suggests that LAN-206A was more closely associated with the latter site than it was to the main portion of LAN-206. Importantly, a Millingstone period component was also identified at LAN-64.

LAN-211

LAN-211 was located along the base of the bluffs, between LAN-62 and LAN-193, and a little more than 6 m south of the historical route of Centinela Creek (see Figure 2). The site was initially recorded by Luhrs in 1948 as LA:3 and by Pence (1979) as LAN-21. Freeman et al. (1987:26) later confused LAN-211 with LAN-62 Locus D. SRI conducted a multiphase testing program at LAN-211 that involved bucket augering, mechanical trenching, and hand-excavation (Figure 49). Those investigations revealed a substantial archaeological deposit with at least two components (Altschul et al. 2003). The primary, upper component of the site dated to the Protohistoric and Mission periods. In addition to the usual array of large- and small-mammal species, the faunal collection included a small amount of butchered domesticated-cattle bone and nonlocal animal species, such as pronghorn, swan, and a species of freshwater mussel. Bony-fish species also constituted a very high proportion of vertebrate fauna, and abalone constituted an unusual proportion of the invertebrates. Most of the tools and other artifacts were traditional native types and were made of local materials. These included numerous projectile points, bifaces, utilized flakes, ground stone, and a large number of tarring pebbles. European influence was reflected in the presence of glass trade beads and three pieces of flaked glass, in addition to the cattle bones and domesticated-plant remains.

Data recovery excavations by SRI in 2005 involved the excavation of 11 mechanical trenches and 370 1-by-1-m hand-excavated units distributed in five blocks of different sizes and totaling 490.5 m^3 in volume, the excavation of 50 features, and mechanical stripping (see Chapter 10, Volume 2, this series, Figures 216 and 217; Van Galder et al. 2006). The excavations revealed an intact but discontinuous cultural deposit that was over 3 m thick in some areas but was disturbed and even truncated in other areas. The heaviest concentration of intact cultural materials was found in the central portion of the site, where most of SRI's efforts were focused.

Two major strata were identified during data recovery. The upper stratum contained a dense midden with a diverse collection of archaeological materials (Van Galder et al. 2006). Although that stratum was relatively thin (measuring from 50 cm to just over 1 m), it contained large numbers of flaked and ground stone artifacts, faunal bone, worked bone, shell, ceramics, stone and shell beads, and botanical materials. Also present were introduced artifacts, including glass trade beads, flaked bottle glass, possible European and Chinese ceramics, metal, and the bones of domesticated cattle. Radiocarbon dates and temporally diagnostic cultural materials pointed to a Protohistoric (ca. 1542–1771) or Mission (ca. 1771–1834) period occupation for this component (Van Galder et al. 2006). Most of the features encountered at the site were also found in the upper stratum. In addition to 2 human burials and 1 animal burial, 34 other features from the Protohistoric through Mission period component at LAN-211 were identified and investigated. A very large activity area with 22 features (FB [Feature Block] 1) was dated to the broadly defined Protohistoric through Mission period, based on the presence of various time-sensitive materials and a suite of radiocarbon dates from several features, including discard areas and both small and large hearths. Also present were a single human

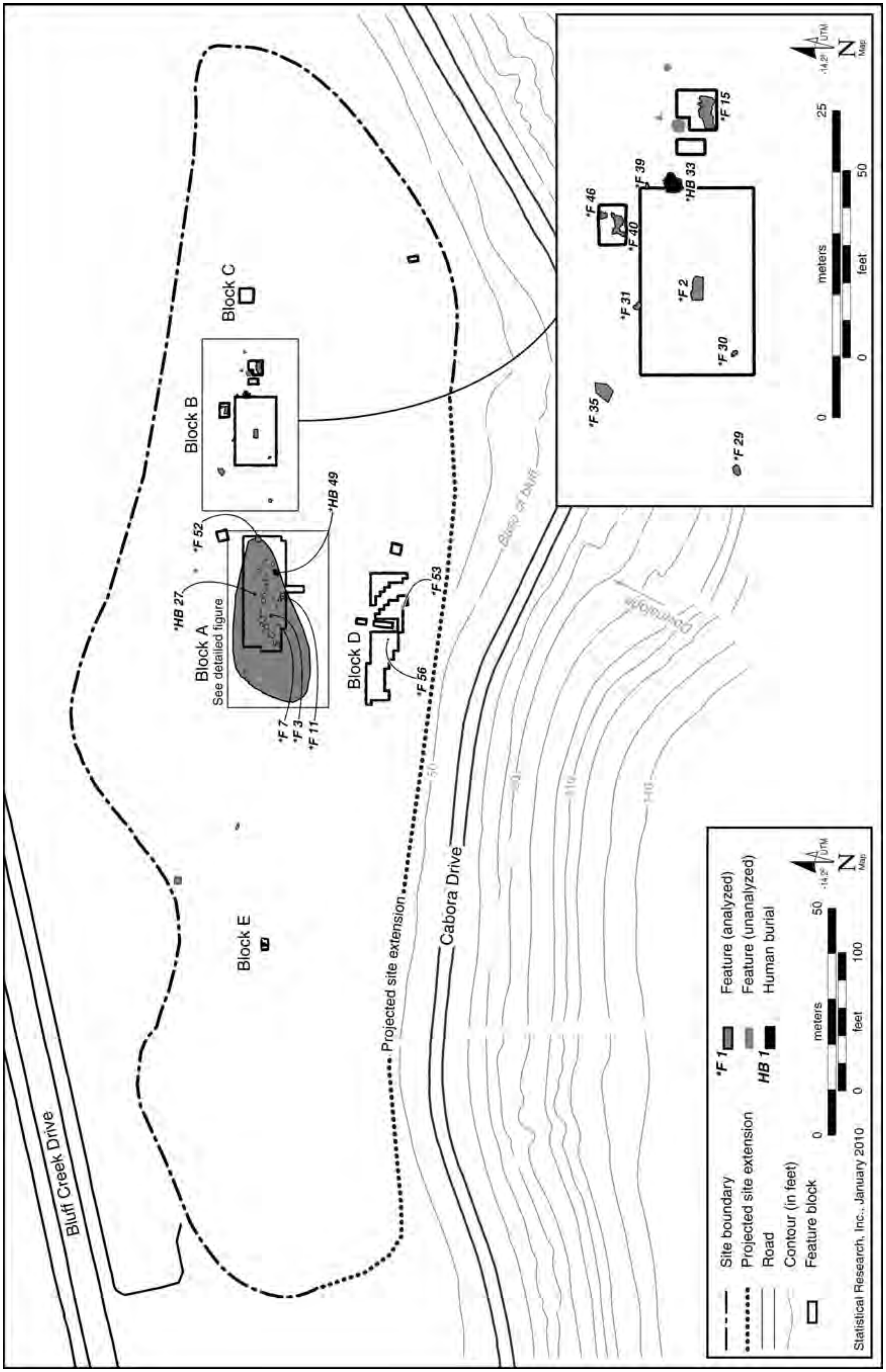

Figure 49. Site plan for LAN-211.

burial and 1 animal burial, along with numerous hearths and activity areas. Among the hearths was a distinctive type that consisted of an oxidized pit, some of which contained FAR concentrations. Although we suspect that most hearths in the Ballona were contained within pits of this type, the oxidized pit walls were not preserved anywhere else except in the contemporary mourning area (FB 3) at LAN-62. The density of cultural materials dropped off significantly in the lower stratum, which dated to the Intermediate period and included small numbers of flaked and ground stone artifacts, sparse amounts of shell and faunal bone, and a few features.

A suite of 39 radiocarbon assays were used to distinguish four occupational episodes at LAN-211. The earliest detected occupation at LAN-211 was associated with the alluvial-fan deposits in Stratum II and dated to the early Intermediate period, between 1110 and 250 cal b.c. No temporally diagnostic artifacts were associated with that occupation. Following an apparent hiatus of over 1,000 years, the next episode dated to the late Intermediate period (cal a.d. 140–790). A Malaga Cove projectile point was recovered from a context dating to the second episode. That point style was dated to ca. a.d. 500–1300, although it likely dates to the earlier portion of that range (Justice 2002:363), which would be consistent with the late Intermediate period interpretation. Several features were dated to the Intermediate period, including one large hearth and five domestic deposits. Following another hiatus, the next episode was divided into two components. Episode 3a dated to around the Late through Protohistoric period (cal a.d. 1330–1680), and Episode 3b dated to the Protohistoric through Mission period (cal a.d. 1550–1830). Three Cottonwood Triangular projectile points were recovered from two features dated to Episode 3a, along with shell beads dated to between a.d. 1500 and 1700. Although the calibrated date ranges for Episode 3 encompassed the end of the Late period, other evidence supported a predominantly Protohistoric and Mission period age. The majority of the shell beads indicated a range of a.d. 1500–1800, and the presence of 62 glass beads and the remains of domesticated plant and animal species (especially in FB 1) all represented postcontact introductions. Charred seed remains from Old World plant domesticates were recovered from four subfeatures of FB 1 and in Subfeature (SF) 2; faunal bone from possible Old World animal domesticates were recovered from two subfeatures of FB 1.

Archaeomagnetic (AM) dates were inferred for five of the oxidized fire pits in FB 1 (see Volume 2, this series). AM results from three features indicated dates ranges in the a.d. 1700s and 1800s, which supported the Mission period designation, but the date ranges for two other features did not. The inferred date range for SF 8 (a.d. 1535–1590 or 1700–1750) predated the Mission period, although the presence of Old World domesticates suggested postcontact feature use; a date in the mid- to late 1700s is more likely. The inferred AM-date range for SF 4 was a.d. 1850–present, which postdates the Mission period. However, the feature's stratigraphic association suggested a date range equal to that of the other subfeatures in FB 1. It is likely that the latter two AM dates were incorrect and that the two features dated to the Mission period. In addition to the features in FB 1, five other features also were assigned to Episode 3, based on their stratigraphic position and the presence of time-sensitive artifacts. These included one burial, a nonthermal-refuse area, a hearth, and a thermal-refuse deposit. The burial feature included shell beads that dated to a.d. 1150–1834, although most appeared to have been associated with the Protohistoric through Mission period. A horse burial found in redeposited fill was the only indicator of the fourth occupational episode, which encompassed the post-Mission, Euroamerican period of occupation.

LAN-212

LAN-212 was located on the bluff edge east of the Lincoln Gap and a short distance east of LAN-61 (see Figure 2). Eberhard first recorded LAN-212 in 1953, based on information from William Deane, and the site was described as a small prehistoric site. SRI conducted testing and data recovery at LAN-212 in 2008 (Van Galder and Douglass 2013). A total volume of 3.65 m^3 was hand-excavated in 18 shovel-test pits and 4 test units during SRI's investigations. Testing revealed the presence of intact deposits. Four 1-by-1-m hand-excavation units were excavated as part of data recovery in the northern section of the site, along the bluff edge. These excavations encountered a sparse midden approximately 0.6 m thick that contained a variety of lithic artifacts, including fragments of ground and flaked stone tools. Marine-shell, bone, and diagnostic artifacts were rare or absent. Obsidian-hydration analysis and a single diagnostic artifact (a dart point) both suggested that LAN-212 was used during the late Millingstone period (ca. 4000–3000 cal b.p.). The presence of a biface, a dart point (a Vandenberg Contracting stem), and numerous cores suggested that individuals produced tools for hunting. In addition, the presence of several bipolar cores suggested that raw materials may have been scarce and that the inhabitants of the site relied in part on small pebbles for tool production. Although no intact hearths were identified, the presence of manufacturing and maintenance tools, together with numerous pieces of FAR, suggested to the investigators that this was a residential site. The investigators also suggested the possibility that LAN-212 and LAN-61 were at one time joined to one another and were part of a linear occupation along the top of the bluffs.

LAN-2768

LAN-2768 was located on the eastern end of the project area, at the mouth of Centinela Canyon, from which Centinela Creek flows around the eastern end of the bluffs and into the Ballona (see Figure 2). The site was discovered during the course of SRI's testing program in 1998 (Altschul et al. 1999) as well as through subsequent monitoring. The site had an almost continuous deposit of archaeological materials that extended along the base of the bluff, from roughly LAN-60 to the Howard Hughes Industrial Complex and LAN-193 (Figure 50). Testing was conducted in several loci of the site using a combination of hand-excavation units and mechanical bucket augers and trenches. Because of natural and artificial fill in portions of the site, artifacts were found at depths ranging from 0.6 to 4.9 m below the ground surface. Testing revealed a midden deposit containing a variety of shell, bone, lithic, and other artifacts in varying densities. The northwestern portion of the site, along the toe slope of the Westchester Bluffs, revealed the highest density of artifacts.

Data recovery at the site occurred in several phases between 2000 and 2007. Data recovery first occurred in advance of the construction of the Riparian Corridor. Additional data recovery occurred later for the construction of a pipe in the southern portion of the site, as well as for the construction of the Clippers' basketball facility. Finally, monitoring during construction of the Riparian Corridor in 2005 revealed the presence of additional features, including three burials. A total volume of 49.05 m^3 was hand-excavated as part of those data recovery efforts. The last investigation also resulted in the extension of the site boundary farther to the southwest, along the base of the bluff, to within a short distance of the eastern boundary of LAN-193. In fact, the three sites (including LAN-60) may have represented a continuous occupation along much of the base of the bluffs that was disrupted in the twentieth century by the Hughes Aircraft Company plant and activities associated with farming, like the Kitahata Hog Ranch.

In total, 47 features were identified during data recovery and monitoring, primarily domestic discard areas and thermal cooking features. Also present were several rock cairns and a possible pit house that had been converted to a large roasting feature. Like LAN-193, the site contained large amounts of FAR and lithic debitage but few formal tools of either ground or flaked stone. The shell density was higher than at LAN-193, but the density of vertebrate fauna was much lower. Together, the feature and artifact data suggested that the two sites functioned primarily as food-processing areas for wetland and terrestrial resources rather than as habitation areas, despite the presence of the only identifiable pit house in the Ballona.

LAN-2768 was occupied almost entirely during the Intermediate period, although a single hearth feature and a handful of beads indicated minor Protohistoric through Mission and Mexican Rancho period occupations, as well. Data recovery also revealed an early-twentieth-century component, with several cisterns and sections of railroad tracks and/or railroad equipment that were likely associated with both the Hughes era and the earlier Pacific Electric Trolley Line. Five distinct occupational episodes were distinguished at LAN-2768 using 23 radiocarbon assays (see Volume 2, this series). Based on 22 of those assays, four episodes spanned the Intermediate period, between 940 cal b.c. and cal a.d. 560. A single radiocarbon sample from a maygrass (*Phalaris* sp.) seed collected from a possible hearth (Feature 300) produced 2σ dates of cal a.d. 1500–1600 and 1780–1800, which suggested probable use of the feature during the Protohistoric or Mission period. The feature was located higher in the stratigraphic profile and likely postdated the surrounding features in the area. A sixth episode, associated with the Mexican Rancho period, was suggested by the recovery of 20 glass beads manufactured between ca. 1830 and 1848 (see Volume 4, this series). As in the case of LAN-193, all of the beads were recovered during mechanical-stripping operations, and none was associated with a feature.

Other Sites

In addition to the above sites are several known prehistoric sites that have never been investigated, having been destroyed by development before investigation could take place. These include two sites first recorded by Malcolm Farmer in his survey of the Baldwin Hills–Ballona area during the 1930s. LAN-65 (Farmer's Site 7) was located on the bluff top, a short distance west of LAN-64 and northwest of LAN-206 and LAN-206A. Farmer (1936) described the site as a campsite that was intermediate in size and located between LAN-63 and LAN-64. Rozaire and Belous (1950) reported that moderate numbers of mano, pestle, and mortar fragments, plus some shell, were scattered on the surface of the site. They also reported that bowls, pestles, and projectile points had been found at the site. Based on that information and the discoveries at the nearby sites, LAN-65 may have represented another member of the largely Intermediate period community found on the bluff tops overlooking the Ballona. Shortly after the 1950 visit, the site was destroyed by the development of an oil-storage facility.

LAN-1716, consisting of two loci referred to as LAN-1716A and LAN-1716B, was recorded by Clay Singer (1990), who observed a few flakes and shell fragments at the site, along the dune overlooking Dockweiler State Beach, south of Playa del Rey. He reported that arrowheads and flakes had been found earlier at the site. LAN-1716 may have been related to LAN-66 (Farmer's Site 8), a site that Van Valkenburgh located on the beach, at the base of the dune described by Singer, which was occupied at that time by the Westport Beach Club. Farmer provided no information about LAN-66, and when Rozaire and Belous (1950) conducted their survey, no evidence of that site could be found. It had apparently been destroyed by the construction of the club (Farmer 1934, 1936).

LAN-1118 was first recorded by Gary Stickel and Steve Appier in 1981. They described the site as a large shell midden with lithic debitage (Raschke et al. 1995). No estimate

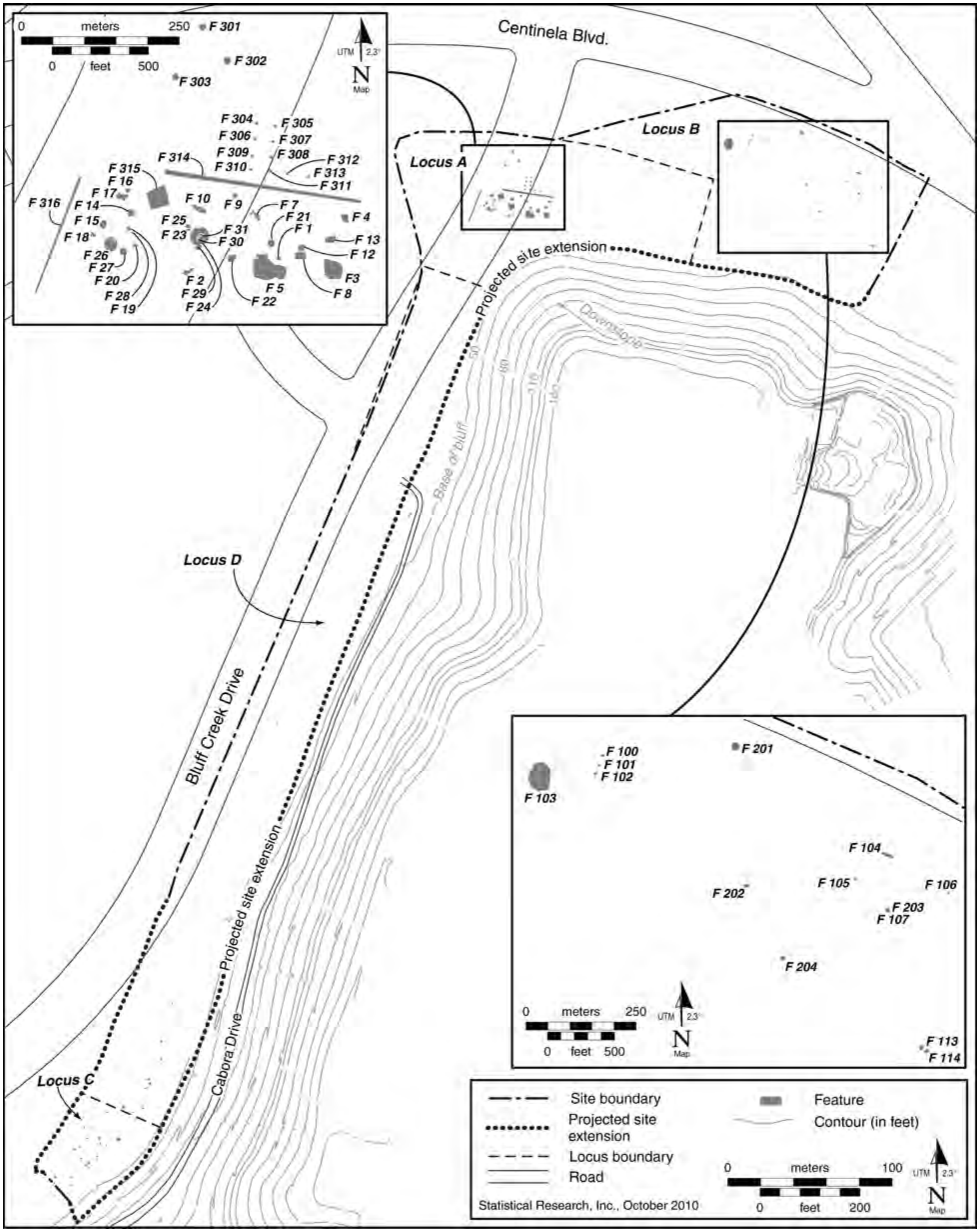

Figure 50. Site plan for LAN-2768.

of the depth of the deposit was made, but Raschke et al. (1995:15) observed a substantial subsurface deposit in the northern portion of the site (much of the remainder of the site had been destroyed by construction and grading activities after Stickel and Appier's original recording).

Examining Site Function and Settlement Types in the Ballona

As discussed above, to reconstruct settlement patterns, it is necessary to understand the contemporaneity of sites, the activities at or functions of those sites, the relationships of the sites to one another and to the surrounding environment, and human demography (Peterson 2000:93). In the preceding section, we discussed the relationship of the 14 known prehistoric, Mission, and Rancho period sites in the Ballona to one another and to the major landscape features and also summarized information on site chronology. In this section, we address site function and demography through a detailed examination of artifacts, ecofacts, and site features in an attempt to identify the major subsistence and residential activities that took place at the sites and the duration and intensity of occupation. We focus on three classes of data: the frequencies of functionally distinct artifact types, the densities of faunal remains, and the frequencies and spatial arrangements of functionally distinct feature types.

Because of the different levels of investigation and different data recovery and analytic approaches, equivalent data sets were not available for all 14 of the known Ballona sites, and thus, it is not practical to compare all of the sites quantitatively. For example, LAN-60, LAN-194, and LAN-212 have been subjected only to limited excavations, and only small portions of the site areas have been exposed. LAN-47 and LAN-206 have received more attention, but areal exposure was also limited at those sites, and the early investigations at LAN-47, when the burials were found, can best be characterized as salvage operations of which records are extremely limited. Finally, Van Horn recovered many useful data but used different sampling and analytic procedures in his excavations at LAN-59, LAN-61, LAN-63, and LAN-64 (Altschul et al. 2003), again limiting comparisons to qualitative ones. As a result, this study focuses on SRI's quantitative analysis of materials and features recovered from the five PVAHP sites as well as from LAN-63 and LAN-64, for which SRI used comparable sampling and analytic procedures. Although it would have been possible also to compare artifact and faunal data from LAN-47 and LAN-60 directly with data from the PVAHP sites, given that similar analytic procedures had been used, there were insufficient data regarding the features at those sites.

Artifact Types

Like Hudson (1971), Mason and Peterson (1994b), and Peterson (2000), we placed artifact types into broad functional classes, or "factors," representing five basic subsistence, maintenance, and residential activities that can be discerned in California coastal middens: food procurement, food processing, manufacturing, personal adornment, and ceremonial or ritual activities (Table 2). In doing so, we used standard functional interpretations (Hudson and Blackburn 1982, 1983, 1985, 1986; see also Mason and Peterson 1994b). For additional details on these functional interpretations, see Volume 4, this series. Such a procedure is not as simple as it might seem, because the precise functions of artifacts found in the archaeological record for coastal middens are not always known. Many artifacts may have had multiple functions or could have been used in a variety of activities. For example, a bone awl may have been used as a weaving implement, a stone-tool flaker, or a hair adornment (hairpin). Similarly, asphaltum could have been used to seal a basket, repair a broken vessel, or haft a knife or as decoration for a ceremonial artifact. Use-wear analysis sometimes provides a clue to an artifact's precise function, but the fragmentary nature of many tools and/or poor preservation of an artifact surface is often a problem in the functional analysis of tools (see Volume 4, this series). In some cases, an artifact's recovery context may provide a clue to the artifact's actual use. For example, ground stone pestles usually represent food-processing activities; however, they are common components of mourning features, in which they represent an entirely different function. With the exception of artifacts found within features, though, good contextual information is usually lacking. Thus, although it may be possible to identify the precise function of some specific artifact, the comparison of artifact collections from entire sites cannot be examined at that level of detail. For our purposes, we assigned artifacts that had common multiple functions to composite functional classes, such as food processing/manufacturing or manufacturing/ritual, based on their probable primary functions. We used an "unknown" class for multiple-use artifacts that were too fragmentary to determine their probable primary use.

We do not claim that this set of activities is exhaustive and represents all of the major activities that took place at the sites; instead, it merely represents the primary activities that we were able to discern using the data available to us from previous research. For example, we know that house construction and storage of food and implements were important activities at residential sites, but few clues regarding those activities have been preserved in the material culture in the Ballona and elsewhere along the coast of southern California. As we discuss later, however, certain types of features and their arrangements do provide some insights into those residential activities.

As Hudson (1971) suggested, subsistence and maintenance activities at coastal middens can be further subdivided into four types—maritime-oriented fishing and sea-mammal

Table 2. Artifact Types, by Functional Class

Artifact Type, by Functional Class	Item
Food processing	
Flaked stone	tabular tool (edge modified)
Ground stone	mano
Ground stone	metate
Ground stone	mortar
Ground stone	pestle
Stone	FAR
Food processing/manufacturing	
Stone	biface
Stone	chopper
Stone	crescent
Stone	edge-modified piece
Stone	flaked stone hammerstone
Stone	scraper
Stone	ground stone hammerstone
Stone	cobble hammerstone
Food processing/ritual	
Shell	container or scoop
Stone	bowl
Stone	*comal*
Stone	indeterminate vessel
Food procurement	
Bone	bone barb
Bone	bone fishhook
Bone	bone harpoon
Bone	bone pry
Shell	shell fishhooks
Stone	projectile point
Manufacturing	
Bone	awl or needle
Bone	blank
Bone	flaking tool
Bone	handle/haft
Bone	punch
Bone	spatula
Shell	blank
Shell	tool
Stone	adze
Stone	burin
Stone	core
Stone	debitage
Stone	drill
Stone	split cobble/tested material
Stone	abrader
Stone	anvil
Stone	grooved stone
Stone	maul

Artifact Type, by Functional Class	Item
Stone	netherstone
Stone	tarring pebble
Manufacturing/ritual	
Mineral	asphaltum
Shell	rim tool (scraper)
Stone	shaft straightener
Personal adornment	
Bone	bead or pendant
Shell	bead or ornament
Stone	bead or pendant
Personal adornment/ritual	
Bone	drilled disk
Bone	pin
Shell	perforated whole shell
Stone	charmstone
Stone	disk
Stone	plummet
Ritual/ceremonial	
Bone	flute
Bone	rattle
Bone	strigil
Bone	wand
Bone	whistle
Bone	gaming piece
Bone	grave marker
Mineral	ocher
Mineral	quartz crystal
Shell	asphaltum-coated shell
Stone	crescent
Stone	effigy
Stone	figurine
Stone	palette
Stone	pipe
Stone	rattle pebble
Stone	sunstone
Unknown	
Bone	indeterminate worked bone
Ground stone	indeterminate ground stone
Shell	indeterminate worked shell
Stone	manuport

hunting, shellfish gathering, plant-food gathering, and land-mammal hunting—using artifact and ecofact data. For example, information on fishing and sea-mammal hunting can be obtained from vertebrate-faunal data and the recovery of fishhooks, spear points, nets, and evidence of boats. For the Ballona, we also distinguish between lagoon fishing and true pelagic fishing and sea-mammal hunting (see Chapter 4, this volume). As we discuss in Chapter 4, this volume, there was little evidence of pelagic fishing or sea-mammal hunting in the Ballona. Sea-mammal bone was extremely rare for all time periods, and with the exception of the Intermediate period, fishing was largely restricted to the lagoon and the nearby seashore. As a result, the specialized implements and manufacturing activities associated with maritime activities in coastal California were equally rare. Shell fishhooks were extremely rare, bone fishing implements were only slightly more common, and almost no evidence of the plank canoe—redwood planks, the special drills used to drill holes for tying the planks together, or the asphaltum plugs used to seal the holes—has been found. The presence of the remains of nets in Mission period burials indicated that the nets may have been used to procure fish from the lagoon and shore. Comparable information, however, was not available for earlier periods, for which feature preservation was much poorer. Thus, in the Ballona, the primary and most consistent evidence regarding fishing activities has come from the remains of the fish themselves.

By contrast, direct information on plant-food gathering was not consistently available. An abundance of plant-food remains was recovered from Mission period contexts, in which preservation was excellent. Plant foods, however, were rare in Intermediate period contexts. In Chapter 4, this volume, and Chapter 14, Volume 3, this series, that pattern is shown not to be a product of differential preservation; instead, it represents actual changes in plant use over time. That conclusion is based on plant remains' being more common in Millingstone period contexts than in younger, Intermediate period contexts. Although the botanical remains suggested major changes in plant use over time in the Ballona, the issue of differential preservation of plant remains in ancient and much-more-recent, historical-period contexts makes quantitative comparisons difficult. Furthermore, good botanical information was only available for the PVAHP sites, precluding a regional examination of plant-food gathering based on botanical remains. For example, plant preservation at LAN-63 and LAN-64 was particularly poor (Wigand 2005). The presence of tools used to procure and process plants—e.g., manos, metates, mortars, and pestles—has provided much more consistent data for evaluating plant use. We should recognize, however, that some of those implements could also have been used to process small mammals (Bean and Shipek 1978; Yohe et al. 1991). Thus, we have eschewed attempting to distinguish plant-food gathering and processing from other subsistence activities using quantitative data.

For this analysis, we have focused on nine sites—the five PVAHP sites and LAN-47, LAN-60, LAN-63, and LAN-64—and divided the collections into their primary temporal components. The Millingstone period component at LAN-64 was not included, because virtually no artifacts were recovered from the handful of shell-dump features found to represent that component. It also should be recognized that similar components were not necessarily contemporaneous. For example, as discussed above, the Intermediate period component at LAN-54 fell within the early part of the period, whereas the Intermediate period components at other sites fell within the middle or late part of the period. Similarly, the Late period component at LAN-47 occurred at the beginning of that time period, whereas the Late period component at LAN-62 began near the end of the period.

Table 3 presents actual counts of artifacts by functional class, and Table 4 presents counts standardized for sample sizes, using percentages. Counts were based on analyzed contexts (features and control units) that could be dated. Artifacts from burial features and associated excavation units in the burial area at LAN-62 were not included in this analysis, because they would have swamped the analysis with a specialized sample not represented at any other site. A detailed analysis of artifacts from those burial contexts is presented in Chapter 6, this volume. The small numbers of burial features from other sites were included, however. For the remainder of the collection, percentages were calculated by site—e.g., 19.8 percent of all the artifacts at LAN-47 were food-processing artifacts. Such standardization was essential, given the great variation in sample fractions and the sizes of the collections, which ranged from a low of 179 artifacts, from the Late period component at LAN-62, to a high of over 20,000 artifacts, in the Protohistoric through Mission period component of LAN-211. Because of the relatively small number of sites and variables used in this analysis, the multivariate analyses and diversity and richness indexes used by Mason and Peterson (1994b) were not necessary. Instead, we calculated an overall percentage for each functional class and compared the actual percentage of each class for each site component to that average. Thus, the percentage of artifacts of unknown function was quite low overall (3.5 percent) but was extremely high for the Intermediate period contexts at LAN-63 (31.5 percent) and moderately high for LAN-64 (9.2 percent). In the case of LAN-63, that class was represented by large numbers of manuports, largely unmodified cobbles, indeterminate ground stone, and steatite detritus. The small shavings or flakes of steatite appeared to represent the postdepositional deterioration of soft steatite objects, such as vessels (Hull 2005:8.34). All but 3 pieces were found in the two mourning features, Features 11 and 587, which contained all of the steatite vessels found at the site. At LAN-64, that artifact class was represented primarily by indeterminate ground stone fragments (n = 28) and a smaller number of manuports. Given the large numbers of hearths at those two sites, these artifacts may represent stones used in cooking activities that lacked evidence of being fire affected. The majority of artifacts of unknown function at LAN-211 were also manuports

Table 3. Summary of Artifact Frequencies at Ballona Sites, by Functional Class

Temporal Period, by Site No.	Food Processing	Food Processing/ Manufacturing	Food Processing/ Ritual	Food Procurement	Manufacturing	Manufacturing/ Ritual	Personal Adornment	Personal Adornment/ Ritual	Ritual	Unknown	Total
LAN-47											
Late	1,636	113	—	6	5,941	—	479	1	—	84	8,260
LAN 54											
Millingstone	200	2	—	—	90	—	—	—	—	5	297
Intermediate	305	9	—	2	250	—	8	—	2	2	578
LAN-60											
Intermediate	64	—	—	—	303	—	3	—	—	6	376
LAN-62											
Millingstone	70	30	3	4	1,292	—	20	—	—	11	1,430
Intermediate	160	47	5	2	2,493	—	79	—	1	12	2,799
Late	—	—	8	3	165	—	2	—	—	1	179
Protohistoric through Mission	117	21	16	13	1,512	1	1,594	—	19	35	3,328
LAN-63											
Intermediate	538	156	60	9	1,442	2	48	12	10	1,049	3,327
LAN-64											
Intermediate	41	20	—	—	327	—	27	2	5	43	465
LAN-193											
Millingstone	2	2	—	—	509	—	—	—	—	1	514
Intermediate	229	34	—	2	10,110	13	1	—	8	52	10,449
LAN-211											
Intermediate	44	10	—	1	1,519	—	6	—	1	11	1,592
Protohistoric through Mission	597	305	97	132	17,178	3	1,742	4	26	682	20,766
LAN-2768											
Intermediate	1,047	13	1	10	3,395	1	16	—	2	39	4,524
Total	5,050	762	190	184	46,527	20	4,025	19	74	2,033	58,884

Table 4. Summary of Artifact Relative Frequencies at Ballona Sites, by Functional Class

Temporal Period, by Site No.	Food Processing (%)	Food Processing/ Manufacturing (%)	Food Processing/ Ritual (%)	Food Procurement (%)	Manufacturing (%)	Manufacturing/ Ritual (%)	Personal Adornment (%)	Personal Adornment/ Ritual (%)	Ritual (%)	Unknown (%)
LAN-47										
Late	19.8[a]	1.4[a]	—	0.1	71.9	—	5.8[a]	<0.1	—	1.0
LAN 54										
Millingstone	67.3[a]	0.7	—	—	30.3[b]	—	—	—	—	1.7
Intermediate	52.8[a]	1.6[a]	—	0.3	43.3[b]	—	1.4	—	0.3[a]	0.3
LAN-60										
Intermediate	17.0[a]	—	—	—	80.6[a]	—	0.8	—	—	1.6
LAN-62										
Millingstone	4.9	2.1[a]	0.2[a]	0.3	90.3[a]	—	1.4	—	—	0.8
Intermediate	5.7	1.7[a]	0.2[a]	0.1	89.1[a]	—	2.8	—	<0.1	0.4
Late	—	—	4.5[a]	1.7[a]	92.2[a]	—	1.1	—	—	0.6
Protohistoric through Mission	3.5	0.6	0.5[a]	0.4[a]	45.4[b]	<0.1	47.9[a]	—	0.6[a]	1.1
LAN-63										
Intermediate	16.2[a]	4.7[a]	1.8	0.3	43.4	0.1[a]	1.4	0.4[a]	0.3[a]	31.5[a]
LAN-64										
Intermediate	8.8	4.3[a]	—	—	70.3	—	5.8[a]	0.4[a]	1.1[a]	9.2[a]
LAN-193										
Millingstone	0.4	0.4	—	—	99.0[a]	—	—	—	—	0.2
Intermediate	2.2	0.3	—	<0.1	96.8[a]	0.1[a]	<0.1	—	0.1	0.5
LAN-211										
Intermediate	2.8	0.6	—	0.1	95.4[a]	—	0.4	—	0.1	0.7
Protohistoric through Mission	2.9	1.5[a]	0.5[a]	0.6[a]	82.7[a]	<0.1	8.4[a]	<0.1	0.1	3.3[a]
LAN-2768										
Intermediate	23.1[a]	0.3	<0.1	0.2	75.0	<0.1	0.4	—	<0.1	0.9
Total	8.6	1.3	0.3	0.3	79.0	<0.1	6.8	<0.1	0.1	3.5

Note: Percentages have been rounded to the nearest tenth.
[a] Above the average percentage.
[b] Below the average percentage.

Table 5. Distributions of Food-Processing Artifacts at Ballona Sites

Temporal Period, by Site No.	FAR	Other	Total	Percent FAR
LAN-47				
Late	1,617	19	1,636	98.8
LAN-54				
Millingstone	196	4	200	98.0
Intermediate	304	1	305	99.7
LAN-60				
Intermediate	—	64	64	—
LAN-62				
Millingstone	67	3	70	95.7
Intermediate	147	13	160	91.9
Late	3	—	3	100.0
Protohistoric through Mission	416	121	537	77.5
LAN-63				
Intermediate	358	180	538	66.5
LAN-64				
Intermediate	15	26	41	36.6
LAN-193				
Intermediate	319	19	338	94.4
LAN-211				
Intermediate	44	—	44	100.0
Protohistoric through Mission	561	36	597	94.0
LAN-2768				
Intermediate	1,036	11	1,047	98.9

and ground stone fragments, although worked-bone and shell fragments were also well represented.

As might be expected from the lack of fishing implements, food-procurement artifacts were rare throughout the Ballona (0.3 percent) (see Table 4). They were slightly more common in Protohistoric through Mission period contexts at LAN-62 (0.4 percent) and LAN-211 (0.6 percent). Food-procurement artifacts were slightly more abundant from the Late period component at LAN-62 (1.7 percent), although that may have been a product of the small sample size. Procurement artifacts in those components consisted primarily of projectile points, with a high of 129 points from LAN-211. Small numbers of bone fishing implements were also present at LAN-62 (n = 2) and LAN-211 (n = 3). Surprisingly, bone fishing implements (including 4 bone barbs) were more common in the Millingstone period collection from LAN-62 and represented all of the procurement artifacts from that component.

Food-processing artifacts constituted one of the largest functional classes (8.6 percent of all the artifacts in this study). That class of artifacts was most abundantly represented in the Late period component of LAN-47, followed by the Intermediate period component of LAN-2768 (see Table 3). In terms of percentages, however, more than 50 percent of the materials from both the Millingstone and Intermediate period contexts at LAN-54 were food-processing artifacts, whereas between 17 and 23 percent of the collections from Intermediate period contexts at LAN-60, LAN-63, and LAN-2768 and the Late period component of LAN-47 were food-processing artifacts. Significantly, relatively few food-processing tools were found at LAN-47, LAN-54, and LAN-2768, and 99 percent of the food-processing artifacts at each of those three sites were pieces of FAR (Table 5). By contrast, all of the food-processing artifacts in the small collection from LAN-60 were manos (n = 61) and metates (n = 3). Given the limited excavations and the paucity of features, the absence of FAR from LAN-60 may have been due to sampling error. At most other Ballona sites and for most other temporal components, FAR constituted between 92 and 100 percent of the food-processing artifacts (see Table 5). Large numbers of ground stone tools, however, were recovered from LAN-63, where they represented over 33 percent of the food-processing artifacts, and, to a lesser degree, from LAN-64, where they represented over 63 percent of the food-processing artifacts. Many of the ground stone food-processing tools found at LAN-63 were found in mourning features, representing a secondary use, although many others were found in caches. Those found in mourning features were highly fragmented, often apparently having been purposefully broken, and were smeared with ocher or asphaltum, suggesting that they had been ritually destroyed and were not in a use context (Hull et al. 2013). Some of the ground stone tools recovered from Feature 587, such as the 1.4-m-long schist pestle, were clearly not functional and were probably made for ritual purposes

(Hull et al. 2013:Figure 4). Thus, it is possible that ground stone food-processing tools may have been deposited more often in ritual contexts than in areas where food was actually processed. For example, the burial area at LAN-62 contained one of the largest collections of ground stone tools recovered from the Ballona (n = 121), although FAR still represented over 75 percent of the food-processing artifacts.

Multifunctional food-processing artifacts such as flaked stone choppers, bifaces, and scrapers, as well as a variety of hammerstones, could have been used to either process food or manufacture other artifacts. These types of artifacts were most abundant at LAN-47 (n = 113) and LAN-63 (n = 156) and from the Protohistoric through Mission period component of LAN-211 (n = 305) (see Table 3). Overall, this multifunctional class represented only 1.3 percent of all the artifacts. LAN-63 (4.7 percent) and LAN-64 (4.3 percent) ranked highest and second-highest, respectively, with their percentages of multifunctional food-processing artifacts. At LAN-47, the Intermediate period component of LAN-54, the Protohistoric through Mission period component of LAN-211, and the Millingstone and Intermediate period components of LAN-62, multifunctional food-processing artifacts made up 1–2 percent (see Table 4). By contrast, all the other sites and components had percentages of food-processing/manufacturing tools of 0.7 percent or less. Food-processing/ritual tools are those that were used as cooking or serving containers (primarily stone vessels, *comales*, and shells that may have been used as containers or scoops). These artifacts were found almost exclusively in the various components at LAN-62 and were most abundant in the Protohistoric through Mission period component at LAN-211. Significantly, the large collection of ground stone at LAN-63 also included a large number of stone vessels, many made from steatite. (*Note:* Hull et al. [2013:Table 2] reported as many as 87 vessels from Features 11 and 587 alone, from an expanded analysis sample.) Taken together, this evidence suggests that the various types of food-processing tools were restricted primarily to residential and ritual contexts, whereas FAR was widely distributed throughout all sites and components but LAN-60 (and perhaps LAN-64), where, we suspect, sampling error occurred in the small collection.

Artifacts associated with manufacturing or maintenance activities constituted the single most-abundant functional class, overall representing almost 80 percent of the studied collections. This functional class is most often associated with residential activities. Sites and components fell roughly into three groups: those with over 80 percent manufacturing tools, those with 68–75 percent, and those with 30–45 percent. Contrary to expectations, presumed residential sites are not restricted to the groups with the higher percentages; in fact, presumed specialized food-processing sites, such as LAN-193, had among the highest relative frequencies of manufacturing tools. The lack of patterning for this class may be due to the fact that between 97 and 100 percent of all the manufacturing artifacts consisted of debitage, and very few tools were represented at all sites. Multifunctional artifacts that could have been used for manufacturing or ritual activities (e.g., shaft straighteners) were extremely rare in all contexts.

Perhaps the best clue used to distinguish residential sites from specialized sites was the presence of items of personal adornment and those associated with ritual activities. Overall, items of personal adornment, almost exclusively beads and pendants (*Note:* In many cases, the beads may have represented money.), were relatively abundant and represented 6.8 percent of the collection. As might be expected, items of personal adornment were most abundant in the Protohistoric through Mission period component at LAN-62 (47.9 percent of all artifacts). Even though burial features at LAN-62 were not included in this analysis, items that were originally associated directly with burials or that were scattered over graves in mourning ceremonies were mixed in with most of the nonburial features at the site. The sites with the next-highest percentages of items of personal adornment (5.8 percent) were LAN-211 (the Protohistoric through Mission period component) and, surprisingly, LAN-47. No other site component exceeded 2.8 percent (the Intermediate period component at LAN-62), and many components had less than 1 percent. Surprisingly, beads and other ornaments constituted only 1.4 percent of the analyzed collection from LAN-63, which is presumed to have been a major residential and ritual site dating to the Intermediate period. Although beads and other items of personal adornment were common only in Protohistoric and Mission period contexts in the Ballona, the relatively high percentage at LAN-64 testified to the importance of that site as a residential location. Similarly, the relatively high percentage at LAN-47 suggested that the site may have also been used as a residential location. Overall, all types of ritual items were extremely rare in the Ballona, representing 0.1 percent or less of each collection (their abundance, however, increased dramatically in the burial ground at LAN-62 [see Chapter 6, this volume]). Food-processing/ritual items were present only in the Protohistoric through Mission period component at LAN-211 and in all components of LAN-62. Although none of these multifunctional artifacts was found at LAN-63, small numbers of other ritual items were present there—most notably, cogged stones, discoidals, an effigy, and 2 pipes, along with 6 ground stone disks and 6 perforated whole shells. Four discoidals and 1 palette were recovered from LAN-64. By contrast, ritual items from the much later Protohistoric through Mission period component at LAN-62 included 1 bone wand, 1 bone whistle, 1 bone gaming piece, 1 large piece of whalebone, 2 asphaltum-covered shells, and 13 pieces of ocher. The burial ground contained many more examples of these artifacts, as well as bone rattles, strigils, a crescent, 1 palette, and 13 pipes (see Chapter 6, this volume). More surprising was the recovery of 2 bone whistles and 10 pieces of ocher from the Intermediate period component at LAN-193. Along with the previously mentioned high frequency of asphaltum (which was used in both manufacturing and ritual contexts), these artifacts suggest some level of ritual activity at that site.

Table 6. Faunal Data from Ballona Sites

Temporal Period, by Site No.	Vertebrates		Fish (NISP)	Invertebrates (g/m³)
	NISP	NISP/2.5		
LAN-47				
Late	100.4	40.1	1.2	22.5
LAN-54				
Millingstone	160.3	64.1	18.6	1,010.7
Intermediate	117.2	117.2	63.6	3,800.4
LAN-60				
Intermediate	208.5	83.4	19.7	447.0
LAN-62				
Millingstone	2,576.5	1,030.6	124.2	343.9
Intermediate	2,606.7	1,042.7	573.6	2,245.7
Late	970.0	388.0	40.0	—
Protohistoric through Mission	1,220.9	488.4	133.9	987.7
LAN-63				
Intermediate	565.4	226.2	278.9	346.0
LAN-64				
Intermediate	130.2	52.1	3.2	51.0
LAN-193				
Millingstone	509.0	203.6	64.0	—
Intermediate	10,763.0	4,305.2	137.6	34.5
LAN-211				
Intermediate	2,002.2	800.9	119.1	395.3
Protohistoric through Mission	6,875.8	2,750.3	1,019.0	1,492.2
LAN-2768				
Intermediate	2,069.2	827.7	213.4	676.7

Faunal Remains

Faunal remains, which primarily represent the products of subsistence activities, provide additional insights into site function. Faunal remains were divided into three types: vertebrates, which consisted primarily of terrestrial mammals and smaller numbers of avifauna; reptiles, and amphibians, which represented subsistence activities associated with the Ballona wetlands and the coastal prairie; fish, which represented activities associated with the lagoon and shoreline as well as offshore subsistence activities; and invertebrates, which represented lagoon and shoreline activities. We calculated the number of individual specimens (NISP) per cubic meter for vertebrates and fish and the weight (in grams) per cubic meter for invertebrates for each component at the nine sites (Table 6). These data are also illustrated in Figure 51. (*Note:* Because of the great abundance of vertebrate remains at LAN-193 and LAN-211, their NISP values have been reduced by a factor of 2.5 in the graph to facilitate comparison with fish and invertebrate remains.) Here, we look at the broad faunal classes and orders; the details regarding specific taxa at each of the PVAHP sites are presented in Volume 3, this series, and are summarized in Chapter 4, this volume. As discussed in the following chapter, there were differences in the exploitation of specific taxa among the various PVAHP sites and over time, but those differences were minor and, for the most part, reflect changes in resource availability that resulted from climatic changes and the evolution of the Ballona Lagoon.

Terrestrial-vertebrate-faunal remains were the most abundant of the faunal remains at most sites. The Intermediate period component of LAN-193 and the Protohistoric through Mission period component of LAN-211 had extremely high frequencies of terrestrial-vertebrate remains (NISP = 10,763 and 6,876, respectively), whereas the Millingstone and Intermediate period components of LAN-62 and the Intermediate period components of LAN-211 and LAN-2768 had moderately high densities (NISPs between approximately 2,000 and 2,600). Except for the Late and Protohistoric through Mission period components of LAN-62 (NISP = 970 and 1,221, respectively), each of the other site components had a frequency of around 600 or less. By contrast, fish remains were very low at all sites, except for the Intermediate period component at LAN-62 (NISP = 574) and the Protohistoric through Mission period component at LAN-211 (NISP=1,019). Fish remains were particularly low in the Millingstone period components at LAN-54 and LAN-193;

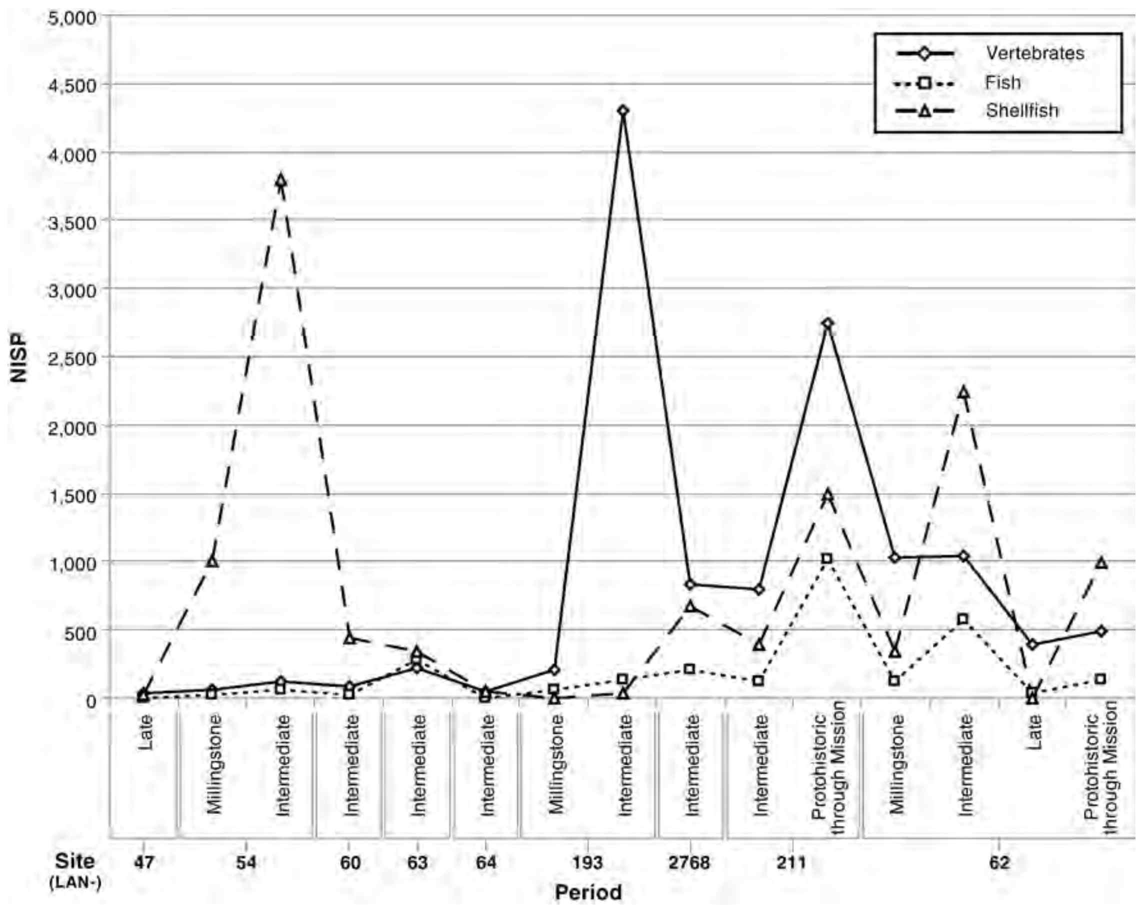

Figure 51. Frequencies of faunal remains from Ballona sites, by time period.

the Intermediate period components at LAN-54, LAN-60, LAN-64; and the Late period components at LAN-47 and LAN-62. Overall, invertebrate remains showed greater diversity. The Intermediate period component at LAN-54 was distinguished by an extremely high density of invertebrates (3,800 g/m^3), and the Millingstone period component at that site had a moderately high density of invertebrates (1,011 g/m^3). High densities of invertebrates were also present in the Intermediate period component at LAN-62 (2,246 g/m^3) and the Protohistoric through Mission period component at LAN-211 (1,492 g/m^3). By contrast, extremely low densities (of less than 100 g/m^3) of invertebrates were found in the Intermediate period components at LAN-64 and LAN-193 and the Late period components at LAN-47 and LAN-62.

The artifact and faunal data are summarized in Table 7. Based on the above discussion, each site component was assigned a rank of low, moderate, or high for each of the faunal variables. Faunal categories with densities well above average were given high rankings, those with average relative frequencies were given moderate rankings, and those that were well below average were given low rankings. Similar rankings were assigned for relative frequencies (percentages) of each of the artifact functions. In this case, they were collapsed into three major functional variables: food processing, manufacturing, and personal adornment/ritual activities. No rankings were assigned for resource-procurement activities because of the paucity of data for that class. In the case of food-processing activities, the rankings were based on a combination of the three original single-function and multifunctional variables involving food-processing artifacts: food processing, food processing/manufacturing, and food processing/ritual. Similarly, the rankings for the manufacturing variable were based on a combination of three single-function and multifunctional classes involving manufacturing artifacts and debris, and the rankings for the personal adornment/ritual variable were based on the five original variables involving artifacts associated with personal adornment and ritual activities.

Based on an examination of the rankings, there were three distinct groups of site components. Three site components were low-intensity occupations with moderate diversities of activities (including the Intermediate period component at LAN-60 and the Late period components at LAN-47 and LAN-62). Each of these site components was characterized by two or more low rankings for faunal remains and low and high rankings for one activity or moderate rankings for multiple activities. These sites may represent temporary campsites.

A second group of five site components can be described as moderate-intensity occupations with low to moderate

Table 7. Summary of Fauna and Artifacts at Ballona Sites

Temporal Period, by Site No.	Fauna Rankings			Artifact Rankings			Summary
	Fish	Other Vertebrates	Invertebrates	Food Processing	Manufacturing	Personal Adornment/ Ritual	
LAN-47							
Late	low	low	low	moderate	moderate	moderate	low intensity/moderate diversity
LAN 54							
Millingstone	low	low	high	high	low	low	low intensity/low diversity
Intermediate	low	low	high	high	low	moderate	low intensity/low diversity
LAN-60							
Intermediate	low	low	moderate	moderate	high	low	low intensity/moderate diversity
LAN-62							
Millingstone	moderate	high	moderate	low	high	moderate	moderate intensity/moderate diversity
Intermediate	high	high	high	low	high	moderate	high intensity/high diversity
Late	low	moderate	low	low	high	moderate	low intensity/moderate diversity
Protohistoric through Mission	moderate	moderate	high	low	low	high	moderate intensity/moderate diversity
LAN-63							
Intermediate	moderate	low	moderate	moderate	low	high	moderate intensity/high diversity
LAN-64							
Intermediate	moderate	low	low	low	moderate	high	low intensity/moderate diversity
LAN-193							
Millingstone	moderate	low	low	low	high	low	low intensity/low diversity
Intermediate	moderate	high	low	low	high	low	moderate intensity/low diversity
LAN-211							
Intermediate	moderate	high	moderate	low	high	low	moderate intensity/low diversity
Protohistoric through Mission	high	high	high	low	high	high	high intensity/high diversity
LAN-2768							
Intermediate	moderate	high	moderate	moderate	moderate	low	moderate intensity/moderate diversity

diversities of activities (including the Intermediate period components of LAN-193, LAN-2768, and LAN-211; the Millingstone period component of LAN-62; and the Protohistoric through Mission period component of LAN-62). Each of these site components was distinguished from the preceding group by one high ranking for faunal remains and one or more moderate rankings. In terms of activities, they generally ranked high for manufacturing and low for the other two activities. LAN-2768 was an exception, because it did not rank high in any of the three activities but had a moderate ranking for food processing and manufacturing. These sites may represent longer-term campsites and may have been reoccupied more often than the temporary campsites or may represent longer seasonal occupations. The Protohistoric through Mission period component at LAN-62 was distinct from the others in this group in that both food-processing and manufacturing activities were ranked low, whereas the personal adornment/ritual activities were ranked high. Even though the burials were not included in this analysis, it was clear that this component was still dominated by the burial-ground and mourning-ceremony areas (see Chapter 6, this volume) and should probably be treated separately as a highly specialized-activity area.

The third group consisted of three site components that were low-intensity occupations with low diversities of activities. The Millingstone and Intermediate period components of LAN-54 were distinguished by high rankings for invertebrate fauna and food-processing activities and generally low rankings for all other attributes (the Intermediate period component had a moderate rank for personal adornment/ritual activities, based on the presence of two asphaltum-coated shells). The evidence suggested that LAN-54 was a highly specialized food-processing camp devoted primarily to processing invertebrate foods. Its unusual location near the mouth of Ballona Creek and adjacent to the marsh suggested that it was situated specifically for that purpose. The Millingstone period component of LAN-193 was different. Faunal remains were generally low, except for a moderate frequency of fish. Manufacturing activities were represented by high relative frequencies of debitage and two bone tools. LAN-193 was also low for food-processing and adornment/ritual activities. Overall, the Millingstone period component of LAN-193 appeared to be intermediate between the possible temporary campsites and the longer-term campsites.

The final group of four site components was also diverse. The Intermediate period component of LAN-62 and the Protohistoric through Mission period component of LAN-211 were distinguished from all the other site components by their high rankings for all three faunal classes, suggesting diverse and very intensive occupations that might have been associated with a village site or a long-term, multiseasonal campsite. They also had high rankings for manufacturing activities and high or moderate rankings for personal adornment/ritual activities, characteristics that are also consistent with a village or a multiseasonal camp. LAN-64 and LAN-63 were not characterized by high rankings for any of the faunal classes but did have moderate rankings for fish and invertebrates and fish, respectively. LAN-63 had moderate rankings for food processing, and LAN-64 had a moderate ranking for manufacturing. By contrast, LAN-63 was ranked low for manufacturing, and LAN-64 was ranked low for food processing. In terms of the five variables, they were indistinct from the longer-term campsites. However, both sites shared a high ranking for personal adornment/ritual activities with the Protohistoric through Mission period components of LAN-62 and LAN-211. Thus, the high representation of personal adornment/ritual activities at LAN-63 and LAN-64 set them apart from the temporary/seasonal campsites and grouped them with the more intensively occupied LAN-62 and LAN-211. Given their proximity to one another and their contemporaneity, LAN-63 and LAN-64 could be considered a single site.

In summary, an examination of the faunal and artifact data suggested that four functionally distinct site types were present in the Ballona from the Millingstone period through the Protohistoric through Mission period. The Millingstone period was represented by specialized food-processing camps in the wetlands (LAN-54) and temporary camps along the base of the bluffs (LAN-62 and LAN-193). Even at that early date, LAN-62 was probably the most intensively occupied site in the Ballona. A great diversity of sites appeared during the Intermediate period, and all functional types were represented, including a specialized food-processing camp at LAN-54 and temporary camps and residential sites at LAN-60, LAN-64, LAN-193, LAN-211, and LAN2768. More-intensively occupied sites representing multiseasonal or permanent residential sites were also established at that time at LAN-62, LAN-63, and LAN-64. In contrast to the great diversity of Intermediate period settlements, Late period occupation in the Ballona was reduced to two temporary camps, one each at LAN-47 and LAN-62. The Protohistoric through Mission period occupation was much more intensive but was restricted to a single permanent village or multiseasonal camp at LAN-211 and a burial ground/ceremonial site at LAN-62.

Features

A more complete picture of site function is provided by an examination of features found at these sites. In Volume 2, this series, we define feature types and provide detailed descriptions of all features found in each of the five PVAHP sites. In this chapter, we summarize those findings and integrate them with feature data from other sites in the Ballona. To enhance comparability, our focus here is on the sites and features investigated by SRI. Of the four non-PVAHP sites investigated by SRI—LAN-47, LAN-60, LAN-63, and LAN-64—significant numbers of features were found only at LAN-63 and LAN-64. Although the feature typology used to define features at those two sites was similar to that used for the PVAHP—in fact, the PVAHP typology was derived from the typology used at those sites—there were important differences. It was not possible in this analysis to go back and reanalyze the features at LAN-63 and LAN-64. As a result, it was necessary to collapse many of the fine distinctions in feature types made in the PVAHP analysis and use a simplified typology for comparison with non-PVAHP sites. Basically, the features were divided into two main categories: domestic features and mortuary and ritual features. The former consists of a variety of cooking and food-processing features, manufacturing and refuse-discard areas, storage pits and caches, and structural features (Figures 52–56). By contrast, mortuary and ritual features consisted of inhumations, cremations, animal burials, and mourning features (see Chapter 6, this volume). Each of those categories was subdivided into thermal and nonthermal types of features. A summary of features by time period from the PVAHP and other SRI projects in the Ballona is presented in Table 8.

Millingstone Period

Twenty-five features assigned to the Millingstone period were excavated: 13 at LAN-54, 7 at LAN-62 Locus A/G, and 5 features at LAN-64. Three additional features at LAN-54 could not be assigned to either the Millingstone or Intermediate period occupation at that site. In addition, hundreds of features at LAN-62 Locus A/G could not be assigned to a particular time period. The 118 burials and the majority of the other features, however, most likely date to the Late period or later. As noted in Volume 2, this series, the features at LAN-54 appeared to be concentrated on a relict berm or raised area, which would have offered an appealing locus for logistical camps in the largely wet and marshy environment of the lowland Ballona at the time. The western portion of LAN-62 also contained one or several raised areas that provided stable landforms for logistical camps. By contrast, the features at LAN-64 were located on the bluff tops, well above the wetlands, but in proximity to vernal pools and the coastal prairie. The intercept dates for the Millingstone period radiocarbon assays suggested that the Millingstone period features at LAN-64 dated to the early part of that period, between 6200 and 5000 b.c., whereas those at LAN-62 Locus A/G slightly predated the occupation at LAN-54 during the late Millingstone period, dating to ca. 2800–1000 b.c. (see Chapter 3, Volume 2, this series). Perhaps landform stability or access to freshwater sources varied over time during that span, creating a spatially shifting focus of human settlement. Notably, at LAN-62 Locus A, the Millingstone period features were concentrated in a small, 5-by-5-m area (FB 7) located stratigraphically below the eastern part of the burial ground (Figure 57). As in the case of LAN-54, that concentration may mark the location of a relict raised area or berm.

All but one Millingstone period feature was classified as a domestic feature; the exception was a burial/ritual feature that consisted of a concentration of burned whalebone in association with a ground stone bowl. The feature was excavated within the burial area at LAN-62 Locus A and was assigned to the Millingstone period based on its stratigraphic position and association, but no radiocarbon samples were obtained. Shell beads recovered from the feature matrix, however, long postdated the Millingstone period. Moreover, fragments of cremated bone in the feature matrix may very likely have been from the later burial remains (see Chapter 8, Volume 2, this series). It is therefore highly plausible that this feature was intrusive into the Millingstone period stratum and actually dated to the Late, Protohistoric, or even Mission period, when most of the burials and other mortuary-related features at LAN-62 Locus A were interred.

Among the domestic features, nonthermal features greatly outnumbered thermal features (19 to 5). No well-defined hearths were found among the Millingstone period features, although it is possible that one or more of the hearth cleanouts were heavily disturbed hearths. The effects of time and bioturbation also may have worked to distort the visible remains of hearths. Hearth cleanouts and discard areas were recorded at both LAN-54 (n = 3) and LAN-62 Locus A/G (n = 2), which indicated thermal activity in both settlements related to cooking. In addition, many of the nonthermal domestic features included at least small amounts of FAR, further indicating thermal activity. Most of the nonthermal features were classified as general domestic discard areas, which suggest that the Millingstone period inhabitants tended to accumulate discarded debris generated from various activities and deposited them in a single location. The only Millingstone period features at LAN-64 were a collection of five nonthermal shell dumps, which appeared to have been placed in shallow pits and contained venus clam and scallop shells, along with sparse amounts of lithic debitage and faunal bone. Notably, cairns (interpreted as posthole supports [see Chapter 5, Volume 2, this series]) were also present at LAN-54 and LAN-62 Locus A/G and could mark the locations of temporary shelters or other small structures. Importantly, the composition of discarded materials varied among the three sites. At LAN-54 and LAN-63, most of the discard areas contained abundant shell. Of the nine features classified as domestic discard areas at LAN-54, six contained 200 g or more of shell, and three contained more than 900 g, suggesting frequent processing of shellfish. That was consistent with the findings of the overall artifact analysis (see above). At LAN-62, three of the discard areas contained sparse shell but 100–600 faunal bones (mostly mammals), and one other was dominated by shell (400 g).

In summary, the similar ranges and proportions of feature classes at LAN-54, LAN-62, and LAN-64 (domestic discard areas associated with food processing) implies roughly comparable patterns of land use and activities in the two areas; all three sites probably housed temporary logistical camps. However, they appeared to have been exploited for different resources—mainly shellfish in and near LAN-54 and LAN-64 and hunted meat in and near LAN-62 Locus A/G. These results are consistent with the artifact and ecofact analysis above. Hence, the logistical task groups that entered the Ballona in the Millingstone period clearly targeted LAN-54 and

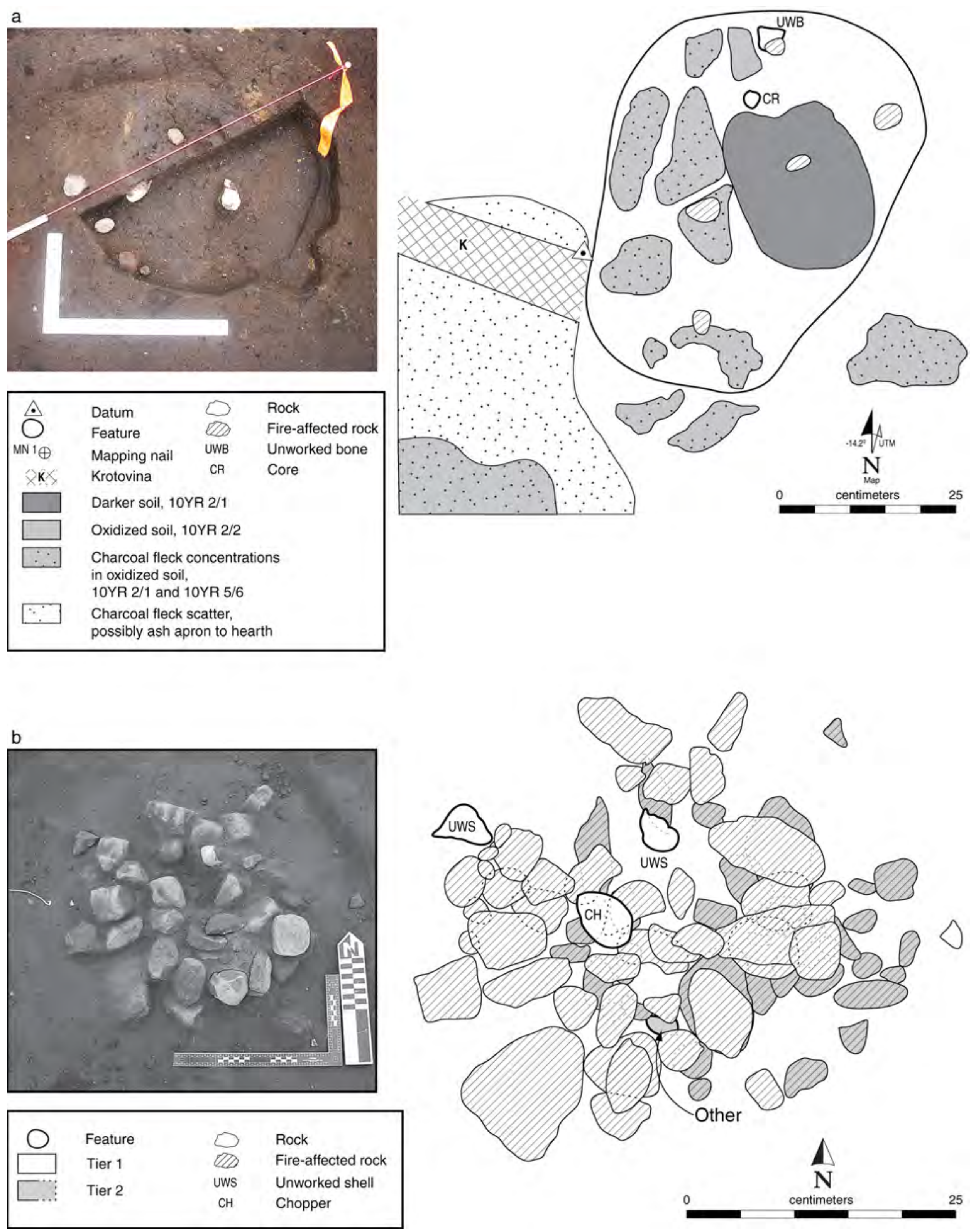

Figure 52. Thermal domestic features: (*a*) a small hearth with oxidized soil (Feature 18) at LAN-211 and (*b*) a small hearth with FAR (Feature 640) at LAN-62.

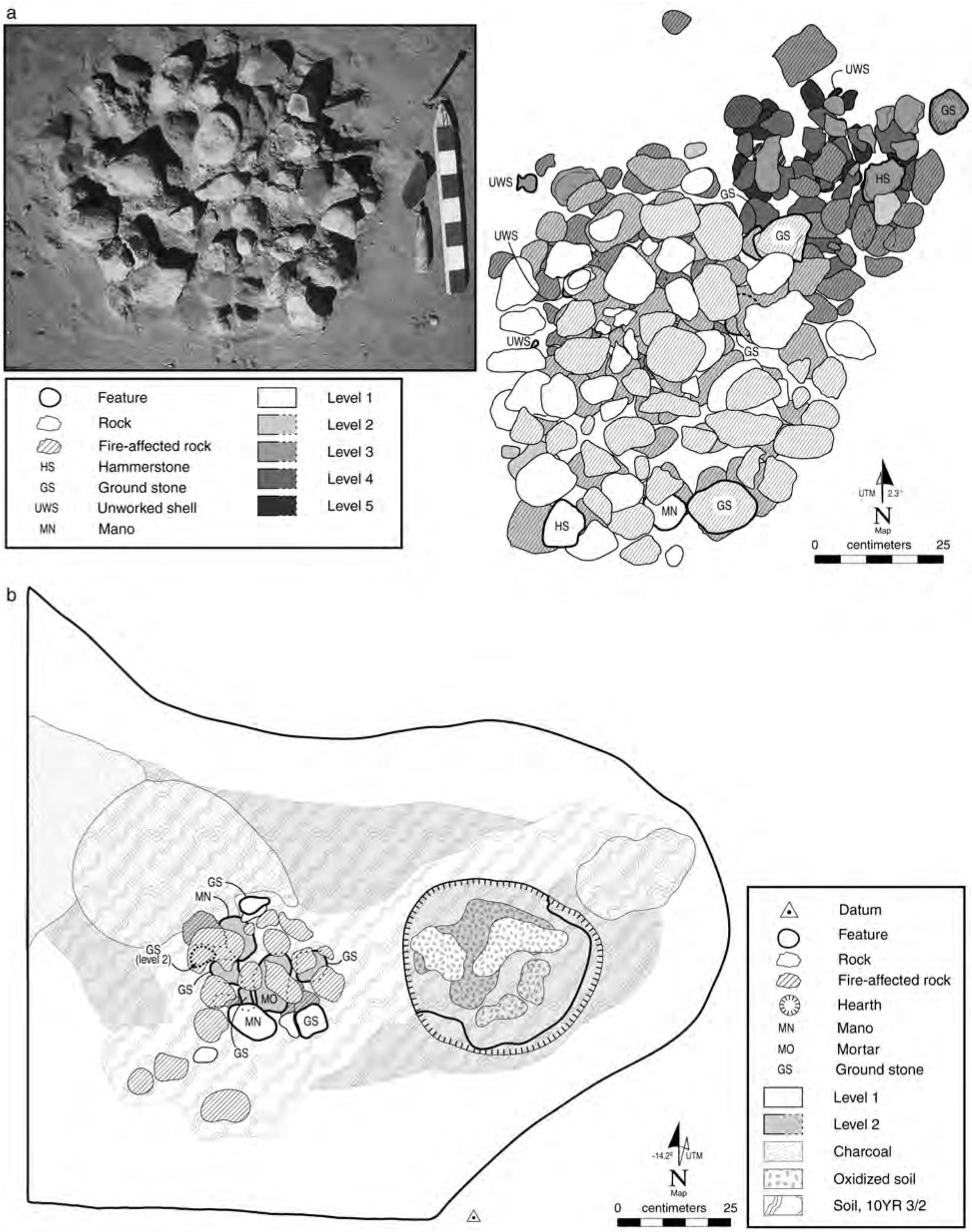

Figure 53. Thermal domestic features (continued): (*a*) a large hearth with FAR (Feature 12) at LAN-2768 and (*b*) a small hearth with oxidized soil and a hearth cleanout (Feature 52) at LAN-211.

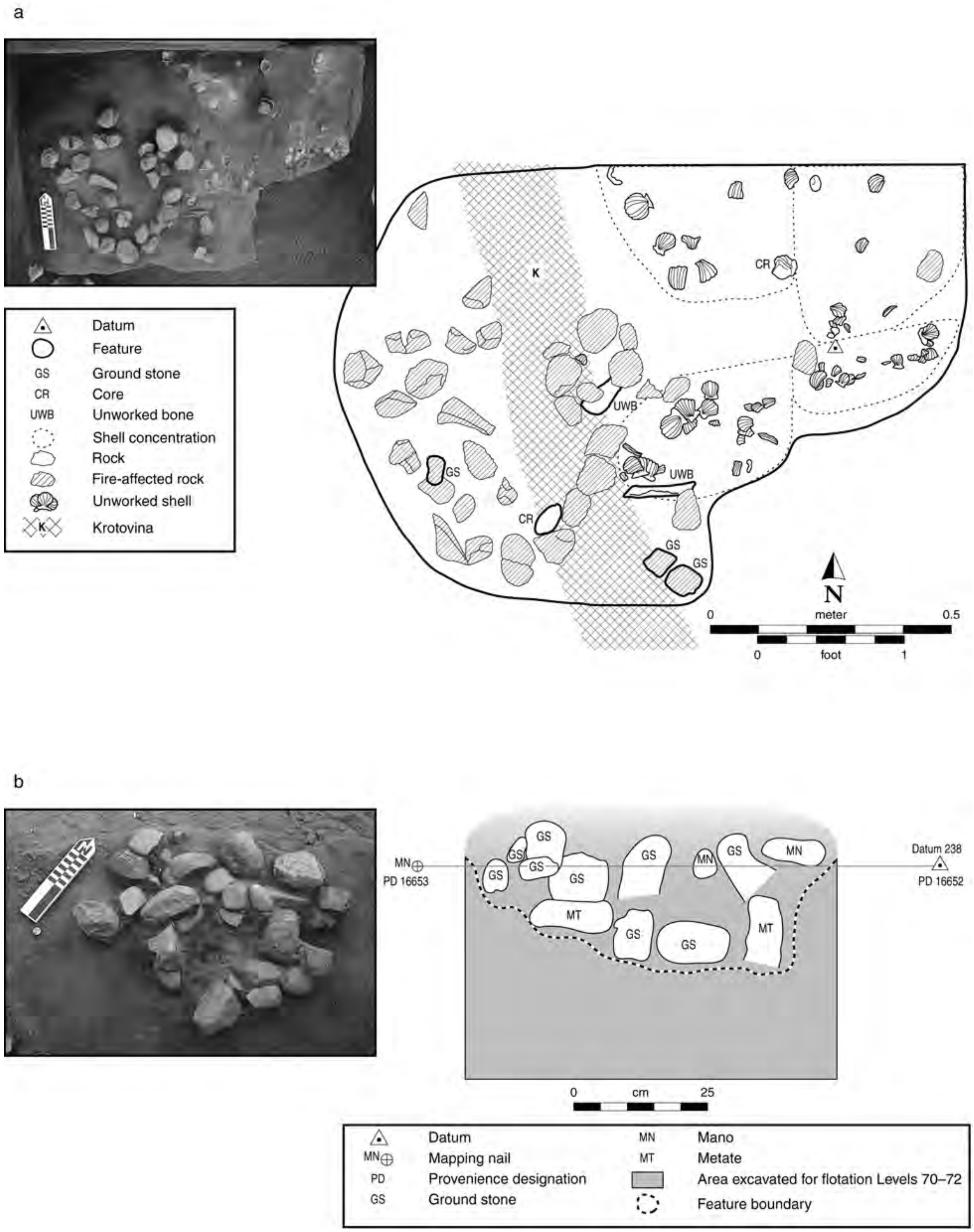

Figure 54. Nonthermal domestic features: (*a*) a hearth cleanout/domestic-discard area (Feature 419) at LAN-62 and (*b*) a cairn (Feature 520) at LAN-62.

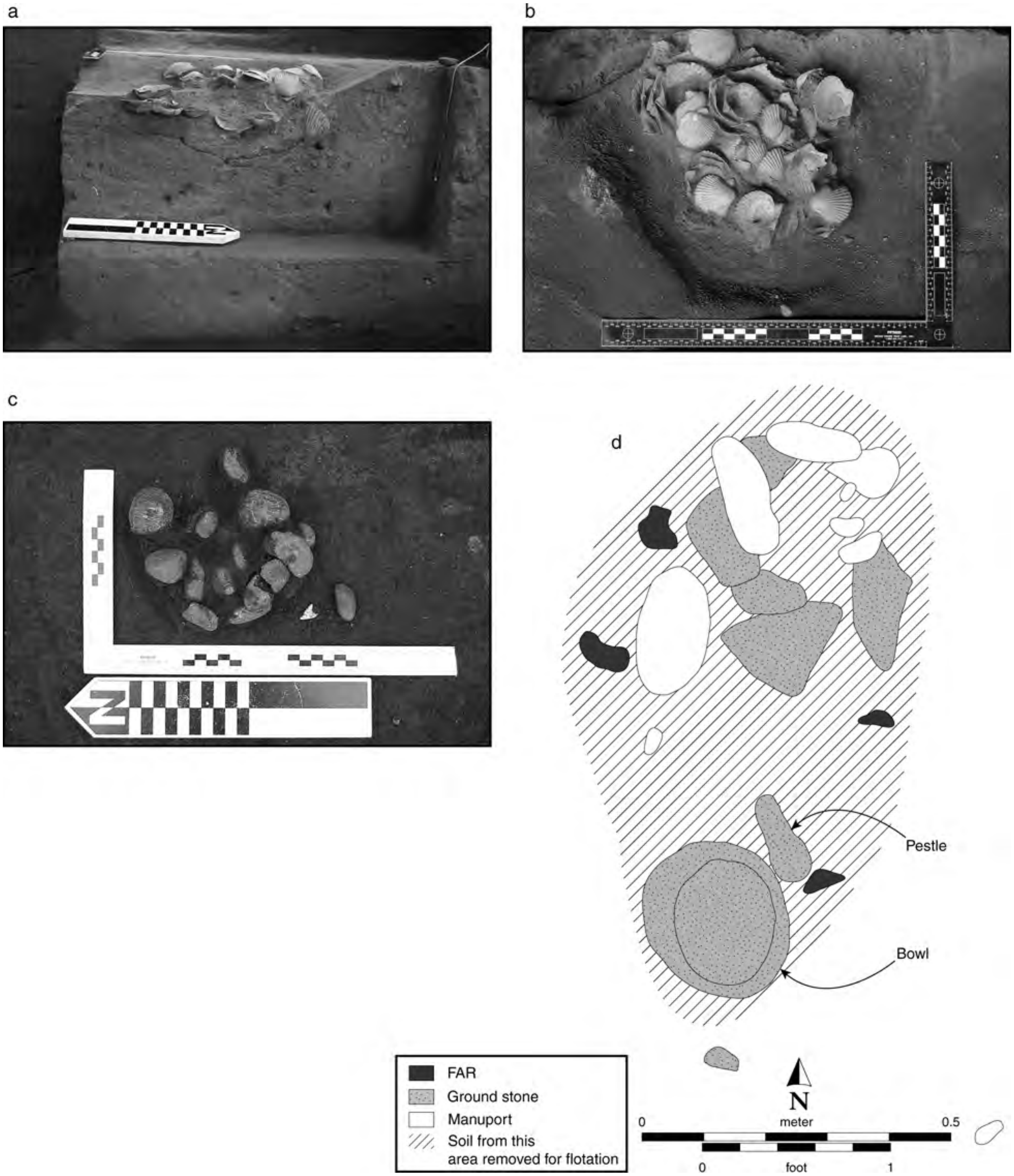

Figure 55. Nonthermal domestic features (continued): (*a* and *b*) shell dumps (domestic-discard areas) (Features 483 and 563) at LAN-62, (*c*) a cairn (Feature 635) at LAN-63, and (*d*) a small hearth and artifact cache (Feature 521) at LAN-62.

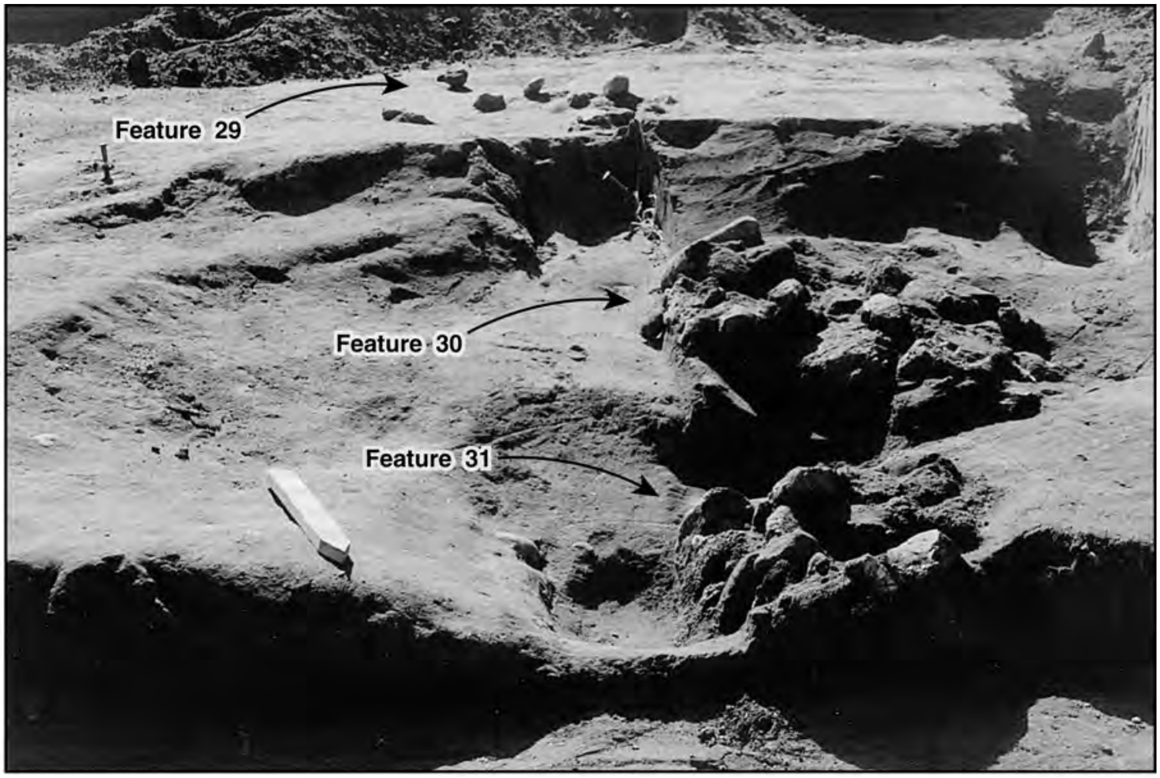

Figure 56. A small pit structure reused as a large hearth at LAN-2768, view to the south: (*a*) with FAR in the western half and (*b*) after the removal of all FAR.

Table 8. Distributions of Feature Types at Ballona Sites, by Time Period

Feature Type	LAN-47	LAN-54	LAN-62 Locus A/G	LAN-62 Locus B/C	LAN-63	LAN-64	LAN-193	LAN-211	LAN-2768	Total	Percent of Period Subtotal
Millingstone Period											
Cairn	—	1	1	—	—	—	—	—	—	2	8.0
Domestic discard area	—	9	3	—	—	—	—	—	—	12	48.0
Hearth cleanout or domestic discard area	—	3	2	—	—	—	—	—	—	5	20.0
Mortuary offering	—	—	1	—	—	—	—	—	—	1	4.0
Shellfish-processing area	—	—	—	—	—	5	—	—	—	5	20.0
Subtotal	—	13	7	—	—	5	—	—	—	25	
Intermediate Period											
Human burial	—	3	—	—	5	9	3	—	3	23	4.6
Ritual offering/mourning feature	—	2	—	—	3	—	1	—	—	6	1.2
Animal burial	—	—	—	1	—	—	1	—	—	2	0.4
Structure floor, roasting pit	—	—	—	—	—	—	—	—	1	1	0.2
Cairn	—	—	—	—	17	—	2	—	3	22	4.4
Cache	—	—	—	—	25	—	—	—	—	25	5.0
Domestic trash or storage pit	—	—	3	1	—	—	—	1	—	5	1.0
Domestic discard area	—	6	7	3	13	5	35	4	17	90	18.1
Shellfish-processing area	—	—	—	—	9	3	—	—	—	12	2.4
Activity area	—	—	—	—	14	—	3	—	—	17	3.4
Intramural cooking pit	—	—	—	—	—	—	—	—	2	2	0.4
Small hearth	—	—	—	—	174	33	1	—	5	213	42.9
Hearth cleanout	—	1	1	1	38	1	5	—	9	56	11.3
Large hearth	—	—	—	—	9	4	3	1	6	23	4.6
Subtotal	—	12	11	6	307	55	54	6	46	497	
Intermediate through Mission Period											
Human burial	—	—	7	—	—	—	—	—	—	7	100.0
Subtotal	—	—	7	—	—	—	—	—	—	7	
Late through Protohistoric Period											
Human burial	8	—	10	—	—	—	—	—	—	18	81.8
Domestic discard area	1	—	2	—	—	—	—	—	—	3	13.6

continued on next page

Feature Type	LAN-47	LAN-54	LAN-62 Locus A/G	LAN-62 Locus B/C	LAN-63	LAN-64	LAN-193	LAN-211	LAN-2768	Total	Percent of Period Subtotal
Hearth cleanout or domestic discard area	—	—	1	—	—	—	—	—	—	1	4.5
Subtotal	9	—	13	—	—	—	—	—	—	22	
					Late through Mission Period						
Human burial	—	—	60	—	—	—	—	—	—	60	98.4
Domestic discard area	—	—	1	—	—	—	—	—	—	1	1.6
Subtotal	—	—	61	—	—	—	—	—	—	61	
					Protohistoric through Mission Period						
Human burial	—	—	174	—	—	—	—	2	—	176	76.2
Animal burial	—	—	—	—	—	—	—	1	—	1	0.4
Mourning feature	—	—	14	—	—	—	—	—	—	14	6.1
Activity area	—	—	—	—	—	—	—	3	—	3	1.3
Cairn	—	—	—	—	—	—	—	2	—	2	0.9
Domestic trash or storage pit	—	—	—	—	—	—	—	2	—	2	0.9
Domestic discard area	—	—	2	—	—	—	—	5	—	7	3.0
Large hearth	—	—	—	—	—	—	—	11	—	11	4.8
Small hearth	—	—	—	—	—	—	—	11	1	12	5.2
Hearth cleanout or domestic discard area	—	—	3	—	—	—	—	—	—	3	1.3
Subtotal	—	—	193	—	—	—	—	37	1	231	
					All Identified Temporal Designations						
All above-listed feature types	9	25	292	6	307	60	54	43	47	843	100.0
					Unknown Temporal Designation						
Human burial	—	—	51	—	—	—	—	1	—	52	24.8
Whale-bone marker	—	—	1	—	—	—	—	—	—	1	0.5
Animal burial	—	—	3	—	—	—	—	—	—	3	1.4
Cairn	—	2	1	—	—	—	—	—	—	3	1.4
Cache	—	—	6	—	—	—	—	—	—	6	2.9
Domestic trash or storage pit	—	—	19	—	—	—	—	—	—	19	9.0
Domestic discard area	—	1	80	—	—	—	—	—	—	81	38.6
Shellfish-processing area	—	—	4	—	—	—	—	—	—	4	1.9
Flaked-stone-tool-production/-curation area	—	—	1	—	—	—	—	—	—	1	0.5

Feature Type	LAN-47	LAN-54	LAN-62 Locus A/G	LAN-62 Locus B/C	LAN-63	LAN-64	LAN-193	LAN-211	LAN-2768	Total	Percent of Period Subtotal
Hearth cleanout	—	—	32	—	—	—	—	—	—	32	15.2
Large hearth	—	—	1	—	—	—	—	—	—	1	0.5
Firepit	—	—	2	—	—	—	—	—	—	2	1.0
Small hearth	—	—	5	—	—	—	—	—	—	5	2.4
Subtotal	—	3	206	—	—	—	—	1	—	210	
Total	9	28	498	6	307	60	54	44	47	1,053	

Note: Human burials include only those with at least one primary individual. Percentages have been rounded to the nearest tenth.

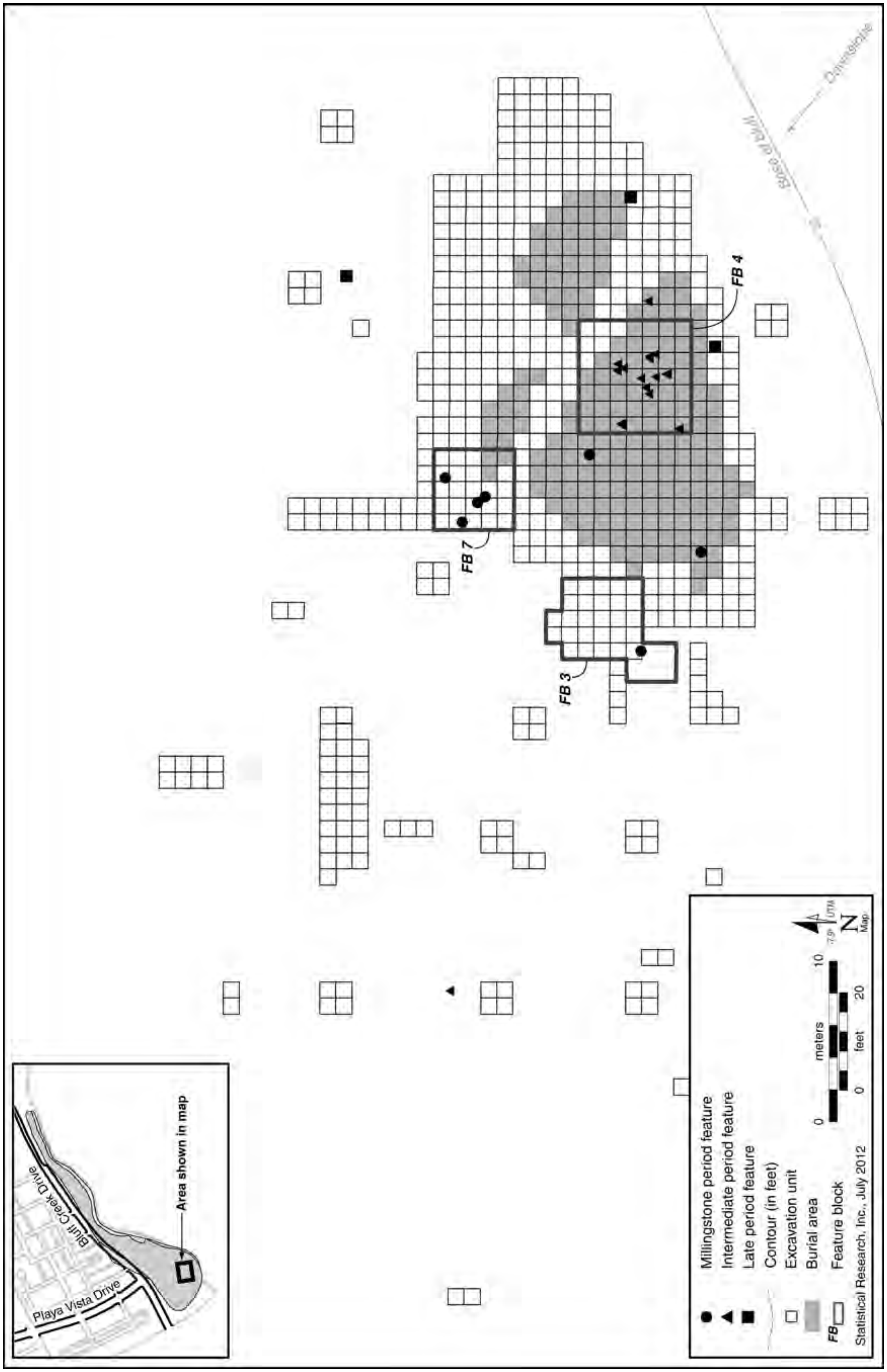

Figure 57. Prehistoric features at LAN-62 Locus A/G.

LAN-64 for shellfish and possibly other aquatic resources; it appears that at LAN-62, logistical groups targeted terrestrial mammals. Moreover, the much higher midden density and the larger number and variety of features at LAN-62 suggests more-frequent and/or longer-term logistical land use than at LAN-54 or LAN-64. However, no burials and few cooking-related features have been found at any of these sites, suggesting that activities were primarily related to food collection, whereas food-processing and residential activities were greatly limited.

We suspect that the Millingstone period features at all three sites represent a palimpsest of short-term camping locations. Small, logistical task groups probably entered the Ballona on a sporadic basis to collect aquatic and riparian resources, during which times they established short-term camps. These groups probably collected shellfish during some forays into the area, especially in the vicinity of LAN-54 near the lagoon edge and LAN-64; on other occasions, they probably entered the Ballona with the intention of hunting wild game. Indeed, the freshwater streams and riparian vegetation in the area probably attracted wild animals, especially mammals, which were abundant among the faunal remains recovered from features and associated middens. These camping locations probably encompassed various activities, including cooking, tool making, and processing of raw foods, the debris from which appears to have been accumulated and discarded in single locations, creating the domestic discard areas. Each camping episode probably generated one or several adjacent features.

Intermediate Period

The most spatially extensive period of human occupation in the Ballona occurred during the Intermediate period. Features assigned to this period were recorded at all of the sites and loci in the PVAHP area and at most of the other sites that have been investigated by both SRI and Archaeological Associates. The intensity of Intermediate period occupation was also reflected in the presence of nearly 500 domestic and burial/ritual features assigned to this time period, which represents 58 percent of all features assigned to a particular time period and 47 percent of all features that have been identified (see Table 8). Furthermore, Intermediate period features were found at all excavated sites but LAN-47. These data suggest that Intermediate period occupation was intense and widespread. The inhabitants at that time did not prefer any one environmental context or location within the Ballona but, rather, made use of all areas of the Ballona. As explained below, however, it appears that different areas of the region were targeted for different resources.

As Lengyel and Hull explained in Chapter 3, Volume 2, this series, the distributions of radiocarbon intercept dates for the Intermediate period were not consistent among the sites, suggesting variable spans of occupation. The early Intermediate period occupation was mainly concentrated in the western portion of the wetlands (LAN-54, LAN-62, and LAN-211), a continuation of the Millingstone period settlement pattern. The middle Intermediate period settlement was concentrated along Centinela Creek, in the eastern area (LAN-2768 and LAN-193). By the late Intermediate period, the focus of settlement shifted to the western area (LAN-62 and LAN-211) and the bluff tops (LAN-63 and LAN-64).

Although burial and ritual features were more common than in the Millingstone period, most of Intermediate period features were related to domestic activities (94 percent), and 73 percent of all the Intermediate period features were found at the two bluff-top sites (LAN-63 and LAN-64). Most of the burial and ritual features were primary inhumations and were recorded at seven different sites. They were most abundant at LAN-64 (nine burials) and LAN-63 (five burials). The burials at LAN-63 were generally scattered and not concentrated in a central burial area. By contrast, a cluster of inhumations and cremated remains was found in the western portion of LAN-64. In Chapter 6, this volume, we suggest that the cluster may represent a family or group. Another possible exception concerns the three inhumation features at LAN-54. Lengyel and Hull defined an occupational episode at LAN-54 (Episode 4, ca. 810–80 b.c.) of which five of the seven features were defined as burial/ritual deposits (see Chapter 3, Volume 2, this series): three inhumations and two deposits interpreted as mortuary offerings associated with the inhumations. Together, these five features may represent a small mortuary-ritual complex. If so, however, the site clearly was not a formal and widely acknowledged burial area akin to the later Protohistoric through Mission period burial area at LAN-62 or even contemporary sites like ORA-64 and Bolsa Chica. This small mortuary/ritual complex and the cluster of burials at LAN-64 are believed to represent the burial grounds for small family or other kin-based groups who returned to the same location and interred their dead in a predetermined location near their residences. Overall, the Intermediate period burial pattern can be characterized as twofold: clusters of burials (possibly of small kin groups or families) and individual, isolated burials in individual settlements (see Chapter 6, this volume). If so, this pattern contrasts markedly with the tendency to bury large numbers of deceased individuals from a much larger community in a single location apart from residential areas during the subsequent Late and Protohistoric through Mission periods and could indicate a sweeping change in mortuary practices during the intervening centuries between the Intermediate and Protohistoric through Mission periods.

Additionally, in contrast to many of the later burials at LAN-62, burials from the Intermediate period had few, if any, mortuary goods placed with them. Items such as beads or possessions of any type were rare in, if not completely absent from, the burials interred during this time period. The two offering features associated with the inhumations at LAN-54, however, pointed to at least some form of ritual behavior during this time. More important are the three mourning features found at LAN-63. These features suggest the increasing importance of ritual activities and that such activities were conducted on a group basis rather than by individual families (see Chapter 6, this volume). Furthermore, whereas Intermediate period burials lacked many associated grave goods, mourning features contained a wealth of artifacts from domestic and ritual contexts.

Among the domestic features, thermal features predominated (about 60 percent of all features), representing a radical departure from the preceding Millingstone period. That difference was sufficiently large to imply a major shift in settlement and land-use patterns or activities from the Millingstone period to the Intermediate period. Thermal features were not only much more abundant than in the Millingstone period but also more diverse. The most common thermal features were small hearths (less than 0.5 m in diameter) represented by circular lenses of predominately FAR (43 percent of all Intermediate period features) that appeared to have been placed in shallow pits. In only one case was the FAR concentration associated with a visible pit outline (see below), although two oxidized pits were identified at LAN-2768. These types of hearths are believed to have been associated with single-family cooking activities (see Chapter 5, Volume 2, this series). The earliest large hearths that were found dated to the Intermediate period. They were FAR concentrations similar to the small hearths, but each was 1 m or more in diameter, and they appeared to represent communal or multifamily cooking activities (see Chapter 5, Volume 2, this series).

Importantly, three deposits from LAN-2768 Locus A were classified as "mixed" (i.e., including a mix of thermal and nonthermal features). One appeared to have been a small, abandoned house pit that was later reused as a large hearth or roasting pit (Feature 24) (see Figure 56). The ovoid pit measured about 2.2 by 2.6 m in diameter and included two intramural pits, both of which also were classified as thermal features but may have initially functioned as indoor (intramural) storage pits. It is unclear whether the structure functioned as a residence or a ritual structure, but the range of materials (faunal bone, shell, and lithic artifacts) and surrounding features (domestic discard areas and hearth-cleanout deposits) imply a domestic residential function. The length of occupation also is unknown, but the presence of a house pit and intramural pits suggests a more substantial architectural investment than would be expected for a short-term camp. More likely, the structure functioned as a seasonal residence for a small family or task group.

The nonthermal features were predominantly domestic discard areas that contained some mix of FAR, flaked stone, faunal bone, unworked shell, and other materials. These deposits likely included discarded debris related to a variety of domestic tasks, including cooking, food preparation, and stone-tool making. General activity and discard features constituted only 26 percent of all features, a proportion well below that observed among the Millingstone period features (88 percent of all features), which is probably attributable to the much higher frequency of thermal features among the Intermediate period sites (59 percent). Five of these features consisted of functionally ambiguous concentrations of unmodified cobbles (along with small amounts of flaked stone and ground stone), and all were recovered from LAN-2768 Locus A (most post-dated the abovementioned structure). One activity area in that locus encompassed several such deposits that were not formally designated as subfeatures. The cobbles did not exhibit evidence of thermal cracking or spalling, and few were concentrated tightly enough to have functioned as cairns or posthole supports (although they may have been dispersed as a result of bioturbation). They are tentatively interpreted as discard areas related to an unknown activity. In addition to the possible structure at LAN-2768, cairns were also present (4.4 percent of all features) at LAN-63, LAN-193, and LAN-2768, along with caches of ground stone tools (usually pairs of manos and metates or mortars and pestles) at LAN-63.

Seven lithic/ground stone concentrations or scatters at LAN-2768 were assigned to the Intermediate period (including one associated with a visible pit). Similar features in the Ballona have been interpreted as cairns or post supports, but only three of these Intermediate period lithic/ground stone features were classified as having the same function. At LAN-62 Locus C, a pit that contained the remains of a juvenile deer functioned as a storage pit or cache for meat, or it possibly was used for a ritual activity.

Many of the features assigned to the Intermediate period probably represent a palimpsest of deposits related to short-term logistical camps in the region, as was the case in the Millingstone period. However, the presence of hundreds of hearths as well as a house pit and intramural features at LAN-2768 Locus A suggests a much more intensive occupation and possible residential activities for at least a brief span during the early Intermediate period. The small structure represented by the house pit and intramural features may have housed a single family for one or several seasons. Many more such houses are suspected to have been present but could not be defined in the sandy sediments typifying the Ballona wetlands and bluff tops. Their presence may be signified, however, by the numerous small hearths, as well as the cairns. The ground stone caches at LAN-64 further indicate that small family groups returned to the Ballona on a regular basis, whereas the large hearths indicate that multifamily units may have gathered in the Ballona on occasion. The presence of mourning features at LAN-63 and the relatively large number of large hearths (n = 9) at this site suggests that these two features types may have been associated with one another. Overall, the Intermediate period features support the artifact and ecofact analysis and indicate a much more intensive and widespread occupation than during the preceding Millingstone period, one that involved longer-term residential activities and not just logistical forays.

Moreover, although the Ballona probably continued to be used as a destination for the acquisition of resources, as was the case during the Millingstone period, land-use patterns and resource-collection activities changed somewhat during the Intermediate period. For example, the midden constituent analysis from Millingstone period midden deposits at LAN-54 (see Chapter 7, Volume 2, this series) and LAN-62

Table 9. Distributions of Intermediate Period Major Feature Functional Categories, by Area

Site No.	Feature Functional Category				Total
	Burial/Ritual	Residential	Domestic Discard/ Activity Area	Thermal Feature	
			Ballona Creek		
LAN-54	5	—	6	1	12
Subtotal	5	—	6	1	12
Percentage of area subtotal	41.7		50.0	8.3	
			Lower Centinela Creek/Western Lowlands		
LAN-62 Locus A/G	—	3	7	1	11
LAN-62 Locus B/C	1	1	3	1	6
LAN-211	—	1	4	1	6
Subtotal	1	5	14	3	23
Percentage of area subtotal	4.3	21.7	60.9	13.0	
			Western Uplands		
LAN-63	8	42	36	221	307
LAN-64	9	—	8	38	55
Subtotal	17	42	44	259	362
Percentage of area subtotal	4.7	11.6	12.2	71.5	
			Upper Centinela Creek/Eastern Lowlands		
LAN-193	5	2	38	9	54
LAN-2768	3	4	17	22	46
Subtotal	8	6	55	31	100
Percentage of area subtotal	8.0	6.0	55.0	31.0	
Total	31	53	119	294	497
Percentage of total	6.2	10.6	23.9	59.2	

Note: Percentages have been rounded to the nearest tenth.

(see Chapter 8, Volume 2, this series) indicated low or very low shell densities, but the densities increased substantially in Intermediate period deposits (see below). That pattern was especially salient in LAN-62 midden deposits, where shell constituted 0–18 percent of the midden remains in the two earliest Millingstone period episodes (Episodes 1 and 2) but increased to 34–44 percent in the Intermediate period episodes (Episodes 3–5). This evidence indicates increasing exploitation of shellfish during the Intermediate period, although hunting of terrestrial animals does not appear to have waned. Fish bones, especially those of pelagic fish, were also more prevalent among the Intermediate period features than at any other time. Different resources were probably targeted during the many forays into the Ballona during the Millingstone and Intermediate periods.

Spatial Variability in Intermediate Period Features and Activities

In order to better understand Intermediate period settlement in the Ballona, we broadly define four areas: Ballona Creek (LAN-54), lower Centinela Creek and the western lowlands (LAN-62 and LAN-211), the western uplands (LAN-63 and LAN-64), and upper Centinela Creek and the eastern lowlands (LAN-193 and LAN-2768). To facilitate comparison, features were combined into four broad functional categories: (1) burial/ritual features; (2) residential features possibly associated with structures (structures, cairns, caches, and storage or trash pits); (3) domestic discard, shell-processing, and general-activity areas; and (4) thermal features, such as hearths, fire pits, and hearth cleanouts (Table 9).

Burial/ritual features were evenly distributed throughout much of the Ballona during the Intermediate period. As explained previously, the Intermediate period features at LAN-54 included several inhumations and offering features that constituted almost 50 percent of the features in that area. We do not believe, however, that the area functioned as a formal burial area or a mortuary-ritual complex. Rather, we suspect that the high percentage of burial/ritual features was coincidental and probably attributable to the small number of Intermediate period features at LAN-54. Burial/ritual features were actually more common in the western uplands, although the large number of other features identified at these sites has resulted in the lowest relative frequency of such features, compared to the other three areas (4.7 percent). Although the relative frequency of burial/ritual features was low in the western uplands (the bluffs west of the Lincoln Gap), the large mourning features at LAN-63 and the cluster of burials at LAN-64 suggest that these sites may have served as the ritual/ceremonial center of the Ballona Intermediate period community. However, the community that this center served was probably localized, considerably smaller, and more decentralized than the one served by the concentration of mortuary and ritual features in the Protohistoric through Mission periods (see below).

Among domestic features, the most salient difference in the four areas was the varying proportions of thermal and nonthermal features. The difference mainly concerns the low frequency of thermal features in the Ballona Creek area and the western lowlands and the extremely high frequency of those features in the western uplands. The eastern lowlands contained a more-even distribution of these two broad categories of features. Most of the residential features were also found in the western uplands, although 20 percent of the features in the western lowlands were residential features.

A closer look at the feature interpretations reveals additional differences in the four areas. In the Ballona Creek area, most notable is the high frequency of discard areas with large amounts of unworked shell. That is consistent with the ecofact analysis (see above), which indicated large concentrations of shellfish remains. That pattern suggests a focus on shellfish-processing activities in the vicinity of LAN-54 during the Intermediate period, probably because of its proximity to the ancient lagoon and its unsuitability for substantial residential activities due to that proximity.

In the eastern lowlands, the ranges and proportions of inferred feature functions were remarkably similar for LAN-193 and adjacent LAN-2768 Locus C/D. Both were dominated by thermal-discard deposits consisting of mostly hearth-cleanout deposits. One source of variation concerns the presence of three "generalized" discard areas at LAN-193 and their absence from LAN-2768 Locus C/D. To be sure, however, this pattern reveals the largely arbitrary and subjective nature of feature classification and identification. The three features identified as discard areas for multiple tasks at LAN-193 were in fact large activity areas that encompassed several subfeatures; in each case, they included substantial FAR concentrations that encompassed a large number of nonthermal artifacts, mainly flaked stone, ground stone, and other expedient-use stone artifacts. Faunal bone was generally sparse (relative to FAR and lithic-artifact frequencies), and shell was virtually absent. These features thus closely resembled the FAR concentrations at LAN-193 and LAN-2768 Locus C/D but also contained abundant nonthermal remains. To a large extent, the difference is a matter of scale. The high lithic-artifact counts recorded in the activity areas may seem relatively insubstantial at the scale of a single FAR concentration; these items are often viewed as minor components in smaller features.

Faunal bone was not particularly abundant in the features at LAN-193 and LAN-2768 Locus A/B but was much more frequent in the midden remains. Animals appear to have been processed in that area, but this activity was not clearly associated with the features in those locations. Notable, however, is the high percentage of flaked stone artifacts at LAN-193. As noted above, features at LAN-193 and adjacent LAN-2768 Locus C/D were dominated by thermal debris and lithic artifacts, especially flaked stone tools and debitage. The midden content at LAN-193 thus corroborates a focus on activities that required frequent cutting, but the precise purpose of the cutting activities is unknown. These tools may have been used to cut and prepare animal meat, but if so, the faunal bones were not frequently discarded in the same locations as the thermal refuse and lithic debris that constituted most of the feature contents.

Viewed from this perspective, we conclude that the features at LAN-193 and LAN-2768 Locus C/D probably indicate a similar pattern of land use that involved thermal activities as well as frequent cutting and grinding but little or no activities related to processing or preparing shellfish, fish, or terrestrial fauna. This large area likely encompasses a palimpsest of remains generated during short-term forays in the area over the course of several centuries. However, large portions of the areas (e.g., the area along the bluff between LAN-193 and LAN-2768) were removed during earthmoving activities by the Hughes Aircraft Company in the mid-twentieth century. Had those areas not been obliterated, we suspect, they would have contained a similar assortment of primarily thermal features with sparse faunal bone and shell.

The features in the eastern area were dominated by thermal-discard areas, as explained above, and various domestic discard areas that contained debris that was presumably a by-product of subsistence-related activities. Among the latter group were 10 discard areas at LAN-2768 Locus A that contained primarily unmodified cobbles. Most of these features postdated the structure in the locus (based on radiocarbon dates and stratigraphic locations) but may have been contemporaneous with the period of reuse of the structure as a roasting pit. At LAN-2768 Locus C/D, there was a very different pattern of land use (one involving frequent thermal activities) than that observed elsewhere in the Ballona lowlands, including other loci within the eastern bluff area (Figure 58). Moreover, shell and faunal bone were relatively sparse in these thermal features at LAN-2768 Locus C/D, another marked contrast with the Intermediate period discard areas recorded elsewhere in the lowlands. Other than FAR, these features tended to contain primarily small numbers of ground stone and flaked stone artifacts. Thus, their precise function is elusive but likely involved grinding and cutting activities. That pattern was even more apparent in the western uplands, where thermal features dominated all other types by a factor of at least 5 to 1. Shellfish, fish, and mammal bones, however, were more-evenly distributed there than in the lowlands, which suggests a greater diversity of subsistence activities.

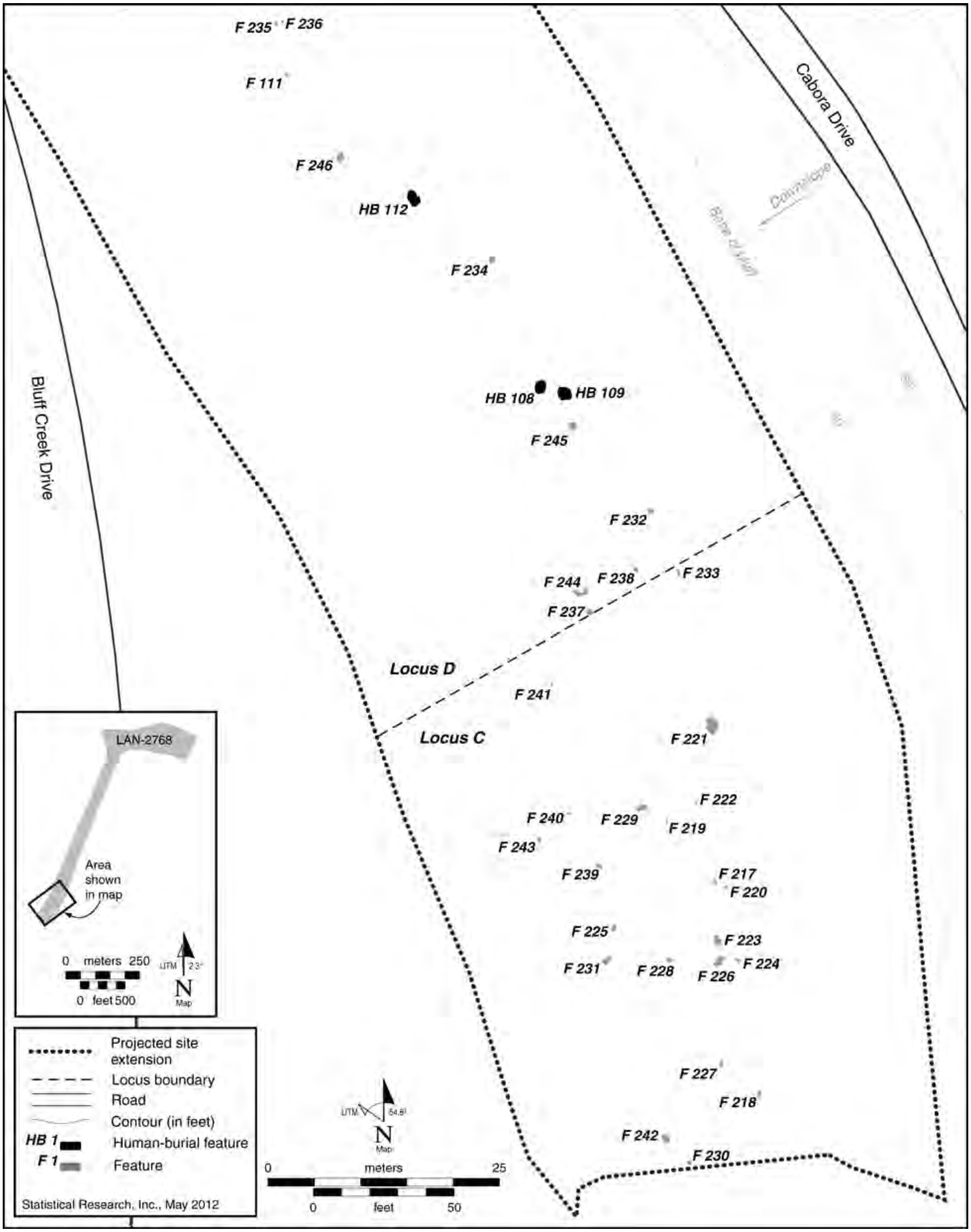

Figure 58. Site plan for LAN-2768 Locus C/D.

In the western lowlands, Intermediate period features were generally sparse, compared to the large number of features in the eastern lowlands and the western uplands, although that sparseness may be a product of the more spatially extensive excavations at sites in the two latter areas. Features in the western lowlands were dominated by mixed refuse deposits likely generated from various subsistence-related tasks. In several cases, apparent refuse deposits were recovered in association with visible pit outlines, which we have broadly interpreted as representative of storage or trash pits. These pits exhibited no evidence of in situ thermal activity but generally contained a variety of subsistence-related refuse. One possibility is that they initially functioned as storage pits or hearths but were later reused as trash receptacles; it seems unlikely that the area inhabitants would have constructed pits solely for the purpose of refuse disposal, because most of the refuse was deposited in extensive middens. The majority of features in the western lowlands were interpreted as general discard areas that contained mixtures of debris from various domestic activities. However, the Intermediate period features at LAN-211 and in the eastern portion of LAN-62 (Locus C/D) suggested a similar range of activities. In LAN-211, faunal bone, primarily mammals, dominated the material remains in all six of the domestic features, including the hearth. Flaked stone artifacts were also frequently present and presumably functioned as cutting tools for processing mammals. In addition, one Intermediate period feature at LAN-62 Locus C contained a largely intact juvenile-deer skeleton and was interpreted as a storage pit, a cache for meat, or a ritual feature. If it was a storage pit, the feature contents suggest that storing and processing mammals was a principal focus of activities in this area, as well.

Neither shell nor bone dominated the feature collections in the general discard areas in the western lowlands. At LAN-62 Locus A/G, both materials were abundant in the discard areas. At LAN-211, however, shell was relatively sparse, and faunal bone dominated the feature collections. The discard areas at LAN-62 generally included denser and more abundant artifact and ecofact contents than those at LAN-211 (as well as other sites and loci in all the other areas), which could suggest a more intense occupation—i.e., longer durations of occupation, a larger number of inhabitants, or more frequent return visits. Faunal bones from mammals and bony fish were abundant in several of the discard features at LAN-62, suggesting frequent hunting and fishing activities. The abundance of mammal bone, fish bone, and shell suggests that the area was targeted for several kinds of resources, in contrast to the apparently narrower focus on the acquisition of shellfish (and possibly other aquatic resources) in the Ballona Creek area. The multifunctional pattern of land use at LAN-62 Locus A/G may explain the generally higher density of Intermediate period features there than at the other loci within the western lowlands. However, the density of Intermediate period features at LAN-2768 generally exceeded that at LAN-62 Locus A/G.

The ecofact analysis generally corroborated the intersite patterns inferred from the feature distributions and contents (see Table 6). Generally, the density of the midden remains probably correlated to the frequency of resource-collection activities in the various areas. The midden remains at LAN-54 and LAN-62 Locus C/D had low densities, suggesting relatively low-intensity land use compared to other sites and loci. Both locations also appear to have been used for a limited number of resource-acquisition activities: collecting and processing shellfish at LAN-54 and preparing (and presumably hunting) mammals at LAN-62 Locus C/D.

Much denser midden deposits were recovered at LAN-62 Locus A/G and LAN-211. The very high density at LAN-211 may underscore the high frequency of hunting activities. At LAN-62 Locus A/G, the high density conformed to the evidence of multiple resource-collection tasks in that location, including the acquisition and processing of fish, shellfish, and mammals. At LAN-2768 Locus A/B, the high density may reflect the brief period of use as a residential locus, which probably created substantially denser middens than did the various short-term logistical camps. In each of these two cases, the high density may be a true reflection of land-use intensity and not a product of postdepositional processes.

The contents of the midden remains also corroborated the feature interpretations. Shell was prevalent in the middens at LAN-54 and LAN-62 Locus A/G. Feature contents also suggested a focus on processing shellfish in both locations. By contrast, the midden remains at LAN-62 Locus C/D, LAN-211, LAN-193, and LAN-2768 Locus A/B were dominated by faunal bone (the midden at LAN-2768 Locus C/D was not sampled). The proportions of shell and faunal bone in the middens from LAN-62 Locus A/G were relatively equal, which is consistent with the aforementioned evidence of the processing of both vertebrate and invertebrate fauna in that location during the Intermediate period.

The regional analysis of Intermediate period features and midden contents suggested spatial variability in resource-collecting, residential, and burial/ritual activities in the Ballona. The inhabitants along Ballona Creek (LAN-54) appear to have focused on processing shellfish (and possibly other aquatic resources), which presumably they collected nearby, in the lagoon. The far-eastern area (LAN-2768 Locus A/B) seems to have been used for some as-yet-unknown resource-collection or -preparation activities requiring frequent use of unmodified cobbles. The eastern area to the west (encompassed by LAN-2768 Locus C/D and LAN-193) also is functionally ambiguous but involved some activity that required extensive thermal preparation and frequent cutting and grinding. Much of the area along the central portion of the bluff (encompassed by LAN-211 and LAN-62 Locus C/D) included middens and feature deposits with abundant faunal bone, suggesting a focus on hunting and preparation of mammals for consumption. By contrast, in the western area along the base of the bluffs (LAN-62 Locus A/G) and on the bluff tops (LAN-63 and LAN-64), the midden and feature evidence suggested greater diversity in resource collection, with frequent acquisition and preparation of shell, bony fish, and mammals and an even greater focus on thermal activities on the bluff tops. The bluff-top sites also appear to have been the focus of burial/ritual activities, although these activities took place at most sites. Finally, residential activities were focused along Centinela Creek in the eastern lowlands and on the bluff tops.

Discussion of Spatial Variability during the Intermediate Period

On the surface, these data imply a pattern of "zoned" land use during the Intermediate period, with different areas of the lowland Ballona dedicated to the specific activities and logistical resource-collection practices. However, we must be careful not to conflate spatial patterning and temporal patterning. As explained above, different sites and loci within the Ballona appear to have been occupied during different, nonoverlapping spans of the Intermediate period. Radiocarbon dates suggested roughly coeval occupations at LAN-54, LAN-211, and LAN-62 Locus A/G from ca. 800 to 1 b.c., followed by coeval occupations at LAN-2768 Locus A/B, LAN-193, LAN-63, and LAN-64 from ca. 300 b.c. to a.d. 400 (presumably most of the features at LAN-2786 Locus C/D also dated to this span). Finally, there was an era of occupation at LAN-211, LAN-62 Locus A/G, and LAN-193 that occurred from ca. a.d. 400 to 900.

Thus, the earliest Intermediate period occupation (ca. 800–1 b.c.) seems to have been focused on logistical acquisition of shellfish at LAN-54; mammal acquisition at LAN-211; and acquisition of shellfish, bony fish, and mammals at LAN-62 Locus A/G. The possible residential occupation at LAN-2768 Locus A may have been coeval with these occupations. The focus of the logistical resource-collection forays appears to have shifted during the middle part of the Intermediate period (300 b.c.–a.d. 400). During that span, the main focus of occupation appears to have shifted to the eastern bluff area and the western bluff tops. The features in these locations mostly consisted of a variety of hearths, thermal-discard areas, and functionally ambiguous deposits of lithic materials, including the perplexing cobble concentrations excavated at LAN-2768 Locus A. The purpose and focus of the logistical resource-collection activities in the eastern area are ambiguous for this time span, but the bluff tops were used for a variety of food-collection and -processing activities involving shellfish, bony and cartilaginous fish, and terrestrial mammals.

In the latest span of occupation during the Intermediate period (ca. a.d. 400–900), the focus of occupation included LAN-211, LAN-62 Locus A/G, and, to a lesser extent, LAN-193. Importantly, the proportions of the material classes did not substantially vary among control-unit levels (middens) and features dated to the early and late occupational episodes at LAN-62 Locus A/G and LAN-211. Resource collection appears to have been relatively consistent at these two locations during the earlier and later occupations. Hence, these areas appear to have functioned as resource-processing areas (and possibly acquisition loci) for shell, mammals, and bony fish.

Late through Protohistoric Periods

Only 22 features at two sites (LAN-47 and LAN-62 Locus A/G) were assigned to sites or temporal components that were either definitely Late period or could be dated less precisely to sometime within the Late or Protohistoric periods. The low frequency of features during this 700-year span underscores the pronounced decline in land use and occupational intensity following the Intermediate period. The Late period occupations at the two sites were not contemporary, however. Radiocarbon dates from LAN-47 suggested that it was occupied in the first 2 centuries of the second millennium a.d., whereas the features at LAN-62 were occupied several hundred years later, from the end of the Late period through the Mission period. We are unable to infer with certainty, however, whether the Late period LAN-62 features predated the arrival of European settlers and epidemics in the New World starting in the 1500s. In addition, many other features from LAN-62 Locus A/G dated to sometime within the Late and Mission periods and thus may also represent Late period features (see Table 8).

Almost 82 percent of the Late through Protohistoric period features were burials, and over 98 percent of the features dating to sometime within the Late through Mission periods were burials, indicating that the predominant use of LAN-62 Locus A/G as a burial area for the surrounding region probably began during the Late period or, more precisely, at the end of the Late period, when the site was reoccupied. Almost all of the features at LAN-47 were also burials, indicating that this burial pattern may have had its origins in the beginning of the Late period at LAN-47. Unfortunately, all of these features at LAN-47 were excavated as part of emergency salvage operations in the 1960s, and there was no systematic excavation or broad areal exposure that might have uncovered associated domestic features. Thus, the context of the LAN-47 burials is poor, and few details about the burials themselves are known. The systematic excavations by SRI in 1989 were conducted in another part of the site. Only isolated human remains were found in one portion of that area, along with a single domestic feature. These limited data, however, do indicate that burial activities were probably common at this small site along the lagoon edge at the beginning of the Late period.

Only four Late or Late through Protohistoric period features were classified as domestic deposits: one at LAN-47, two at LAN-62 Locus A, and one at LAN-62 Locus G. Three were classified as domestic discard areas, and one was classified as a hearth-cleanout or domestic discard area. FAR, however, was recovered from two of the features. The two features at LAN-62 Locus A consisted of large quantities of faunal bone, shell, and flaked stone, but the feature at LAN-62 Locus G mainly consisted of two concentrations of unmodified cobbles and a small amount of faunal bone. The latter feature was functionally ambiguous and harkened to the Intermediate period features excavated at LAN-2768 Locus A. One additional

Table 10. Distributions of Major Feature Functional Categories, by Temporal Period

Feature Functional Category	Temporal Period: Millingstone		Intermediate		Late through Protohistoric		Protohistoric through Mission[a]		Total	
	n	%	n	%	n	%	n	%	n	%
Burial/ritual	1	4.0	31	6.2	132	46.0	208	82.9	372	35.1
Residential	2	8.0	42	8.4	7	2.4	3	1.2	54	5.1
Domestic discard/activity area	22	88.0	129	25.9	107	37.3	14	5.6	272	25.6
Thermal feature	—	—	296	59.4	41	14.3	26	10.4	363	34.2
Total	25		498		287		251		1,061	

[a] Includes features at LAN-62 that could not be assigned to a temporal period.

domestic discard area at LAN-62 Locus A/G was placed at some time in the span between the end of the Late period and the Mission period and may also represent a Late period occupation.

With the exception of the LAN-62 burials, the features were spatially noncontiguous and were likely deposited during different occupations. All appeared to be discard areas related to discrete logistical resource-collection events in the area. Therefore, we interpret these features as a palimpsest of subsistence-related deposits formed during various resource-collection events at LAN-62 Locus A/G during the mid–second millennium a.d. The abundance of shell and faunal bone in these features suggests a continuation of the previous land-use and logistical-collection practices from the late Intermediate period, despite an apparent hiatus of several centuries between the late Intermediate period and Late period occupations. Overall, however, the extreme paucity of features attributable to the Late period indicates a very low intensity of occupation in the Ballona, perhaps even lower than the Millingstone period occupational intensity. That is consistent with the artifact and faunal data (see Tables 2, 5, and 6).

A large number of features at LAN-62 could not be dated through radiocarbon dates or diagnostic artifacts (such as glass or shell beads). At LAN-62 Locus A/G, for example, almost half the features could not be dated to a specific time period, because of either a lack of datable material or disturbance created by the intrusion of other features. The undated features at LAN-62 Locus A/G included many additional burials. (*Note:* The number of burials at LAN-62 noted here is higher than that discussed in Chapter 6, this volume. Here, we include burials without primary individuals, to obtain a more complete picture of mortuary behavior, as well as animal burials and whalebones that may have been used as grave markers.) Also present, however, were 1 cairn, 6 caches, and 19 domestic trash or storage pits that may have been associated with structures; numerous domestic discard areas; 4 shell-processing areas; a flaked-stone-production area; hearth cleanouts; 2 fire pits; 5 small hearths; and a single large hearth. In Chapter 6, this volume, we argue that most of the undated burials from LAN-62 Locus A/G probably dated to the Late through Protohistoric periods or earlier, because of the lack of Mission period glass and shell beads, which were abundant and virtually ubiquitous in Mission period features.

If we can extend that argument to the domestic features, we can combine all the features of unknown age from LAN-62 Locus A/G with the Late period features and those that dated to sometime between the Late and Protohistoric periods. This changes the picture of Late period settlement dramatically (Table 10), even if we recognize that at least some of the features of unknown age probably date to other time periods. Not only was the total number of features large, but activities were more evenly split between residential and burial/ritual activities than was evident among the features that could actually be dated to this time period. It is important to note, however, that we are not arguing for an intensive Late period occupation, because most of the features in question from LAN-62 probably date to the end of the Late period and to the Protohistoric period, based on the known chronology of the site. The few features from LAN-47 remain the only known features in the Ballona that dated to the beginning of the Late period.

That said, it also is important to note that unknown numbers of burials, cremations, and other features were removed by looters and amateur archaeologists in the area between Locus C/D and Locus A/G of LAN-62 before and during the removal of soils by the Hughes Aircraft Company in the mid-twentieth century. Unfortunately, poor documentation has prevented us from reconstructing the locations of these features, but limited evidence points to Locus B of LAN-62 (located immediately east of Locus A/G) as a more intensively occupied area that contained evidence of domestic and burial activities.

Stuart Peck, working under the auspices of the Southwest Museum, excavated intermittently in that area between August 1945 and June 1946. Peck (1947) excavated three approximately 15-foot-long trenches in the LAN-62 Locus B area, which was being mined by the Hughes Aircraft

Company as fill for lengthening its aircraft runway. He found numerous ground stone and flaked stone artifacts and an abundance of faunal remains in those excavations. He also identified circular rock features that he interpreted as the remains of hearths; numerous fragments of human bone, both cremated and noncremated; and two intact burials. Significantly, no artifacts were found in direct association with the burials, and no evidence of a Mission period occupation was found. The collector, Shulene, also removed an unknown number of additional burials from that locus in the mid-twentieth century (Thiel 1953).

Based on these finds, Peck (1947) concluded that the site was prehistoric in age. He distinguished two components, based on the material culture. One component, based on traditional assessments of southern California material culture, could be characterized as Intermediate period, and the other was considered Late period.

> The site was abandoned before the coming of the Spanish since none of the usual trade goods were found. The inhabitants were of two different cultures. The earlier buried their dead, used the metate and mano, used small mortars with short cylindrical pestles, ate shell fish, largely Pismo clams and abalones, did some hunting with rather crudely shaped chert implements and used large shells for dishes . . . . Nothing in the way of ornaments or implements for the finer type of workmanship were found.
>
> The second and later culture appeared with no visible change in the stratified deposit. They cremated the dead, used a large deep mortar and the basket mortar with a large tapered and decorated pestle, made stone bowls, made and used implements and ornaments of bone, made shell beads, used asphaltum, used shells for dishes, used soapstone for bowls and amulets, used shellfish for food with a large proportion of scallops and cockles, also ate fish, small animals, and birds . . . . They also traded with the tribes of the Channel Islands [as] indicated by the presence of soapstone [Peck 1947:9].

Although we have found no temporal distinction in the practice of cremation in the Ballona (see Chapter 6, this volume), much of Peck's description of material culture was consistent with the changes that took place at the end of the Intermediate period, particularly the increase in the use of shell beads during the Late period (see Volume 3, this series). Overall, Peck's evidence suggests the possibility that LAN-62 Locus B was a major residential area during the Intermediate period and possibly the Late period. Although burials were common at Locus B, they do not appear to have been as dense as the Mission period burial ground in Locus A and may represent an extension of the low-density burial area at the northern and eastern edges of the Mission period burial area (see Chapter 6, this volume). Thus, there was little evidence of the mortuary/ritual complex that developed in the adjacent Locus A/G during the Protohistoric through Mission periods. Overall, there was little definite evidence of Late period occupation in the Ballona (the seasonal occupation at LAN-47 and the beginning of what was to become the mortuary complex at LAN-62), but Peck's excavations and the undated features from LAN-62 suggest the possibility of a more substantial residential Late period occupation than has been documented previously.

Protohistoric through Mission Periods

Here, we combine features that definitely dated to the Mission period and those that dated to sometime between the Protohistoric and Mission periods (see Table 8). There might be some temporal overlap with features from the previous time period, because of the poor dating precision of Late period features at LAN-62. All but 45 of the 231 features assigned to this temporal category were definitely Mission period in age, and all but 1 were recorded in the western lowlands area. The exception was a hearth from LAN-2768 Locus C that was assigned to the broader Protohistoric through Mission periods, based on one radiocarbon date. Most of the features that could not be more precisely dated as Mission period were found at LAN-211 (n = 37), whereas only 7 were found at LAN-62 Locus A. Roughly three-quarters of the more-broadly classified Protohistoric through Mission period features were domestic deposits, and one-quarter were burial/ritual features. All but 2 of the burial/ritual features were found at LAN-62 Locus A.

Among the 40 domestic features assigned to this time period (mostly at LAN-211), thermal deposits outnumbered nonthermal deposits by almost 2 to 1 (26 to 14), suggesting a principal focus on thermal activities. Only 5 domestic features (2 domestic discard areas and 3 hearth cleanouts and/or domestic discard areas) were found in the Protohistoric through Mission period component of LAN-62 Locus A/G. One thermal feature, an FAR concentration associated with a well-defined pit outline at LAN-2768 Locus C, appeared to have been an isolated hearth, possibly marking the location of a short-term logistical camp in the eastern lowlands area (see below).

A much larger number of burial/ritual features (n = 191) were assigned to this time period, and all but 3 of them were at LAN-62 Locus A/G. All but 15 of them were burials, and all but 2 of the burials were at LAN-62 Locus A/G. In addition to the burials, however, a number of other ritual features were found at LAN-62, including the concentration of 14 mourning features in FB 3 (see Chapter 6, this volume). The Mission period burials, especially those assigned to the Late or terminal Mission period (a.d. 1800–1834), were concentrated in the extreme-southern part of the large burial ground in Locus A. Glass beads, which were frequently interred with burials during the Mission period, also were heavily concentrated in this area, which suggests a predominance of Mission period interments in this portion of the burial area and also implies that the majority of burials in the eastern and northern parts of the burial ground predate the Mission period, suggesting a process of a westward "drift" over time in new burial locations. It is possible that this movement was necessary to avoid overcrowding and congestion, but the most crowded and congested part of the burial ground was in the southwestern and most recent part. Furthermore, a heavily compacted surface, Feature 450, was identified in the southwestern corner of the burial ground. The surface was not contiguous and had been heavily disturbed by the intrusion of many burials, suggesting that it predated the use of this portion of the burial ground. We have hypothesized that this surface represents a dance floor at the southwestern edge of the burial ground and was in use at some time between the Late period and the early Mission period (a.d. 1770–1800). Expansion of the burial ground into this area during the late Mission period apparently damaged the feature (see Chapter 6, this volume).

The 14 features classified as mourning features were all thermal deposits concentrated within a roughly 8-by-4-m area (FB 3) located about 4 m west of the edge of the burial area. As noted in Chapter 6, this volume, we suspect that FB 3 was a locus of recurrent use for rituals involving thermal mourning features. Seven of these features were associated within burned basket fragments, which suggests frequent use of baskets as containers for burned ritual offerings. The nonperishable contents of the thermal offerings included shell and glass beads, mineral fragments, bone tools, and ground stone containers, as well as seemingly prosaic items, such as flaked stone, shell, and faunal bone. It is important to note that the mourning activities took place adjacent to but clearly outside the burial ground itself, which may have been fenced (see Chapter 6, this volume). The western orientation of the ritual area may have been imbued with some sacred significance.

At LAN-211, nearly all of the thermal features (17 of 22) contained oxidized or blackened soils and well-defined pits, all of which have been interpreted as hearths. Among the nonthermal features, two cairns were composed of tight clusters of unmodified cobbles and ground stone fragments, which we have interpreted as posthole supports used to anchor wooden posts for shelters or residential structures (see Chapter 9, Volume 2, this series). Two different domestic discard areas were identified, including one composed of a scatter of ground stone fragments with small amounts of debitage and faunal bones and another composed of abundant faunal bone and shell.

Most of the domestic features investigated at LAN-211 were located on a large living surface (FB 1) marked by a linear arrangement of hearths and a very dense midden including faunal bone, shell, flaked stone, ground stone, shell and glass beads, and small numbers of ceramic-vessel fragments (likely from cooking pots) (Figure 59). We suspect that FB 1 was formed during a single occupational episode and, in contrast to earlier occupational episodes, is not likely a palimpsest of unrelated deposits from various logistical camps. Moreover, the size of the feature and the density of food remains and tools imply a relatively intense occupation, possibly a permanent or semipermanent residential locus. In Chapter 9, Volume 2, this series, we speculated that the three cairns found in FB 1 represent post supports that marked the locations of structures to the north of the line of hearths. That interpretation is tentative, given the dearth of conclusive structural evidence, but indigenous architecture in California is notoriously difficult to identity (Chartkoff and Chartkoff 1984; Ciolek-Torrello 1998; Gamble 1991). If those areas did contain domestic architecture, then the line of hearths and the surrounding "open" areas could have functioned as a communal cooking and activity area adjacent to the domestic architecture. The residents of that settlement probably interred their dead in the burial area at LAN-62 starting in the Protohistoric period.

The Protohistoric through Mission period midden remains at LAN-211 (see Table 6; Figure 51) were 2–5 times denser than those at LAN-62 Locus A/G. As explained above, the living and residential area at LAN-211 would have involved considerably higher discard rates for domestic debris, resulting in a denser midden than in the surrounding areas outside the residential area. The lower-density midden remains at LAN-62 Locus A/G probably reflect low-level land-use and discard rates in the vicinity of the burial area; many of the midden remains in that area may have accumulated during communal mortuary feasts (see Chapter 6, this volume) or as a result of postdepositional subsurface mixing. There were large-enough numbers of domesticated animal bones from livestock and other introduced animals, as well as relatively large numbers of seeds from domesticated crops that were introduced during the Mission period, to assume that much of the occupation of LAN-211 dates to the Mission period. Although a few of those animals and plants could have been introduced during the Protohistoric period, they did not become abundant in the Ballona and readily available to its residents until herds and ranchos were established in the area, in the last decade of the eighteenth century and the first decade of the nineteenth century (see Chapter 8, this volume).

At LAN-62 Locus A, the few domestic features were located well outside the burial area or on its periphery (Figure 60; see Figure 57). The distance between the domestic features at LAN-211 and the burial area may indicate that Ballona inhabitants refrained from performing many domestic subsistence tasks within the burial area itself, possibly because it was considered to be hallowed ground. Such separation between residential and burial areas within villages has been documented in the ethnohistoric record (see Gamble and Russell 2002) and may have been evident as early as the Intermediate period (Cleland et al. 2007). Such a wide separation as is evident between LAN-211 and LAN-62 Locus A/G was not the normal pattern, however.

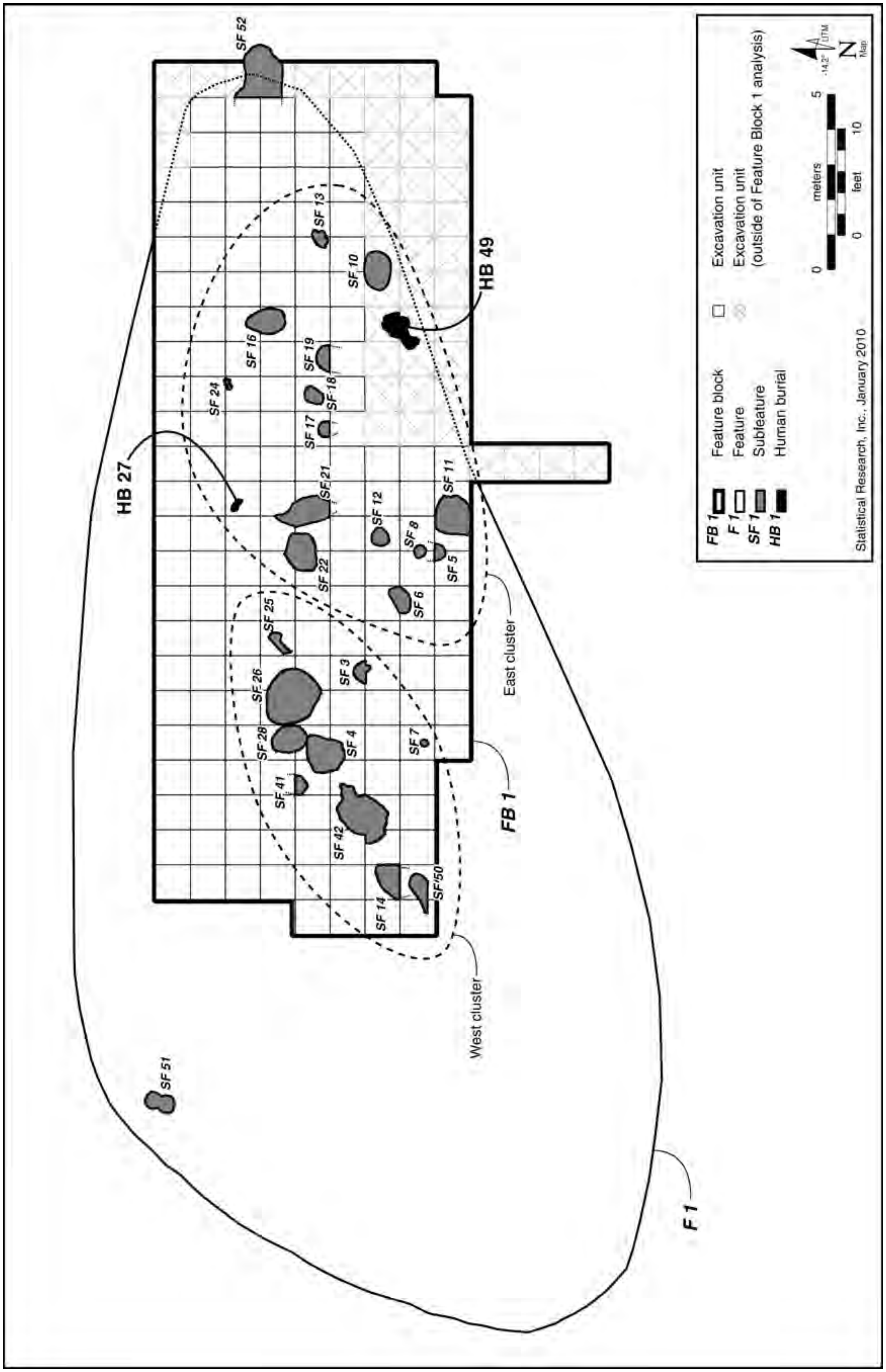

Figure 59. Plan map of FB 1, an activity surface at LAN-211.

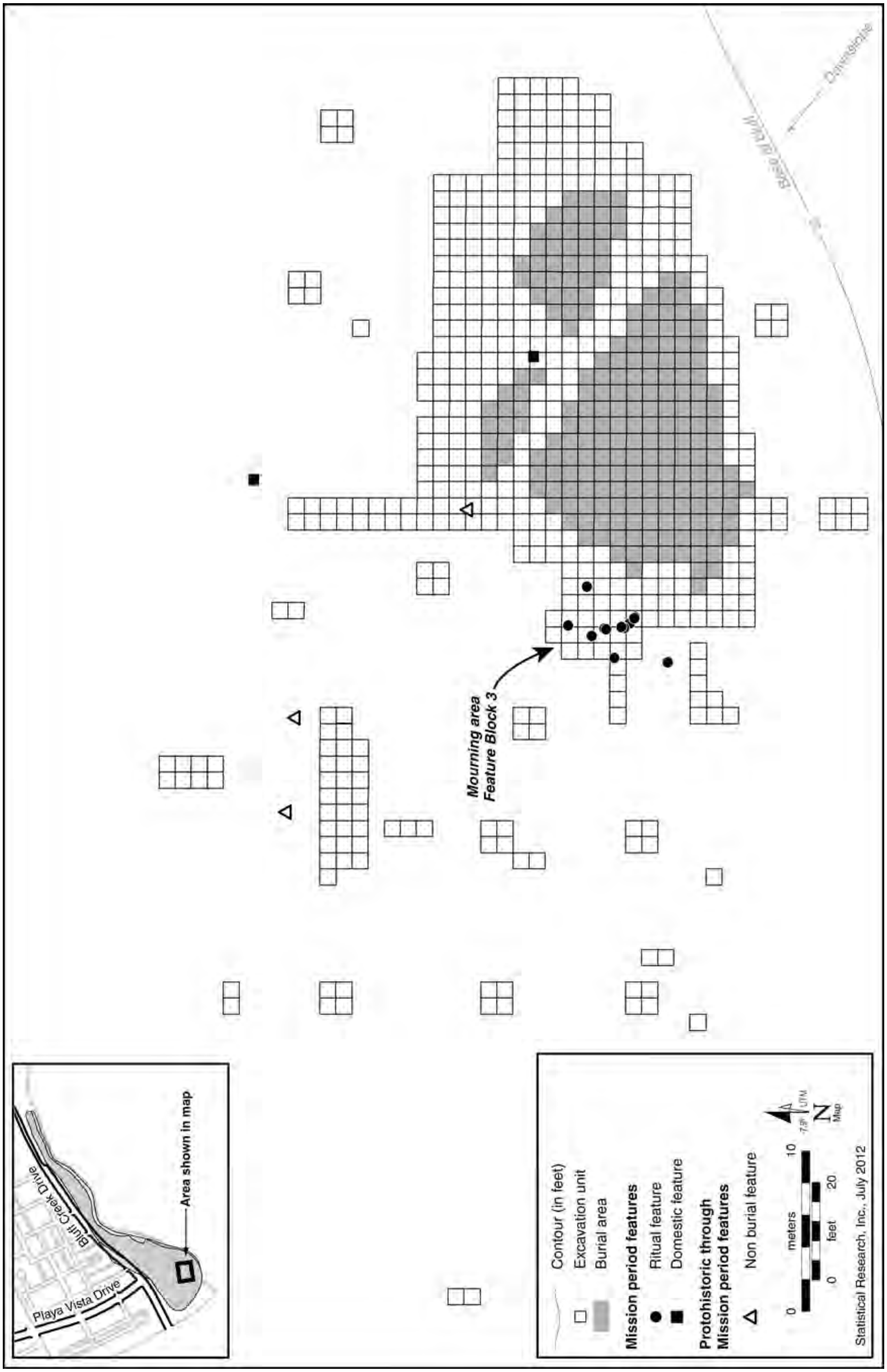

Figure 60. Protohistoric through Mission period features at LAN-62 Locus A/G.

It is clear that some level of domestic activity took place at LAN-62 Locus A/G, although much of it may have been associated with mourning and other mortuary activities. Some of the domestic discard areas may have functioned as food-preparation loci for ritual feasts. If so, then shellfish appears to have been the preferred feasting food, given the dearth of faunal bone in those deposits. Although we have defined them as domestic deposits, each feature also contained small amounts of possible ritual paraphernalia, including shell beads, whole abalone shell, a worked-bone tool, and a large chunk of asphaltum with attached remnants of basket or cloth. It is possible that the deposits included a variety of debris related to mortuary and mourning ceremonies, including discarded ritual items and culinary debris from feasting events. Another possibility is that the domestic features predated the establishment of the burial area. Any such features within the main part of the burial area, however, would have been obliterated during the interment episodes. Although that may be the case for many of the undated features, it is unlikely in light of the presence of Old World domesticates (seeds and fauna), the Mission period styles of shell beads, and the glass beads in several of the features.

Summary of Spatial Variability during the Protohistoric through Mission Periods

Almost every habitable area of the Ballona was occupied during the Intermediate period, but by the beginning of the Late period, which coincided with the MCA, only a single site (LAN-47) was occupied. Following a brief hiatus, the Ballona was reoccupied in the mid-second millennium a.d. By that time, however, the focus of occupation had shifted to the western area around the Lincoln Gap and along the lowest reaches of Centinela Creek. It is unclear, however, whether that last wave of native occupation in the Ballona predated or postdated the arrival of Cabrillo in California—or, perhaps more importantly, the influx of European-introduced epidemics that preceded his arrival. The far-reaching effects of European colonization and disease in Mexico may have disrupted preexisting social and economic ties in southern California even before the first Spanish explorers or the founding of Spanish settlements ushered in changes in Native Californian settlement patterns and locations (Dunnell 1991; Erlandson and Bartoy 1995; Lightfoot and Simmons 1998; Preston 2002). The establishment of Native Californian settlement in the Ballona in the latter part of the Late period thus might have been a "ripple effect" of Spanish colonialism, but the present chronological data are insufficient to confirm that possibility.

During the Protohistoric through Mission periods, there were two functionally different activity locations in the Ballona: a domestic living and feasting area at LAN-211 and a mortuary-ritual complex situated slightly more than 1 km to the west, at LAN-62 Locus A. Evidence of Protohistoric through Mission period occupation was relatively sparse and highly disturbed in the area between those two locations—i.e., at LAN-62 Locus C/D—suggesting an infrequently used area of open space separated the two major activity concentrations. The area directly east of LAN-62 Locus A (Area B) was removed by Hughes in the 1940s and 1950s. Work by Peck in the 1940s, however, revealed no evidence of a Mission period occupation at LAN-62 Locus B, which was probably abandoned by the Mission period. Isolated evidence of Protohistoric through Mission period occupation was also found at LAN-61 and LAN-63, on the bluff tops overlooking LAN-62, but no features or definable deposits assignable to those time periods were identified there. The Ballona inhabitants likely recognized a landscape distinction between the living and mortuary loci in the western area, in contrast to the Intermediate period pattern of burying deceased individuals in the vicinities of subsistence-related activity areas. Of course, at the same time, the burial area at LAN-62 was placed into a domestic midden dating prior to the use of the area as a burial ground; so, it is clear that the use of LAN-62 changed considerably after the Late period. The generally open area between also may have held symbolic or "liminal" importance in segregating the living and deceased members of the community.

Finally, it is worth pointing out the possibility of human land use or settlements in the eastern area. The presence of one hearth at LAN-2768 Locus C suggests at least modest use of that area, but it is likely that archaeological remains from the Protohistoric and Mission periods or later periods were removed during construction and grading episodes by the Hughes Aircraft Company in the mid-twentieth century. We therefore have no empirical means of estimating the extent of land use or settlement in the eastern area during those time periods, although we can reasonably speculate that the identified hearth was probably not the only evidence of human occupation from those periods. The presence of glass beads dated to the later Mexican Rancho period in stripping units at LAN-2768 and LAN-193 suggests a still-later component (see Chapters 6 and 8, this volume; see Chapter 6, Volume 3, this series), but no features or midden deposits were recovered to support that possibility. It is likely that any features or middens from the Mexican Rancho period or the previous Mission or Protohistoric period were truncated and removed during construction. Other evidence of occupation in the Ballona during the Mexican Rancho period was found by King (1967) at LAN-194, north of the PVAHP area.

Site Structure and Activity Areas

In the previous sections, we examined site function, occupational intensity, and settlement from the vantage points of artifact diversity, density of food remains, and feature diversity. As a final line of evidence, we examine the spatial distribution of features to describe the internal arrangement of activities within individual sites, to gain insights into site structure and its implications for site function and occupational intensity.

Here, "activity areas" refers to discrete concentrations of features that indicated contemporaneous and discrete loci of human activity. Generally, activities were only identified in cases of two or more features that exhibited well-defined vertical and horizontal associations within the subsurface matrix, suggesting both temporal and spatial relationships. Chronometric data provided additional grounds for inferring the temporal associations among proximate features. We discuss the proposed site structure for each time period separately.

Millingstone Period

Millingstone period activity areas were identified at LAN-54 and LAN-62 Locus A. At LAN-54, a concentration of six features was excavated in the southern part of the site, within a roughly 10-by-10-m area: four discard areas that contained mostly shell, a hearth-cleanout deposit, and a concentration of flaked stone and ground stone artifacts (see Figure 41). One discard area was associated with a visible pit outline, possibly a reused hearth or storage pit. These features might mark the location of a shellfish-processing locale, including "workstations" dedicated to the removal of shells and the production of stone tools. The discard areas were probably toss zones associated with specific processing activities. Probably, several individuals were involved in those activities, including multiple individuals tasked with processing shellfish—creating multiple debris deposits or toss zones—and others tasked with preparing stone tools.

At LAN-62 Locus A/G, one Millingstone period activity area, identified as FB 7, was found directly north of and partially overlapping the burial area but stratigraphically below the burials (Stratum II). The four features in that area appeared to represent a single depositional event (see Figure 57). They appeared to be related to hearth use and cleanout and included a possible cairn or posthole support situated adjacent to a hearth cleanout and a discard area mostly composed of faunal bone. It is possible that this pattern is typical of mammal-processing loci in the area during the Millingstone period. The cairn may have supported a post for a makeshift shelter, and the two discard areas might have accumulated from processing mammals (deboning and defleshing). The cairn may also have functioned as a support for basketry or some other set of tools. The presence of thermal remains and burned bone indicated that some portion of the animal remains was cooked on location.

One possible activity area consisting of three features at LAN-62 Locus C could not be assigned to a specific period but was clearly prehistoric in age. We discuss it here because it closely resembled the activity area at Locus A, although it is unknown whether it dates to the Millingstone period. The Locus C activity area consisted of three adjacent features: a cairn and two discard areas that included predominantly faunal bone. Again, the cairn could have supported a shelter or could have been a support for basketry, and the discard areas may have been toss zones for workstations associated with processing animals. Perhaps this arrangement of features is characteristic of temporary hunting camps and workstations in the Ballona during the Millingstone and Intermediate periods. If so, this area may have functioned as a camping location for a small, logistical hunting group.

Intermediate Period

A larger number of activity areas were identified among the features assigned to the Intermediate period. The discussion of these activity areas is divided into two sections, because this subject matter was investigated intensively among the PVAHP sites as well as the three sites investigated as part of the West Bluffs project (Douglass et al. 2005).

PVAHP Sites

At LAN-54, a circular arrangement of four features resembled the activity area defined at LAN-54 for the previous Millingstone period. Like the earlier proposed activity area, this group included several discard areas composed of very dense shell deposits associated with a "generalized" discard area containing flaked stone debitage, ground stone, worked-bone tools, and abundant FAR, possibly from several hearths (additional FAR was recovered in the shell deposits) (see Figure 41). Here again, the proposed activity area encompassed multiple shell deposits—possibly shell-processing workstations—in association with hearth-cleanout debris and stone tools. In contrast to the earlier activity area, however, a small number of bone tools also were recovered, which could indicate some refinement or augmentation of the shell-processing tool kit during the Intermediate period. However, no cairn was present.

In the easternmost portion of the PVAHP area, one salient activity area was centered on the possible pit house (Feature 24) at LAN-2768 Locus A, which dated to the early Intermediate period. The structure included two pits that may have functioned as indoor storage pits or hearths; however, subsequent reuse of the feature as a roasting pit obscured evidence relating to their original functions (Figure 61). Three features surrounding the structure—two proposed cairns/post supports and a refuse deposit consisting of mostly unmodified cobbles—may have functioned as extramural features related to as-yet-unknown domestic activities. Lengyel and Hull (see Chapter 3, Volume 2, this series) assigned these features to a subsequent occupational episode, but their proximity suggests a possible functional relationship with the structure.

We recognized another possible activity area in the western portion of LAN-2768 Locus A that slightly postdated the proposed residential structure. The activity area covered a roughly 5-by-5-m area and included a single cobble concentration (see above) surrounded by four thermal deposits consisting mainly of FAR (with no evidence of in situ thermal activity), two of which also included smaller amounts of faunal bone, shell, and flaked stone debitage. The function of the

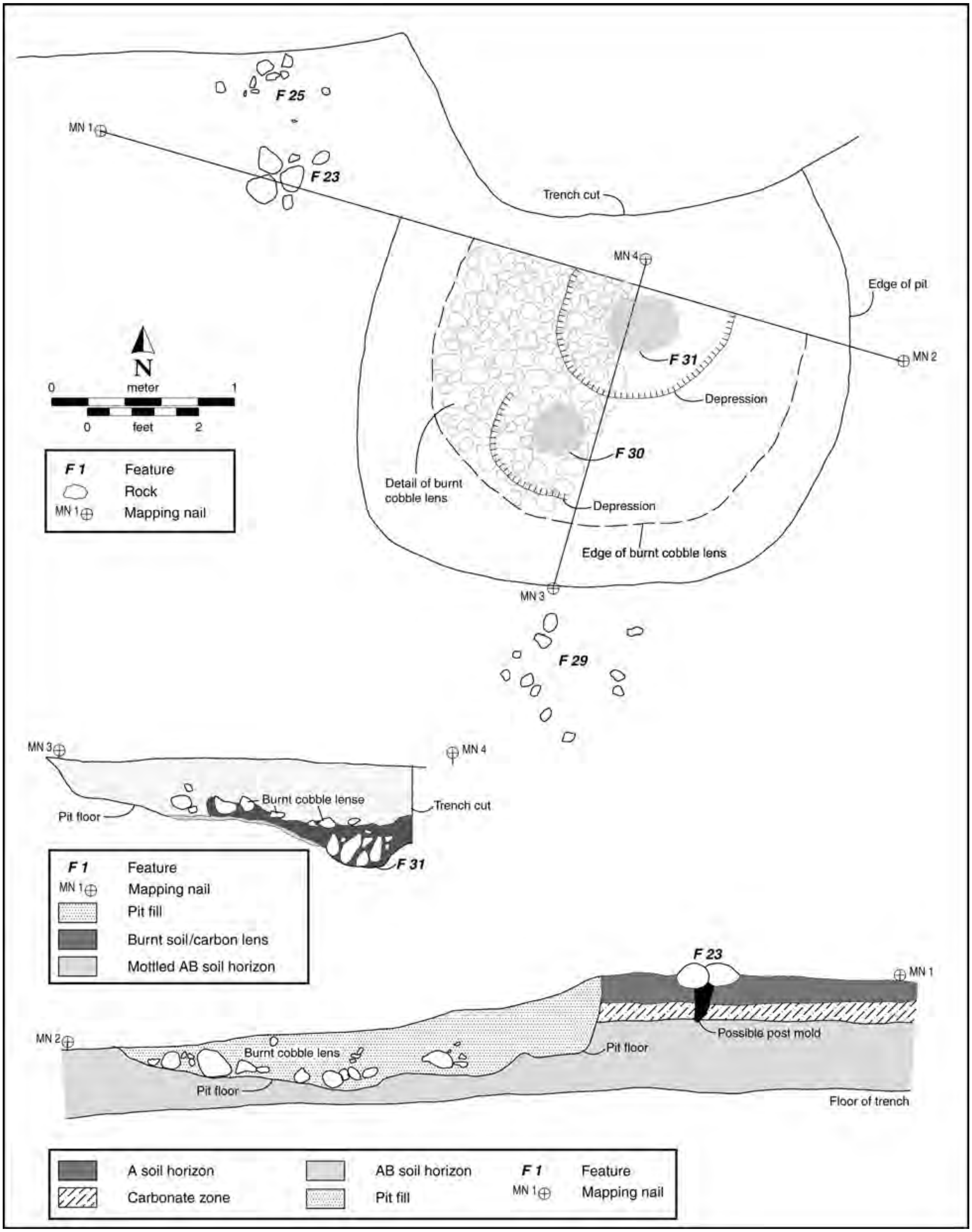

Figure 61. Plan view and cross sections of a house pit reused as a large hearth (Feature 24) at LAN-2768.

proposed activity area is unknown, but the small quantities of shell and faunal bone suggested that it probably was not related to processing shellfish, fish, or mammals. It involved some thermal activity and the use of unmodified cobbles, although it is possible that the cobble concentrations were thermal features in which the cobbles were not subjected to sufficient heat to cause recognizable thermal alteration.

Three activity areas were identified at LAN-193 (FBs 7–9), which included feature classes similar to those identified at neighboring LAN-2768 Locus C/D (see above). One activity area (FB 7) included five features that were almost exclusively composed of FAR but also included small amounts of ground stone, flaked stone, and shell. Another (FB 8) consisted of three features all dominated by FAR and including smaller numbers of unmodified cobbles, ground stone, and flaked stone. A third activity area (FB 9) encompassed six features, all of which were remarkably similar concentrations of FAR, unmodified cobbles, ground stone, and small amounts of flaked stone. It is possible that these activity areas were related temporally, but radiocarbon assays on shells recovered from some of the features indicated different occupational episodes. However, as we have discussed previously, the use of shell for dating these types of features may be misleading, and the effects of bioturbation may account for the discrepancies in dates from particular samples. Aside from the residential area at LAN-2768 Locus A, the Intermediate period feature deposits throughout the eastern area were dominated by some combination of FAR, unmodified cobbles, and lithic artifacts and included very small amounts of faunal bone and shell. The eastern area probably encompassed a number of functionally indeterminate activity areas involving thermal activities and the use of unmodified cobbles.

No discrete activity areas were observed at LAN-211 among the features assigned to the Intermediate period, which were probably mostly isolated deposits related to sporadic logistical forays within the site area. The same was true of most of the Intermediate period features at LAN-62. By contrast, the 11 Intermediate period features at LAN-62 Locus A/G were concentrated within a roughly 10-by-10-m area that appeared to represent a discrete occupation. This concentration (FB 4) was located in the eastern part of the burial ground but stratigraphically lower than the burials (see Figure 57). Most of the features were discard areas. Seven consisted of dense concentrations of shell and faunal bone and unusually high proportions of bony fish. Three others contained dense deposits of shell (n = 2), mammal bones (n = 1), and FAR (n = 1). Like the other proposed activity areas, this area encompassed a single FAR concentration and multiple discard areas, each of which probably marked the location of a toss zone for processing activities; the spatial arrangement of these toss zones suggests functionally specialized workstations. In this case, the center of the activity areas encompassed several workstations related to processing fish and, to a lesser extent, shellfish. Along the edge of the area were separate workstations and toss zones for shellfish and faunal bone. A cooking or heating area also was probably located along the edge of the area (marked by a single hearth cleanout), away from the other workstations. Three of the discard features were contained within pits that may originally have functioned as storage pits before being used as refuse receptacles (it is unlikely that small pits were constructed for the purpose of refuse disposal). The absence of other evidence of structural remains suggests that these were extramural pits that were perhaps used as caches for tools or other materials. Given the poor preservation of structures in the Ballona, however, we cannot rule out the possibility that one or more residential structures were present.

Above, we argued that LAN-62 Locus A functioned as multipurpose resource-collection location during the Intermediate period. A close inspection of the features in the proposed activity area supported this hypothesis. The diversity of material remains in the proposed activity area suggests that forager groups may have entered the site area with the intent of acquiring multiple resources—including fish, shellfish, and mammals—during a single visit. The larger number of inclusive features than in the other proposed activity areas dated to the Intermediate period suggests that a larger number of individuals participated in the resource-collection and -processing activities during this occupation; each individual may have worked on specific tasks within a discrete, predefined work area. The larger group size and the presence of various material classes (shell, mammal bone, and fish bone) may suggest a logistical task group that included both male and female group members. Presumably, the males were responsible for hunting and possibly fishing, and the females were tasked with collecting shellfish and other resources. The larger number of features contrasts with the proposed Millingstone period activity area at LAN-62, which focused on hunting activities, contained a smaller number of features, and probably included only male group members. One or more structures or caches may also have been present in the Intermediate period, suggesting that LAN-62 Locus A/G was the location of a small, semipermanent camp or was used repeatedly on a seasonal basis. This kind of camp appears to represent a more intensive and longer-term occupation than the temporary camps represented by the Millingstone period feature clusters at LAN-54, the feature cluster at LAN-62 Locus C, and FB 7 at LAN-62 Locus A.

West Bluffs Sites

The most complete and detailed picture of Intermediate period site structure was not provided by PVAHP investigations but by the intensive excavations and broad-scale stripping operations at LAN-63, LAN-64, and LAN-206A, on the bluff tops overlooking the Ballona—what we have termed the West Bluffs community (Douglass et al. 2005; see also Grenda and Ciolek-Torello 2015). Our excavation strategy for the PVAHP emphasized exposure of features and sites through broad-scale mechanical and hand-excavations and identifying, through geomorphic studies, how those features were situated on the prehistoric landscape. However, extensive modification of the modern landscape and destruction of large portions of many sites by the Hughes Aircraft Company and other historical-period activities often made it difficult to execute that strategy effectively. In particular, we were often unable to identify the full extents and boundaries of sites and components. For example, we inferred that human occupation was continuous along the base of the bluffs during the Intermediate period, from LAN-62 in the west to LAN-60 in the east. Geomorphic reconstruction revealed that sites were situated on the ends of alluvial fans formed by natural channels draining the slopes of the bluff (see Volume 2, this series) and separated from one another only by those channels. Unfortunately, historical-period land-leveling activities had removed the tops of many fans, filled the channels, and thus obscured the boundaries between the sites. In addition, large portions of LAN-62 and LAN-211 had been removed as fill to extend Hughes's runway. By contrast, the natural contours of most of the bluff-tops area had been little modified until recent times. With the exception of the Loyola-Marymount campus, most of the bluff tops were also owned by the Hughes Aircraft Company. Hughes preserved the area as a buffer between his plant and the expanding Westchester community, and he leased it out to farmers.

SRI's investigations of the West Bluffs community concluded with the controlled mechanical leveling of the entire 44-acre area encompassed by the three sites and their surroundings. That afforded us the opportunity to uncover hundreds of cultural features and to define site boundaries and their relationships to natural topographic features. As a result, we were able to ascertain that Intermediate period settlement on the bluff tops was, like that along the base of the bluffs, probably continuous. Lacking alluvial fans, however, bluff-top settlement was centered on the leeward sides—not the tops—of the ancient dunes that constitute the northern edge of the bluffs (prevailing winds are from the northwest) (Figures 62 and 63). Although the sites along the base of the bluffs were apparently separated by drainages coming off the bluff slopes, the bluff-top sites were separated by depressions between the dunes. The three West Bluffs sites surrounded a single large depression, which was probably the location of a vernal pool during the climatic optimum of the middle Intermediate period, when occupation of this location was most intense (Altschul et al. 2007). LAN-63 itself also bordered a much smaller depression on three sides.

Perhaps the most important lesson learned from the investigation of the West Bluffs sites is that Intermediate period settlement was highly structured and not just a random palimpsest of individual, short-term occupations. As we argued above, space within this community was segregated into a number of distinct areas; resource procurement focused on both the vernal pool on the top of the bluffs and the wetlands below, and resource processing and residential activities centered on the dune slopes surrounding the two depressions. The smaller, eastern depression provided a convenient downwind location for the disposal of refuse. As noted previously, communal ritual activities involving the mourning ceremony took place in the western part of LAN-63, and a small-group burial area was found at the western end of LAN-64. A closer examination of the distribution of features at LAN-63 provided further details concerning the structure of these Intermediate period settlements.

Based on the assumption that the vertical distribution of cultural features might reflect depositional events, a hypothetical occupational surface was constructed from the discovery (topmost) elevations of nonburial features from the 2003 excavations. Most features were probably deposited directly on the occupational surface, although some were probably placed in shallow pits. In most cases, the shallow excavations should not adversely affect the calculation of the hypothetical occupational surface. For that reason, however, burial features were excluded from the calculation, because they would have been placed into much deeper pits excavated below the occupational surface. Features from earlier excavations by Archaeological Associates and SRI in 2000 were also excluded, because they could not be tied to the same elevation datum. In total, 287 prehistoric features were identified during the 2003 excavations at LAN-63: 5 burial features and 282 domestic and mourning features. Five of the domestic features were outliers and were also excluded from the analysis, because they were too far away from the other features to be used in calculating the surface, and 3 features had poor locational data. Finally, 2 features (Features 521a and 521b) were in the same location, and the locational information from only 1 was used in the analysis. Thus, in total, 273 nonburial features were used to calculate the occupational surface (Figure 64).

Calculation of the hypothetical occupational surface used the same method as calculation of a landform using aggregates of individual elevations. In this case, surface interpolation was done using the Geostatistical Analyst extension for Esri ArcGIS 10.0. After experimenting with a number of different interpolation methods, and in light of the strong possibility of spatial trending due to the undulating nature of the landform on which the features were situated, the most effective interpolation method was Universal Kriging (O'Sullivan and Unwin 2003). The data were detrended using the standard option in the Esri package, which weighted data and removed outliers. The data were then subjected to a semivariogram analysis to examine spatial relationships between the elevations of individual features and the hypothetical surface that was generated. Using the hypothetical surface as an estimation of a possible prehistoric occupational surface, the difference in elevation (residual value) between each individual feature and that surface was determined. All 273 features included in the calculation of the hypothetical prehistoric surface ultimately fell within 10 cm above or below the surface, with a total residual range of approximately 5.6 cm below to 7.5 cm above. The largest residuals observed for nonmortuary features were for 2 small caches and a small hearth located between 4 and 5 cm below the interpolated surface and for 2 small hearths, a large hearth, and a ground stone cairn located between 4 and 7 cm above the surface. The largest residual value, 7.5 cm above the surface, was associated with a ground stone cairn.

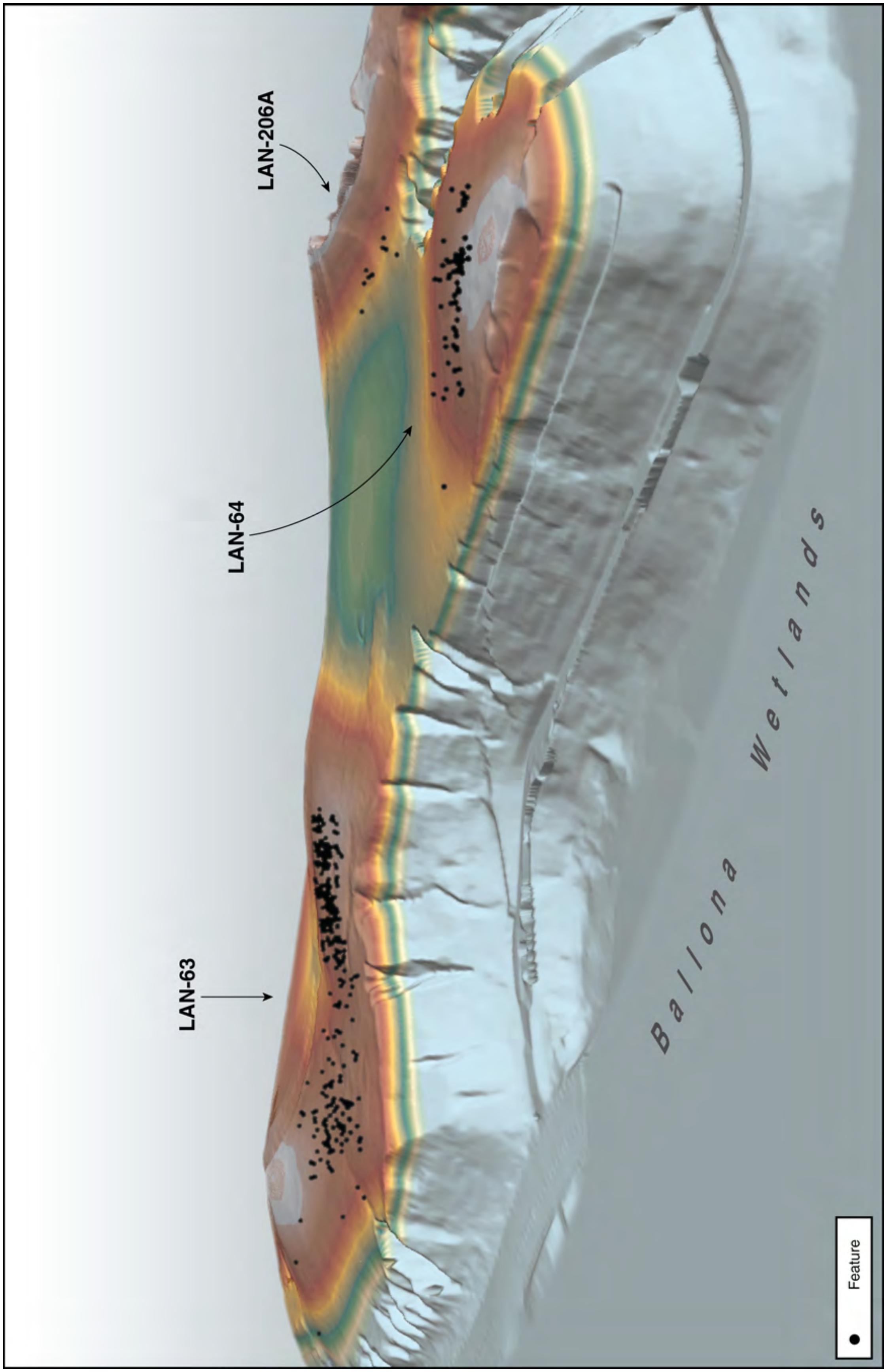

Figure 62. Topographic setting for West Bluffs sites LAN-63, LAN-64, and LAN-206A, view to the southeast.

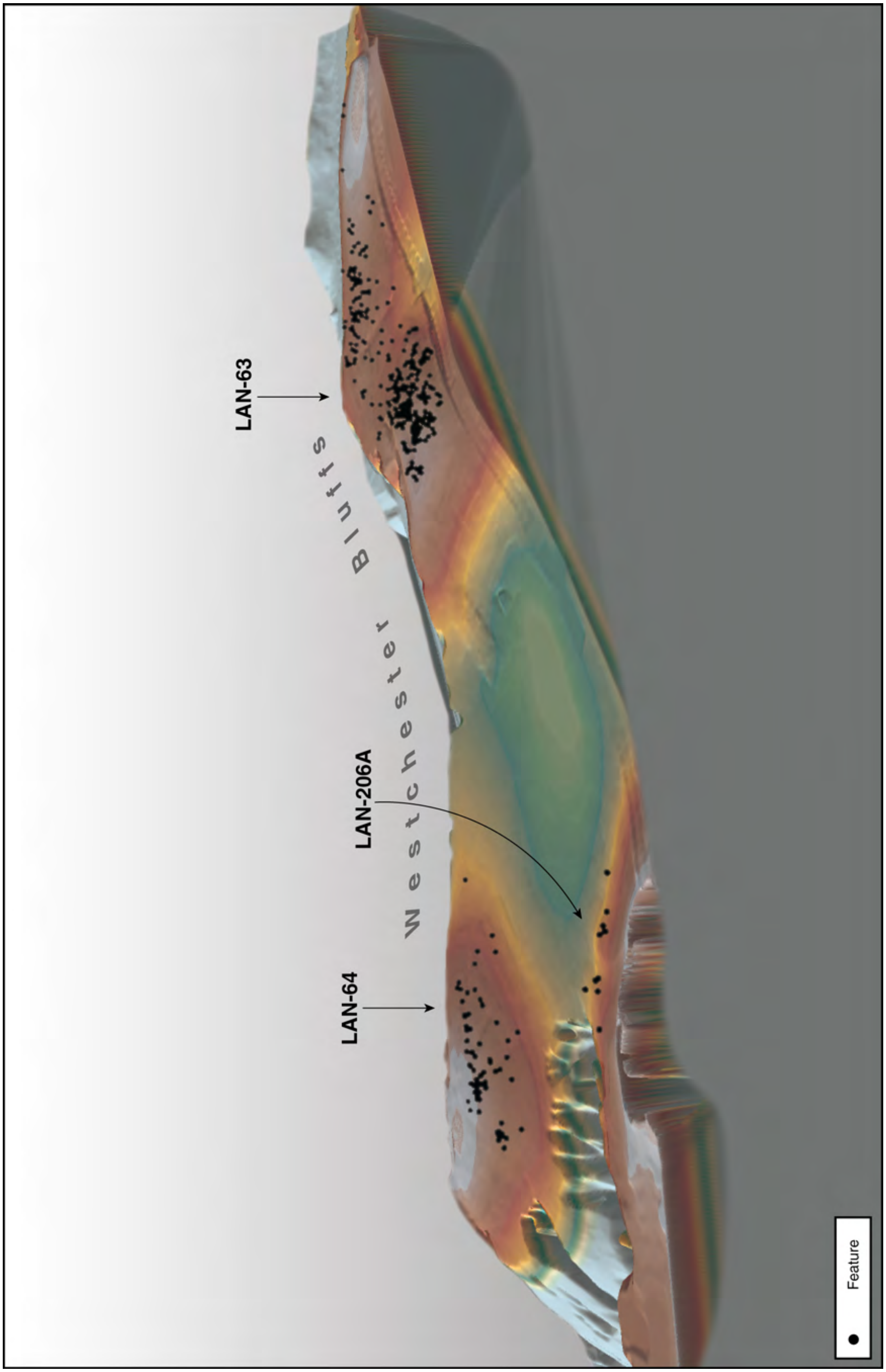

Figure 63. Topographic setting for West Bluffs sites LAN-63, LAN-64, and LAN-206A, view to the north.

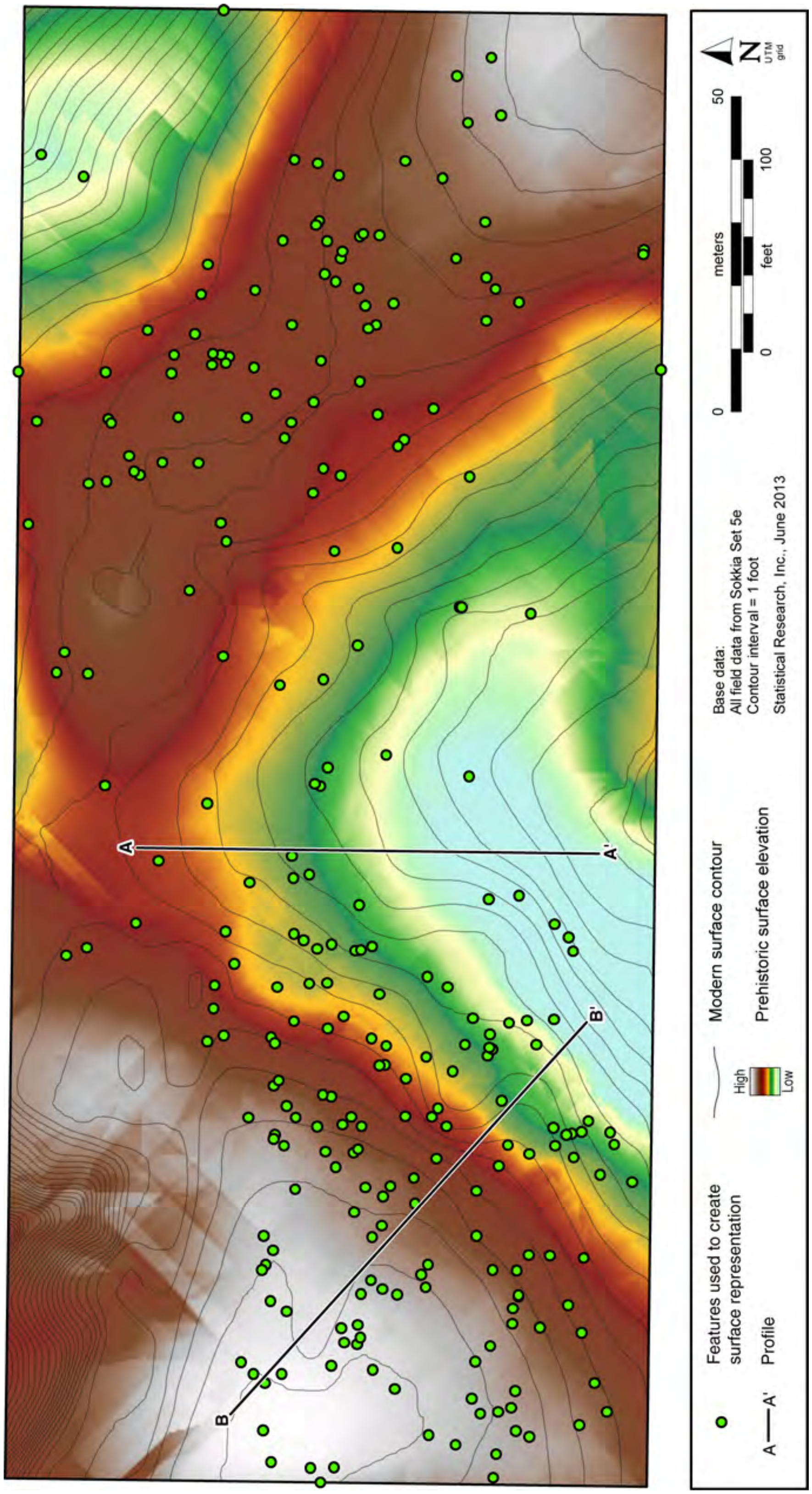

Figure 64. Distribution of features used to calculate the hypothetical occupational surface at LAN-63 in relation to the surface and modern topography (prior to grading) at LAN-63.

Several lines of evidence indicated that the hypothetical surface was a reasonable approximation of a prehistoric occupational surface that represented a single depositional event and that all of the features associated with that surface were relatively (as opposed to *absolutely*) contemporaneous; that is, they may not have been used at precisely the same time, but they do represent a single occupational episode (for the definition of relative contemporaneity, see Dean [1969]). First, as discussed above, the radiocarbon evidence indicated that the site was occupied primarily during a brief 200–400-year span during the Intermediate period, a time span consistent with a single occupational episode. No obvious stratigraphic breaks were observed, and only isolated artifacts associated with Millingstone, Late, and Mission period components were found (for a detailed discussion, see Hull and Douglass [2005]; Hull et al. [2013]). Significantly, none of the artifacts was associated with the identified features. Second, although all the domestic features were within 10 cm of the hypothetical surface, the burials were not. The burial features were not used in calculating the surface, but residual values were subsequently calculated for those features. Significantly, the three burials that fell within the extent of the interpolated surface were all located between 22 and 38 cm below the hypothetical surface—much deeper than any of the domestic features and consistent with the depths of shallow grave pits (the remaining two burials identified at the site were located beyond the surface's extent). Finally, the contours of the hypothetical surface were largely similar to the contours of the modern surface (prior to leveling for the development), indicating that the occupational surface generally followed a natural landform (Figure 65). Although we do not assume that the modern and prehistoric landforms were the same, differences between the modern and prehistoric landforms reflect changes that might be expected to have taken place over the past 2,000 years; that is, the depression at the center of the site should have received more fill than the slopes. Accordingly, the hypothetical surface was much closer to the modern surface on the dune slopes (approximately 35–50 cm) and much deeper (approximately 80–91 cm) below the modern surface of the depression.

Based on this evidence, we can conclude with some degree of confidence that most, if not all, identified features at LAN-63 were roughly contemporaneous and represent a single occupational episode. Thus, examination of the spatial distribution of these features provided insights into the structure of activities within this settlement that were probably not affected significantly by change over time. Features at LAN-63 can be divided into two large spatial clusters: a dense, western concentration on the leeward slope of the dune and a less dense, eastern concentration on the saddle connecting the dune tops on the western and eastern sides of the small depression (Figure 66). Based on the assumption that the features excavated by Van Horn (1987) (n = 15) and SRI in 2000 (n = 20) were also contemporary with those excavated in 2003, in total, 322 features were found at the site. Because of differences in the ways that the features were described, none of Van Horn's features could be incorporated into our analysis. Only the feature believed to be a mourning feature and 2 "ritual caches" were included. Thus, the total number of prehistoric features from LAN-63 that were analyzed equaled 307. Of those, almost two-thirds were in the western concentration, and one-third were in the eastern concentration (Table 11). If features are combined into the broad functional categories as above, it becomes clear that the ranges of activities in both clusters were very similar, with the important exception that most of the mortuary and ritual activities were concentrated in the western cluster, where all 3 of the mourning features and 3 of the 5 burials were found. There were also minor differences, such as the presence of more caches in the western cluster and a higher proportion of cairns, hearth cleanouts, and large hearths in the eastern cluster. Overall, however, the two clusters appeared to represent two spatially discrete residential groups, with the western group being the center of ritual activities and the denser residential area.

Within each cluster, the broad functional categories appear to be randomly distributed, although some spatial patterning was evident. Small hearths were the most common features and the most widely distributed; thus, they probably reflect a wide range of domestic cooking and heating activities. Some may have been intramural features; others may have been used outdoors. Large hearths, however, were found on the peripheries of the settlement—the western side of the western cluster and the eastern side of the eastern cluster—suggesting that they may not have been associated with ordinary domestic activities. Their larger size suggests the possibility that they were used for communal or multi-family activities. Caches and cairns may indicate the presence of structures. Burials were present on the northern and southern peripheries of both the western and eastern clusters. By contrast, the three mourning features were concentrated in the eastern part of the western cluster. In addition, most of the lithic-artifact scatters and other artifact scatters were distributed along the higher slopes surrounding the depression, suggesting that they were the primary areas for food-processing and maintenance activities. Significantly, artifact scatters and hearth cleanouts that might reflect toss zones were not found surrounding hearths. The depression itself contained the highest concentration of faunal refuse at the site (Douglass et al. 2005). A cluster of cairns along the southern edge of the western cluster and close to the depression suggested the presence of some kind of structures in this area. Most of the cairns, however, were found in the eastern part of the eastern concentration.

Overall, we can conclude that the Intermediate period settlement at LAN-63 was more highly structured than a palimpsest of small, single-family campsites. The toss zones usually associated with individual residences at these types of sites were not evident at LAN-63. Rather, the settlement was divided into two discrete residential areas, with food-processing and maintenance activities concentrated on the

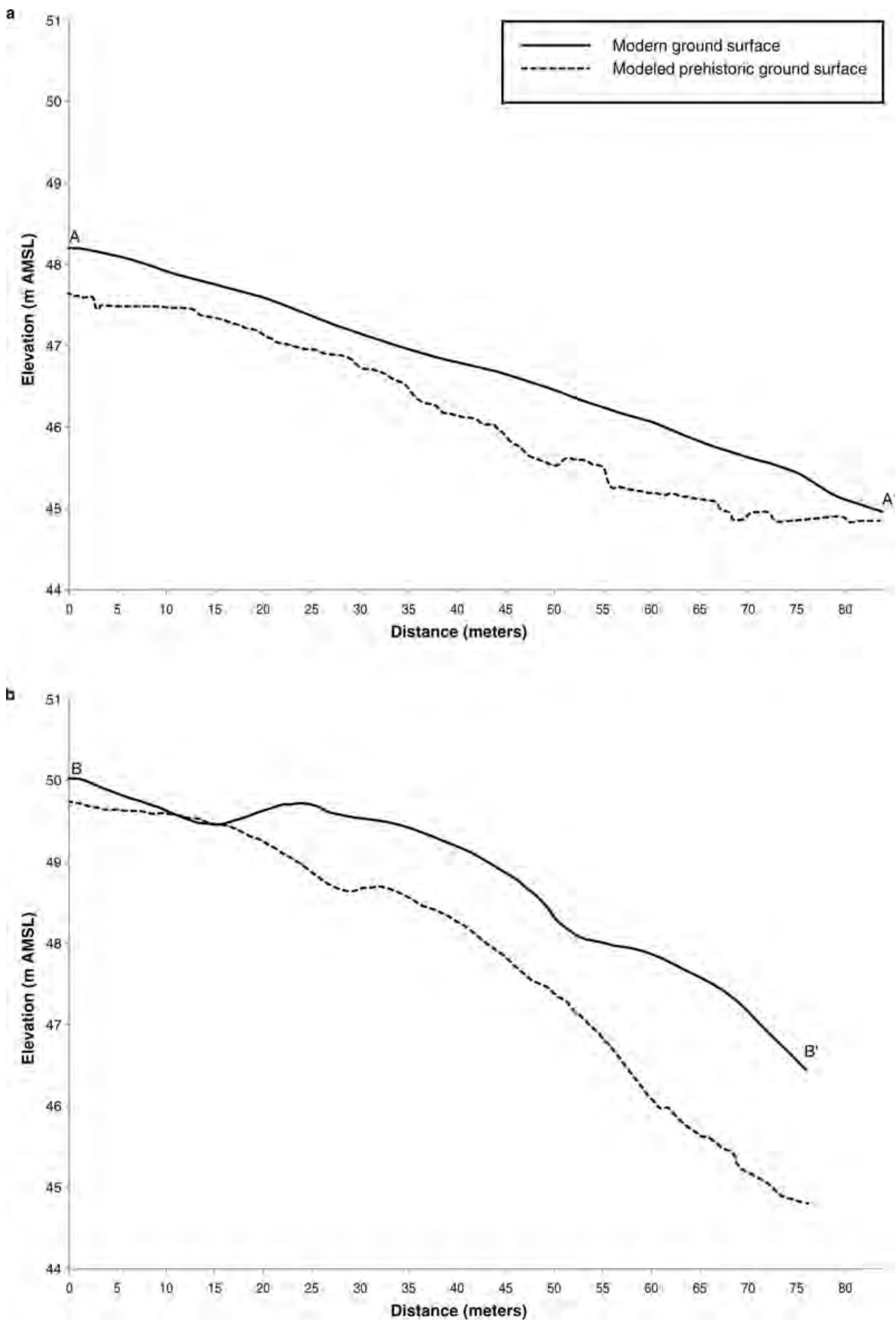

Figure 65. North–south and northeast–southeast cross sections comparing the hypothetical prehistoric occupational surface and the modern topography (prior to grading) at LAN-63.

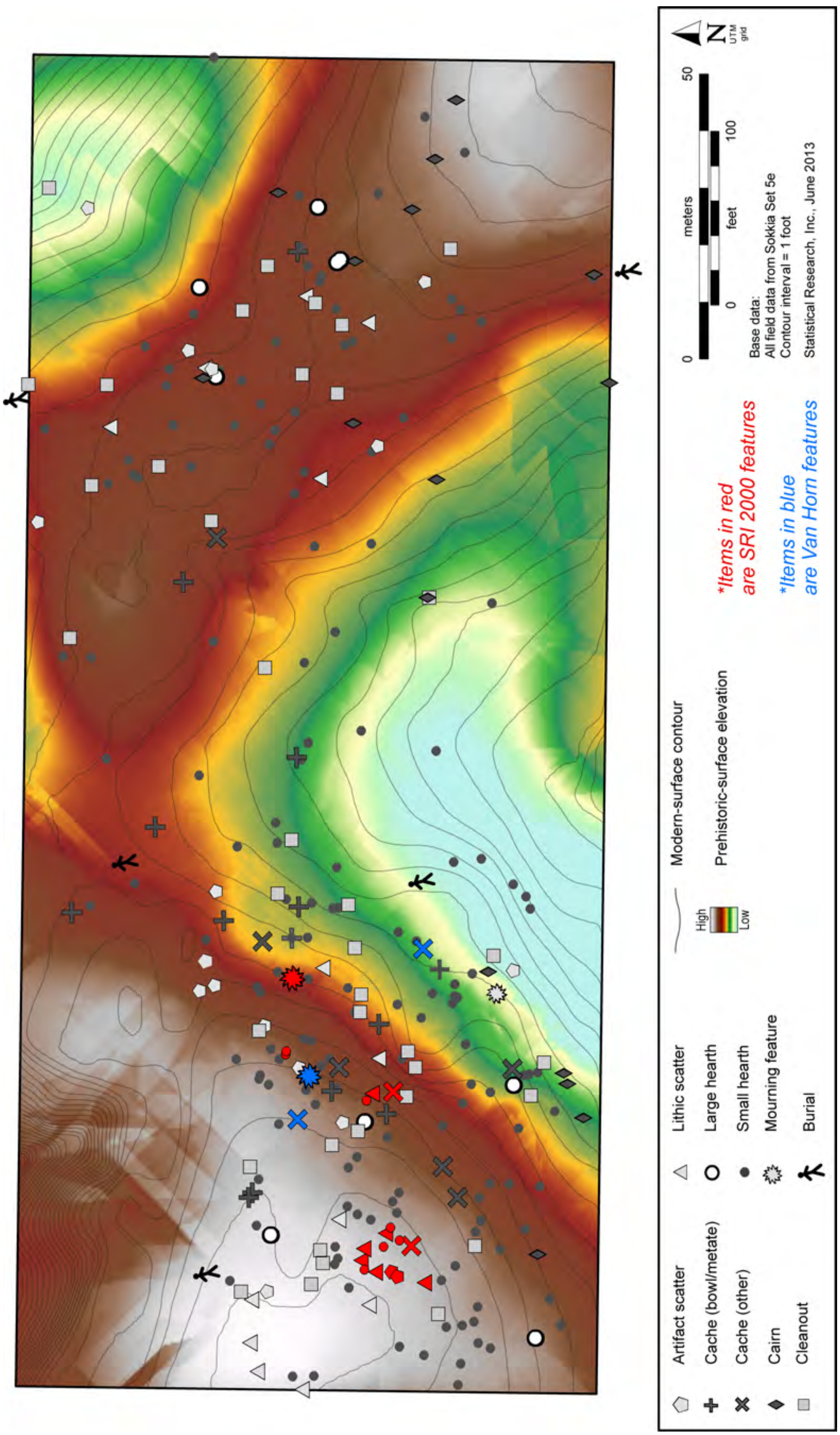

Figure 66. Distribution of all features at LAN-63, by functional type.

Table 11. Features Found in the Western and Eastern Clusters at LAN-63

Feature Type, by Functional Category	Western Cluster n	Western Cluster %	Eastern Cluster n	Eastern Cluster %	Total
Ritual					
Human burial	3	1.5	2	1.9	5
Mourning feature	3	1.5	—	—	3
Subtotal, ritual	6	3.0	2	1.9	8
Residential					
Cache (bowl/metate)	12	5.9	2	1.9	14
Cache (other)	9	4.5	2	1.9	11
Cairn	5	2.5	12	11.4	17
Subtotal, residential	26	12.9	16	15.2	42
Processing					
Lithic scatter	14	6.9	5	4.8	19
Artifact scatter	11	5.4	6	5.7	17
Subtotal, processing	25	12.4	11	10.5	36
Thermal					
Hearth cleanout	22	10.9	16	15.2	38
Large hearth	4	2.0	5	4.8	9
Small hearth	119	58.9	55	52.4	174
Subtotal, thermal	145	71.8	76	72.4	221
Total	202	65.8[a]	105	34.2[a]	307

[a]Percentage of overall total (n = 307).

Note: Includes all prehistoric features, except 12 features excavated by Van Horn (1987) that could not be assigned to these functional categories. Percentages have been rounded to the nearest tenth.

higher slopes surrounding a small depression where most of the refuse had been deposited. Burials were placed on the periphery of the living area, and mourning features were placed in the eastern part of the denser occupation area, essentially in the center of the site. Taken together, this evidence indicates that LAN-63 represents a larger settlement that was possibly occupied contemporaneously by two multifamily social groups. The concentration of mourning features and, in particular, the large size of Feature 587 further suggest that LAN-63 was a central site in the Ballona region during the Intermediate period (see Chapter 6, this volume). Only one additional possible prehistoric mourning feature (Feature 9) was found in the Ballona, at LAN-61, during Van Horn's investigations. This and the variety of features and material culture recovered by Van Horn from the site suggest the possibility that LAN-61 may also have been a central site during the Intermediate period, but the more limited nature of Van Horn's excavations at LAN-61 than SRI's excavations at LAN-63 precluded the possibility of confirming such a function.

Protohistoric and Mission Periods

No activity areas were defined for the Late period. The activity areas associated with the Protohistoric and Mission periods included the proposed living area at LAN-211 and the mortuary-ritual complex at LAN-62. Those activity areas were far more evident than the earlier ones, and we can add little information to what we have discussed previously. The dense burial area at LAN-62 Locus A was the most salient activity area. That area likely was perceived as a sacred location that "housed" the remains of deceased family members and ancestors. Moreover, the concentration of thermal offering features located several meters west of the burial area was another salient activity area focused on mourning rituals. The mortuary/ritual complex at LAN-62 is discussed in greater detail in Chapter 6, this volume.

In total, 37 features were assigned to the Protohistoric, Mission, or composite Protohistoric through Mission period occupation of LAN-211. Those features were mostly clustered in the central portion of the site in Excavation Block A, which exposed much of the Feature 1 activity surface (see Figure 49). Feature 1 was an ovate area of about 35 by 17 m in maximum length and width, respectively. FB 1 encompassed 23 subfeatures within Feature 1. Six additional features were scattered in three small groups located about 20–30 m to the south (2 features), east (3 features), and west (1 feature) of Feature 1. The subfeatures of FB 1 were very likely parts of the same occupational episode; that is, they likely were contemporaneous or, if not, were used successively within a short time over the span of the occupation. We were unable to infer the extent of chronological overlap between FB 1 and the 6 outlying features.

All but two of the Protohistoric through Mission period features were classified as domestic: one burial/ritual feature excavated within FB 1, consisting of a primary inhumation of a fetus, and the burial of an adult female found in the eastern part of the site. The majority of the domestic features were classified as thermal deposits. Moreover, all but one of the thermal features were oxidized pits, which we have interpreted as hearths. An additional deposit (SF 52) was a composite feature that included a hearth and an adjacent concentration of FAR, a likely cleanout deposit. The oxidized pits varied in size and shape, but based on the size criteria discussed in Volume 2, this series, the area included roughly equal numbers of large and small hearths. The abundance of hearths at FB 1 suggested a principal focus on cooking and food preparation, although the hearths, at times, may have been used for other functions (e.g., to generate warmth or to heat-treat stone for making tools). The only evidence of native ceramic vessels found in the Ballona was found in association with these hearths. Fragments of those vessels exhibited evidence of having been used over a fire, likely as cooking pots, which supports a cooking function for the hearths. By contrast, most of the outlying features (outside the FB 1 activity area) were relatively isolated and probably represent depositional episodes unrelated to FB 1 features. In this respect, those outlying features probably represent the short-term logistical camps typical of earlier occupations in the Ballona.

FB 1, however, appeared to represent a larger, much more intensively occupied and more highly structured camp or semipermanent settlement than these short-term camps—something more akin to the large Intermediate period settlements on the bluff tops at LAN-61, LAN-63, and LAN-64. In addition to the large group of hearths and surrounding features, FB 1 contained a dense scatter of faunal bone and various lithic artifacts. The hearths were aligned in an east–west arrangement along the center line of the activity area (see Figure 59). The reason for, or purpose of, the linear pattern was difficult to discern. One possible cause is a process of "drift" in the hearth locations, with one or several hearths abandoned over the course of the occupation and newly constructed hearths situated adjacent to older ones. Over time, the continual process of drift could have created a large number of adjacent hearths, but that also brings up a question as to why the arrangement was linear rather than scattered randomly over the area. If new hearths were continually constructed next to older ones, why continue situating them along a linear path? Perhaps other features or activity loci were situated to the north and south of the line of hearths and prevented expansion or "drift" into those areas.

A second possibility is that all or most of the hearths were used simultaneously, which may have been the case if the area functioned as a central cooking location for a larger community of residents or a feasting area associated with the burial ground at LAN-62 (see Chapter 6, this volume). In this scenario, the linear arrangement of hearths was part of a larger settlement; the hearths (including any newer constructions) would have been situated within a single planned location, and areas to the north or south may have been reserved for other functions and activities. For example, it is possible that mud-and-thatch residences were constructed around the line of hearths, based on the presence of possible dried-mud or daub fragments to the north and east of the hearths. If that were the case, the hearths may have marked the location of a common area or a communal cooking-and-heating area in the center of a larger residential locus.

The line of hearths seems to have been divided into eastern and western halves. The western portion of the activity area included a tightly spaced line of seven hearths that was separated by about 3 m from a less tightly spaced line of six hearths in the eastern portion of the activity area. A smaller, nonlinear scatter of four hearths was situated about 2 m to the south of the gap and may have been affiliated with the eastern group. The eastern and western lines of hearths were roughly equal in number but varied in size: the western group included six large hearths and one small hearth, whereas the eastern group included three small and three large hearths. The four hearths located to the south of the groups were all interpreted as small hearths. It was difficult to discern the reason for the disparity between the ratios of large to small hearths in the eastern and western portions of the activity area. The 3-m space between the eastern and western groups of hearths may have been the result of random drift, as noted above, but it may also represent a division between two discrete domestic groups, a continuation of the dual division of the Intermediate period occupation at LAN-63. A third possibility was suggested by the presence of SF 25, a small concentration of cobble and ground stone fragments situated within the approximately 3-m gap between the two groups of hearths, and a second feature consisting of a small, dense concentration of cobbles and FAR fragments that was excavated about 4 m to the northeast of SF 25, a few meters north of the eastern line of hearths. Those two rock features may have functioned as post supports for structures, possibly domiciles. Indeed, each feature was surrounded by an approximately 1–2-m radius of "open" area devoid of features that could indicate the interior space of a structure (although hearth SF 26 was situated very close to SF 25).

It is worth noting, however, that no additional evidence of structures was recovered in the vicinity of SFs 24 and 25, with the possible exception of the dried-mud or daub fragments. One unit with an exceptionally high volume of daub or dried mud was recovered about halfway between SFs 24 and 25, but the implication of this pattern is uncertain. One heavily disturbed burial of a fetus (SF 27) was recovered roughly equidistant between the two proposed post supports or cairn features. It is possible that the fetus was interred in an open space between the two hypothesized structures associated with SFs 24 and 25 or that it was interred beneath the floor of one of the structures.

In summary, it appears that FB 1 was formed during a single occupational episode (i.e., it was unlikely a palimpsest of unrelated camping deposits). Associated artifacts suggested that the occupation began at some time in the early Mission period and ended at some time in the late Mission period (see Chapter 6, this volume). The sizes and density of the features implied a relatively intense occupation, possibly a permanent or semipermanent residential locus, especially when compared to the bulk of the evidence of earlier land-use patterns in the Ballona, most of which suggested temporary camps related to short-term, logistical resource-collection trips. The line of hearths may have marked the location of a communal cooking area, as evidenced by the dense concentrations of discarded faunal bone and shell in the vicinity and by the presence of ceramic-vessel fragments with exterior soot deposits from exposure to fire. The possible post supports (SFs 24 and 25) may have indicated the location(s) of one or more structures, perhaps domiciles for some of the site's inhabitants (the evidence of cooking and subsistence-related activities was inconsistent with ritual structures) or supports for a ramada structure. Moreover, the presence of two, or possibly three, groups of hearths possibly suggests a link between the structures and hearths. That is, two discrete domestic groups may have been present, each occupying its own structure and using its own group of hearths.

Residential intensity (i.e., the length of an occupational episode) is difficult to infer from these data. However, the hearths presumably were roughly contemporaneous or used successively over the course of a single short-term habitation episode—probably between 20 and (at most) 40 years (see Chapter 6, this volume). Furthermore, it seems unlikely that repeated periodic use of a campsite would generate the linear arrangement of hearths found in FB 1. Nor would we expect large hearths to have been necessary to accommodate a small group of hunters or collectors during a resource-collection expedition. Presumably, the large hearths were constructed to accommodate cooking and heating needs for a larger group. That area of LAN-211 may have housed the residential group that interred deceased group members in the burial area at LAN-62 Locus A, about 1.5 km to the west. However, that residential group was too small to have generated so many burials in such a short time span. Evidence of other, similar-sized residential groups may have been present in the vicinity of FB 1 at LAN-211, but if so, it was destroyed by the construction activities associated with the Hughes Aircraft Company plant. Even so, the few families that may have resided at LAN-211 represent too small a population to have produced the 200–300 Protohistoric through Mission period burials at LAN-62, even if most of the population of LAN-211 died at one time from disease.

In Chapter 6, this volume, we explore the use of FB 1 as a feasting area. The mass of discarded faunal bone and shell found in FB 1 was much too great to have been produced by one or two residential groups over such a short time as has been posited for the creation of FB 1. As discussed in Chapter 6, this volume, the evidence suggests that FB 1 was the product of communal feasting. However, that evidence did not preclude the likelihood that several domestic groups residing at LAN-211 may have hosted those feasts.

Summary and Conclusions

As Altschul, Gregory, and Doolittle (1998:17) argued, the cultures documented in coastal southern California in the ethnohistoric period were not the outcomes of an inevitable evolutionary process involving the shift from small, mobile groups to aggregation in sedentary villages. Rather, they were the outcomes of processes involving environmental change, population growth and movement, and interactions with surrounding peoples. That certainly seems to have been the case in the Ballona. It is unclear, however, whether the settlements documented in ethnohistorical records were "villages" as we envision them—large, aggregated, permanent settlements with numerous houses and other structures—or merely *rancherías* or smaller, dispersed settlements (Dillon and Boxt 1989; Grenda et al. 1994; Raab 1993).

When the Ballona was first settled during the Millingstone period, it was largely an open body of water that was an inland extension of the larger Santa Monica Bay, and the extent of the marshlands was relatively small. The most-habitable landforms were on the bluff tops overlooking the southern edge of the embayment (see Figure 39). Despite the lack of habitable land in the lowlands, settlement was concentrated at LAN-54, on what was then a sandy island, and at LAN-62, on a large alluvial fan at the base of the Lincoln Gap. Small settlements were also established on the bluff tops on either side of the Lincoln Gap. The bluff-top settlements consisted of isolated features and sparse middens at LAN-61, LAN-64, and LAN-206. The settlements in the two locations did not appear to have been used in the same ways. The archaeological remains at the bluff-top sites consisted of discard areas that likely had been generated, not by permanent or even long-term settlers, but by highly mobile hunter-gatherer groups conducting short-term logistical forays in the region. The features at LAN-64 all consisted of shell dumps, suggesting that it was a specialized shellfish-processing area. The two lowland sites represented more-intensively used settlements with more features and better-developed middens.

Lan-54 and LAN-62 also appear to have served different purposes. Features and the midden at LAN-54 mostly consisted of large quantities of shell, indicating that the site was a specialized shellfish-processing area like LAN-64, although frequencies of shellfish were considerably higher at the lowland site. By contrast, faunal bone, mainly from mammals, dominated the feature and midden at LAN-62 Locus A/G. However, even during the early, Millingstone period occupation, the midden at LAN-62 Locus A stood out from the other settlements in terms of the density and variety of cultural materials. That pattern of differentiation foreshadowed a more pronounced and well-developed pattern of "zoned" and locally specialized land-use and resource-procurement practices in different areas of the Ballona during the subsequent Intermediate period. Overall, Millingstone period settlement in the Ballona was much like that along the entire length of the Southern California Bight, particularly the Los Angeles Basin and San Diego areas. Most sites consisted of specialized food-processing stations, mostly focused on shellfish collection, that were part of a highly mobile settlement system. At LAN-62, however, evidence was found of at least one and perhaps two small, temporary camps exhibiting more-intensive and -diverse activities including cooking, mammal and fish processing, and possibly the erection of temporary shelters. These camps are good examples of the temporary-camp model that Van Horn (1987) suggested for the bluff-top sites.

By the Intermediate period, the embayment had been closed off from Santa Monica Bay by a sandbar, forming the Ballona Lagoon and an extensive area of marshland supporting an abundance of wetland resources. The Intermediate period also coincided with a short, roughly 200-year climatic optimum ca. 2000 b.p., when rainfall in the region was at a peak. Those climatic conditions, combined with the large extent of the marshlands, would have resulted in peak productivity for the wetlands as well as the coastal prairie to the south (Wigand 2005). Not surprisingly, and in contrast to much of the rest of the southern part of the Southern California Bight, where most sites along the coast were abandoned, this period witnessed the most extensive pattern of land use and occupation in the lengthy native occupation of the Ballona. Intermediate period components were identified at all identified sites and loci. With few exceptions (LAN-47, LAN-62, and LAN-211), Intermediate period components represented the largest and most intensive occupations of the sites. We have hypothesized that the expansion of settlement was the product of population growth associated with the Takic expansion from the desert to the coast. Although the number and sizes of settlements and, commensurately, the population in the Ballona may have peaked in the Intermediate period, not all sites and components dated to this time period were occupied at the same time. Chronometric analyses suggested a series of discrete, nonoverlapping occupations at many sites. As in the case of the Millingstone period, we suspect that at many of these sites, such as LAN-54, LAN-193, and LAN-2768, Intermediate period features and middens represent a palimpsest of debris that accumulated in the course of short-term logistical trips by mobile groups over a roughly 2,000-year span. The discovery of a single house pit (later reused as a roasting pit) associated with intramural and extramural features at LAN-2768 Locus A suggested at least a brief period of semipermanent or seasonal residential use. The denser midden and the much larger number of features associated with the Intermediate period occupations of these sites in comparison to the Millingstone period, however, suggest either many more periodic visits or visits by larger social units. The presence of isolated burials at Intermediate period sites further indicated that people remained long enough for members of the collection parties to die and be buried at these sites (see Cleland et al. 2007). The widely scattered nature of burials at most of these sites and the absence of mortuary associations, however, suggested that people were buried near where they died, with little in the way of formal mortuary practices.

By contrast, the bluff-top sites, especially LAN-61, LAN-63, and LAN-64, appeared to represent larger and more substantial settlements and perhaps semipermanent or multiseasonal occupations. The hundreds of domestic features at these sites represent a diversity of activities (at LAN-63, in particular), including numerous cairns and caches suggesting the presence of residential structures. The structured use of space at these bluff-top sites, together with the presence of larger burial clusters and mourning-ceremony features, indicated a much more intensive, possibly semipermanent occupation for at least several hundred years during the Intermediate period. Detailed surface analysis, bolstered by a suite of radiocarbon dates, revealed that almost all the features at LAN-63 were roughly contemporaneous and probably represent a 200-year occupation during a period of peak productivity. The distribution of activities was highly structured at LAN-63, with discrete food-processing, ritual, and refuse-disposal areas. At least two large clusters of domestic features could be discerned, containing roughly equivalent numbers of the different types of domestic and burial features. Ritual features, in the form of mourning features, however, were concentrated in one of the clusters. The two clusters may represent two independent residential groups, with similar-sized groups at LAN-61 and LAN-64. The western cluster at LAN-63, which contained three mourning features, including the extremely large Feature 587, may have been the center of that community, although we have interpreted a cremation feature at LAN-61 as another small mourning feature.

The "zoned" land-use patterns in various areas of the lowland Ballona that were first evident in the late Millingstone period expanded during the Intermediate period. The Ballona Creek area (LAN-54) continued to be used mainly as a specialized collection area for shellfish and probably other wetland resources. In the easternmost portion of the area along the bluff (LAN-2768 Locus A/B), the presence of several cobble concentrations suggested some as-yet-indeterminate nonthermal activity. To the southwest of that area, at LAN-2768 Locus C/D and LAN-193, land-use practices focused on another as-yet-unknown activity that made frequent use of hearths and lithic artifacts (flaked and ground stone), perhaps plant-processing activities, although the hunting and processing of mammals may have been a focus at LAN-193. In the western area, LAN-211 and LAN-62 Locus C/D seemed to have been used predominantly for hunting and processing mammals. Finally, in contrast to these specialized loci, the westernmost area along the bluff, at LAN-62 Locus A/G and on the adjacent bluff tops, accommodated a variety of subsistence activities, including shellfish procurement, hunting, and fishing, along with the processing activities associated with each. The multifunctional land-use pattern at LAN-62 Locus A/G generated higher Intermediate period midden densities than were observed for previous time periods at any other site or locus within the lowlands. Yet at LAN-62, there was little of the evidence of more-substantial settlement that was found at the nearby bluff-top sites. Excavations by Peck and Shulene in the adjoining Locus B, however, provided tantalizing clues that suggested that it may have been an important residential area during the Intermediate period and the ensuing Late period.

The diverse settlements of the Intermediate period are reminiscent of the dual-settlement system of the Newport Bay region proposed by Mason and Peterson (1994b). As Altschul and Grenda (1998) suggested, however, the different types of sites found in the Intermediate period site clusters in the San Joaquin Marsh and San Joaquin Hills were not based on either an upland or a wetland adaptation but reflected the long-term use of the larger landscape. People shifted from the wetlands to the uplands when increased precipitation caused floods that destroyed wetland resources but enhanced upland resources. Conversely, during droughts, people left the uplands for the wetlands. Although the upland (bluff-top) and wetland settlements were much closer to one another in the Ballona, the same pattern may have held true. The more-permanent settlements on the bluff tops around the Lincoln Gap coincided with the climatic optimum ca. 2000 b.p. and were probably established in that location because they provided access to both the wetlands to the north and the upland coastal prairie to the south. With these exceptions, Intermediate period settlement represented a dispersed settlement system in which mobility and dispersion were the key mechanisms for ensuring success (Altschul and Grenda 1998:250). As Altschul and Grenda (1998) concluded, Intermediate period society was organized at a simple level, with low population density, high mobility, and no major villages. Although LAN-63 and its neighbors exhibited evidence of substantial occupation, they lacked evidence of the architectural variability associated with complex settlements that served as the centers of economic, political, and religious activities in a territory. The presence of several mourning features suggested that LAN-63 was an important religious center in the Ballona, but the paucity of burials at the bluff-top sites and the short-term nature of the occupations were not consistent with primary villages.

By the beginning of the Late period, the optimal climatic conditions that had characterized the middle of the Intermediate period had deteriorated, and the region began to experience a combination of overall decreased precipitation and cyclical episodes of flooding and extreme drought (Wigand 2005). By that time, the lagoon also had begun to shrink, as the Ballona became a sediment-choked estuary. The beginning of the Late period coincided with the MCA, a region-wide period of extended drought. Those conditions may have been exacerbated by a shift in the flow of the Los Angeles River away from the Ballona, an event that was common in the stream-flow regimes of the Los Angeles, San Gabriel, and Santa Ana Rivers and influenced shifts in settlement among the lagoons and estuaries of the region (Cleland et al. 2007). Archaeologists studying other areas of coastal southern California have argued that environmental perturbations caused by the MCA led to a series of social changes—such as reduced terrestrial resources and increased warfare (Jones et al. 1999; Kennett 2005; Raab and Larson 1997) or increased marine productivity and the intensification of fishing and craft specialization among island settlements (Arnold 1992a, 1992b; Colten 1995, 2001)—which, in turn, led to settlement aggregation and the formation of complex societies. The Ballona took an entirely different trajectory.

With the exception of small, isolated camps, the bluff-top and upper Centinela Creek areas, which had hosted large settlements during the Intermediate period, were abandoned, and settlement focused on the lagoon edge and the resources of the adjoining wetlands during the Late period. That is not surprising, because the resources of the coastal prairie south of the bluff tops and the upper Centinela Creek area would have been hit hardest by drought conditions. Unlike their Chumash neighbors to the north, who turned increasingly to the exploitation of pelagic resources, the people of the Ballona focused their resource-procurement efforts on the adjacent lagoon, almost to the exclusion of all other resource zones in the region (see Chapter 4, this volume). That change was associated with a significant reduction in settlement and, probably, population, as most people either abandoned the Ballona or failed to return to the area on their logistical trips or seasonal rounds. At the beginning of the Late period, LAN-47, located along the northeastern edge of the lagoon, may have been the only settlement occupied in the Ballona. The presence of remains from a wide variety of resources and a number of burials suggested that it was a substantial campsite, but not a village, as some have suggested. Even this settlement was short-lived and was abandoned by a.d. 1200. As noted above, LAN-62 Locus B may also have been inhabited during the Late period, but information is too scant to say more. Ballona settlement at this time stands in stark contrast to the hierarchical system established along many areas of the Southern California Bight, from the Santa Barbara and Ventura areas to the north to the Newport Bay and San Diego coastlines to the south. Like the Alamitos Bay/Anaheim Bay area, which exhibited similar settlement patterns in the Millingstone and Intermediate periods (see

Cleland et al. 2007), the Ballona may have become a satellite of one of the large villages, such as Puvunga, located in the San Pedro Bay area. Unfortunately, little archaeological information is available to confirm the nature of this settlement.

A new wave of occupation started at the end of the Late period, around the middle of the second millennium a.d. It may have been in response to the incursion of Spanish colonists and epidemics that forced the relocation of people from other areas, or it may have resulted from the amelioration of climatic conditions after the MCA, which made the Ballona attractive once again, even though the lagoon and associated wetlands continued to shrink. With the exceptions of isolated camps on the bluff tops around the Lincoln Gap, new settlement was concentrated at LAN-211 and LAN-62 Locus A/G. LAN-211 appears to have functioned as a residential locus, possibly permanent, as indicated by a structured arrangement of features, possible houses, and a wide variety and dense accumulation of resource remains and tools. Much of the activity at LAN-211 focused on cooking and heating, given the prevalence of hearths and thermal features. A linear arrangement of hearths could have marked the location of a communal activity area, with residential structures located to the north. To be clear, however, the evidence of architecture at LAN-211 was dubious, and thus, our interpretation should be considered tentative. By contrast, there was little evidence of residential activity at LAN-62, which came to function as an extensive mortuary-ritual complex. The Mission period settlement pattern suggests a culturally recognized landscape distinction between loci of domestic and mortuary activities separated by a scarcely used area of open space between (LAN-62 Locus B/C/D). During the Mission period, the burial area at LAN-62 Locus A became more formal, with the establishment of a mourning-ritual locus a few meters to the west and a tightly confined and dense concentration of burials in the southwestern part of the burial area. Domestic deposits of food remains were scattered in the areas surrounding the burials, but they may have been discard areas for food and cooking debris generated during mourning and mortuary ceremonies.

Earlier in this chapter, we discussed several settlement models that have been applied previously to the Ballona and other areas of the Southern California Bight. The evidence presented in this chapter revealed that the Ballona long served as an important location for human settlement but was never the locus of a large, central primary village like those described in ethnohistoric accounts. Settlement was sparse and highly mobile during the Millingstone period. Van Horn's model of short-term, intermittent occupation by one or two families spanning thousands of years is most appropriate for this time period. Most sites in the Ballona occupied at this time appeared to have been specialized resource-procurement loci that were primarily used for the extraction of shellfish from the lagoon. A single small, seasonally occupied campsite used for the processing of shellfish, fish, and mammals and possibly including temporary shelters was present at LAN-62 during this time period.

By contrast, a large and diverse settlement system developed during the Intermediate period, with individual sites or activity loci at the base of the bluffs (LAN-60, LAN-62, LAN-193, LAN-211, and LAN-2768) and in the middle of the wetlands (LAN-54). Those sites may have been used sporadically or for specific resource-procurement purposes. Although the sites were used for thousands of years, their location on the edge of the wetlands may suggest a more temporary occupation than that of sites on the bluff tops (LAN-59, LAN-61, LAN-63, and LAN-64), because of the chance of flooding. LAN-62, however, appeared to have been used more intensively than the other lowland sites, because of its strategic location on a well-developed landform at the nexus of the lagoon, Centinela Creek, and the Lincoln Gap, which provided easy access to the bluff tops. Freshwater from Centinela Creek and a nearby small spring was probably also important for the location of the site. With the exception of LAN-62, sites on the bluff tops exhibited more site structure and more-diverse artifact assemblages and features that suggested a greater diversity of activities, including maintenance and ritual activities, and more-intensive occupation than the lowland sites.

LAN-63, with its hundreds of features, dense midden, well-defined site structure, and mourning-ceremony features, may represent the best candidate for what is traditionally viewed as a village. Although no structures were specifically identified, their presence was inferred from the distribution of hearths, rock cairns, caches, and discrete refuse deposits. But LAN-63 may never have been occupied by more than a few households at any one point in time or for an extended period of time. A well-defined burial ground was not present, and only a handful of Intermediate period burials were found in the bluff-top settlements or anywhere else in the Ballona. The Intermediate period settlement pattern can best be characterized as a highly dispersed *ranchería*, with specialized resource-procurement activities in the lowlands and seasonal or semipermanent residential loci scattered along the bluff tops. (*Note:* Here, we use the term "*ranchería*" to describe smaller, dispersed settlements, as per Hudson and Blackburn [1983] [see also Grenda et al. 1994], rather than communal territories with primary villages, as described by Mason and Peterson [1994b].) Use of the many Intermediate period site locations in the Ballona probably shifted seasonally and over the course of the Intermediate period. LAN-61, LAN-62, LAN-63, and LAN-64—the larger Lincoln Gap community (see above)—were perhaps the most intensively used locales, with LAN-63 serving as the ritual center for the community.

We conclude that a variant of the community model (Altschul et al. 2005) best describes Intermediate period settlement in the Ballona. Settlement was partly hierarchical, with seasonal camps and specialized resource-processing camps along Ballona and Centinela Creeks in the wetlands; clusters of small, semipermanent residential loci on the bluff tops, especially in the Lincoln Gap area; and a ritual center at LAN-63. However, no primary village was present. Furthermore, the Intermediate period settlement hierarchy appears to have been more a product of functional differences rather than differences in social status, as suggested by Grenda and Altschul (1994a, 1994b). Temporal factors must also be considered, because chronometric analysis has revealed that not all Intermediate period sites and components were contemporary and that some were occupied at different times over the 2,000-year span of the period. Finally, it is likely that LAN-63 only served as the ritual center of the community for a brief part of the Intermediate period. Thus, throughout most of the Intermediate period, there was no ceremonial center (as required by the Village model) in the Ballona community.

During the Late period, the Ballona was probably occupied once again only on a temporary basis, although LAN-47 and possibly LAN-62 may have been small, seasonal camps representing occupations that were more intensive and food-processing and maintenance activities that were more diverse than at sites representing the temporary camp model, but not on the scale of the Intermediate period residential sites. For example, although Late period middens, particularly the midden at LAN-47, were denser and contained more-diverse remains than middens at Millingstone period sites, they still reflected a focus on lagoon resources and contained little evidence of the exploitation of terrestrial and pelagic resources. Small numbers of burials were present in a pattern similar to that of the Intermediate period, but no evidence of Late period mourning features was found. On the whole, it appears that much of the population that had occupied the Ballona during the Intermediate period may have left for other areas, with a few returning seasonally to exploit the lagoon.

The Protohistoric through Mission period occupation of the Ballona was of an entirely different character. At first glance, LAN-62 appeared to meet all of the criteria of a village, as defined by Galdikas-Brindamour (1970:130–131). It contained a large, well-defined burial ground with hundreds of individuals representing both sexes and all age groups. Social differentiation was clearly present, at least by the late Mission period (see Chapter 6, this volume), and nonsubsistence activities were indicated by the presence of the burial ground and adjacent mourning-ceremony area. But a closer inspection revealed no evidence of architecture, and the abundant subsistence remains and food-processing and storage features that were found were dated to earlier times. Thus, there was little to suggest that LAN-62 actually served as a locus of residential activities during the Protohistoric through Mission periods; rather, it was a ceremonial locus. The ephemeral evidence of use of LAN-61 and LAN-63 during the Protohistoric through Mission periods indicated that they also were not residential loci during that time period, either.

By contrast, LAN-211, located upstream along Centinela Creek, exhibited substantial evidence of intensive occupation during the Protohistoric through Mission periods. Again, however, clear evidence of architecture was lacking, although the presence of houses was inferred from the distribution of cairns and hearths in FB 1, as well as the presence of burned daub. Other, similar residential loci may have been present in uninvestigated portions of FB 1 and LAN-211 (much of this site was destroyed prior to our investigations), but like its Intermediate period predecessor, LAN-63, LAN-211 was probably never occupied by more than a few families. Although a substantial midden was present, suggesting an intensive, if not year-round occupation, LAN-211 lacked the structure and architectural diversity that Gamble (1991, 1995) (see also Gamble and Russell 2002) associated with villages. Much of the midden may have been a product of the area's use in relation to feasting activities associated with the burial ground at LAN-62 (see Chapter 6, this volume). The site also lacked a well-defined burial ground, although a few scattered burials were found.

Thus, Mission period settlement structure in the Ballona consisted of a small, intensively used residential locus; a large, isolated burial ground; and a widely dispersed, ephemeral use area. That evidence did not fit the village (as described in the Village model) that we might have expected Guaspet to have been, based on mission records; the hierarchically structured *ranchería* models of Grenda and Altschul (1994a, 1994b) and Mason and Peterson (1994b); or the functionally differentiated community pattern we have identified for the Intermediate period. The hierarchically structured models developed by Grenda and Altschul and Mason and Peterson proposed the presence of a primary village associated with smaller, dispersed settlements; social stratification; and reduced settlement mobility. According to Grenda and Altschul (1994a, 1994b), the primary village was situated to control the richest resource areas in a territory and was occupied by the richest and most-powerful families, whereas outlying settlements were in resource-poor areas occupied by lower-status people. The Protohistoric and Mission period pattern in the Ballona supports a model of reduced settlement mobility, but the absence of both a primary village and associated outlying settlements belied a stratified settlement system. Furthermore, although LAN-62 was best situated to control the richest and perhaps the greatest diversity of resource areas, it was a mortuary-ritual area, and residence was concentrated at LAN-211, at a much greater distance from the lagoon.

Without evidence of a primary village, we are faced with explaining where the hundreds of individuals placed in the burial ground at LAN-62 lived. We believe that at least 174 of those individuals were buried in the brief time span between the establishment of Mission San Gabriel in 1771 and the beginning of the terminal Mission period—a span of two generations (see Chapter 6, this volume). That number is far in excess of the small residential group believed to have been present at LAN-211. Another insight into the residential population of the Ballona was provided by mission records (see Chapter 8, this volume), which suggested that as many as 90 or so individuals were affiliated with Guaspet, a number that is consistent with ethnohistoric estimates of Gabrielino/Tongva village size (Bean and Smith 1978:540). However, only some of those individuals—the gentile parents of neophytes—may have been buried at LAN-62. Again, that number is too small to account for the Mission period burial population at this site.

Others faced a similar conundrum in explaining the source of burials in the equally large burial ground at Medea Creek in the Santa Monica Mountains. The residential area of that site (LAN-243) has also been characterized as "too small" for the large number of burials found in the nearby burial ground (Dillon and Boxt 1989:161). Linda King (1982) likened Medea Creek to a necropolis that included individuals from many settlements in the mountains and even from the coast (two individuals were buried with plank-canoe remains).

The evidence suggests that we must alter our concept of Protohistoric through Mission period settlements along the Southern California Bight. Settlements that qualify as true "villages" were probably relatively rare, and many of the place names identified by Spanish explorers and Mission records represented much smaller settlements that, at best, can be characterized only as the smaller *rancherías* described by Hudson and Blackburn (1983). Residence was probably much more mobile than expected for true villages, and the huts built in those settlements were most likely very ephemeral, leaving few archaeological traces. The presence of large burial grounds may be the best archaeological indicator of these *rancherías*.

It is in this manner that we must understand the ethnohistoric community of Guaspet. There probably never was a population aggregation in the Ballona that we would characterize as a village (Grenda et al. 1994). LAN-62 was the burial and ritual center of the *ranchería* or community known as Guaspet, whereas LAN-211 may have been its residential center. The extremely dense midden and numerous hearths found in FB 1 at LAN-211, however, is suggestive more of feasting than of residence. Only a relatively small permanent population actually may have occupied the site. Much of the population of Guaspet probably ranged throughout the Ballona and adjacent areas, never establishing permanent residence in any particular location. In fact, many of those people may have inhabited or used other lagoons or inland areas temporarily, returning to the Ballona to bury or mourn their dead. At such times and perhaps for other important ceremonial events, large groups may have assembled in the Ballona to participate in communal feasts at LAN-211 or adjacent to the burial ground itself. In that scenario, the Ballona may have been occupied by a small, relatively permanent residential group—possibly mortuary specialists—but used by a much larger group with kin or affinal ties who claimed affiliation with or descent from Guaspet.

In Chapter 2, this volume, we proposed the concept of persistent places (Schlanger 1992) as an alternative perspective for understanding this pattern of changing land use. As in other persistent places, use of the Ballona changed functionally over time, with temporary use for resource procurement during the Millingstone period, perhaps the most intensive and widespread occupation during the Intermediate period, and very limited occupation during the Late period. Although residence may have expanded in the Protohistoric through Mission periods, the Ballona, especially LAN-62—the longest-occupied site in the area—may have evolved by that time into a sacred place and burial ground used by the residents of Guaspet and other related settlements. We suggest that LAN-62, and perhaps the Ballona as a whole, was a persistent place in the larger Gabrielino/Tongva landscape. People visited the Ballona for thousands of years, exploiting its rich wetland and terrestrial resources on periodic and seasonal bases, and they created palimpsests of archaeological deposits representing, probably, hundreds of short-term camps, as they visited the Ballona and exploited its shellfish, waterfowl, fish, mammals, and plant resources. During at least one brief episode during the Intermediate period, they established more-substantial, semipermanent settlements. By the Late period, however, the Ballona had been largely abandoned. When they returned at the end of the period, occupation of the area had changed dramatically, and the area had apparently become used primarily as a burial ground. The small population that may have resided at LAN-211 could not have been the sole source of all the individuals in the burial ground. Rather, we conjecture that people with ancestral connections to the Ballona came to bury their relatives in what they may have considered their ancestral homeland. The mass of burials found in the Mission period burial ground at LAN-62 was not the product of the deaths of individuals from a large residential population but, instead, individuals gathered from a much larger area than the Ballona. From that vantage, social memory and local history played a role in Protohistoric through Mission period use of the Ballona that was equal to, if not more important than, the role of its physical resources.

It is important to recognize that not all areas of coastal southern California experienced the same settlement histories. For example, as we described above, the Intermediate period in the Newport Bay region experienced a settlement nadir during the Intermediate period, precisely when settlement peaked in the Ballona. Furthermore, the Ballona was largely abandoned during the Late period, when settlement expanded in Newport Bay. We can only speculate, but the cyclical floods and droughts of the Late period might have been times when the Los Angeles River shifted its course from the Ballona to San Pedro Bay and when people left the Ballona for other areas. That is not to say that they moved to San Pedro or Newport Bay but, rather, that settlement was highly mobile throughout prehistory and shifted as different territories experienced different environmental changes. Although the entire region experienced similar climatic conditions, individual estuaries had different life histories. Shifts in the major rivers feeding each of the estuaries were apparently common phenomena that would have enhanced conditions in one estuary while leaving another high and dry.

Thus, it is unlikely that Guaspet, the place somewhere in or near the Ballona that many neophytes called their place of origin, was a village. The Mission period component at LAN-211 is perhaps the best candidate in the Ballona for the location of Guaspet. However, at best, LAN-211 housed only a handful of families along the banks of Centinela Creek (Figure 67). Other small, temporary camps may have been

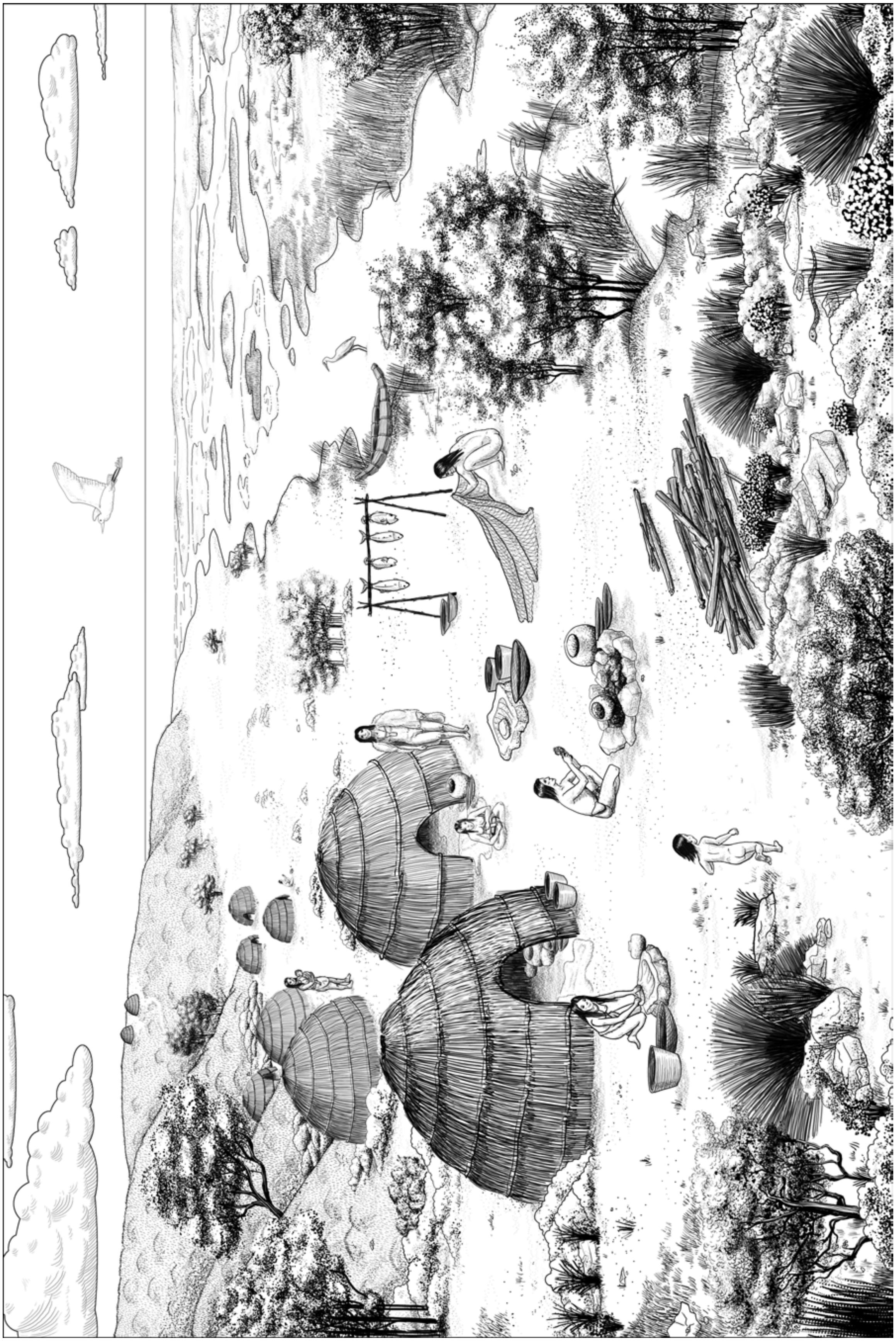

Figure 67. Artist's reconstruction of the Mission period settlement of Guaspet.

present at LAN-61 and LAN-63 on the bluff tops, as well as at LAN-193 and LAN-2768 along upper Centinela Creek, and even at LAN-62. Together, these settlements may represent the Rancheria of Guaspet, reflecting a dispersed settlement system, as opposed to an aggregated village. Nevertheless, that dispersed settlement was still of insufficient size to have supplied the more than 180 Mission period burials at LAN-62. Rather, the feasting complex at LAN-211 and the mortuary complex at LAN-62 attracted people from far and wide who had once resided in the Ballona or who claimed ancestors who had resided there or used its resources. Such a scenario is not unique to the Ballona. As indicated above, a similar situation was apparent at Medea Creek. Although a number of settlements occurred in the vicinity of Medea Creek, none was of sufficient size to have supplied the large population of the burial ground (Dillon and Boxt 1989:161; L. King 1982:140). It has been conjectured that the burial ground at Medea Creek was used by people from the surrounding area, including Humaliwo.

The Mission period settlement pattern in the Ballona and Medea Creek areas suggests a concept of settlement that is entirely different from the villages described in ethnohistorical accounts (see also Dillon and Boxt 1989; Raab 1993). We must eschew the shackles of ethnohistorical and ethnographic analogy and accept the possibility that Gabrielino/Tongva settlement was much more mobile and transitory than we had anticipated. In defining individuals' places of origin, large, permanent settlements were rare, and social memories and connections to places like the Ballona were probably more important than residence at a particular location.

Balancing the Diet: Subsistence Practices in the Ballona, Coastal Southern California

Seetha N. Reddy, Justin Lev-Tov, Sarah Van Galder, and Richard Ciolek-Torello

Introduction

Issues related to change in the subsistence of coastal Native Californians are hotly debated and widely discussed in the California literature (e.g., Arnold 1992a, 1992b; Basgall 1987; Bettinger 2009; Bettinger and Wohlgemuth 2006; Broughton 1994a, 1994b, 1997, 2004; Broughton and Bayham 2003; Eerkens and Rosenthal 2005; Erlandson 1991a, 1991b; Glassow 1996; Hildebrandt and McGuire 2002; Hildebrandt et al. 2009; Jones 1991; Jones, Fitzgerald, and Porcasi 2008; Jones, Kennett, et al. 2008; Jones, Porcasi, et al. 2008; Kennett 2005; McGuire and Hildebrandt 2005; Porcasi et al. 2000; Raab, Bradford, et al. 1995; Raab, Porcasi, et al. 1995; Whitaker 2009; Wohlgemuth 1996). The main themes and arguments under debate are maritime adaptations, large-mammal exploitation, and acorn vs. small-seed exploitation. In many of the discussions, researchers have disproportionately focused on data from central coastal California, the North Coast, and the Channel Islands at the expense of coastal southern California. This is primarily because more high-resolution subsistence data (faunal and botanical remains) are available from central and northern California than from the southern regions.

Nonetheless, there have been important subsistence studies in southern California, prior to the PVAHP, that have provided valuable data and addressed regional issues (e.g., Altschul, Homburg, and Ciolek-Torrello 1992; Byrd and Reddy 1999, 2002; Gallegos 1987, 2002; Gallegos and Kyle 1998; Reddy 1999, 2009; Vanderpot et al. 1993). PVAHP subsistence data complement those previous studies, provide an unprecedented wealth of new data, and offer important new insights and rigorous data analysis for studying subsistence issues along the California coast throughout prehistory and the early Historical period. In this chapter, we discuss the major research issues that have pancultural implications, including coastal adaptation, mammal exploitation, and trends in plant use during the prehistoric and Mission periods.

Settlement and Environment

The environmental reconstruction developed by Jeffrey Homburg and an interdisciplinary team of geoscientists (see Volume 1 of this series) revealed that the Ballona was an open marine coast at the end of the Pleistocene (see also Chapter 2 in this volume). By 7000 cal b.p., sea levels were 10–15 m below current levels, and the shoreline was at least 500 m farther offshore. At times, the Los Angeles River cut into the Westchester Bluffs, substantially increasing the flow of freshwater into the Ballona and leaving marshy, vegetated areas along the eastern and southern portions of the bay. Drainage off the bluffs also cut side canyons, depositing sand and sediment in alluvial fans that created well-drained land surfaces at the edge of the marsh. One of the most pronounced of those side canyons, termed the Lincoln Gap, had begun to form by 7000 cal b.p.

The Ballona area contained many different habitats that provided a great variety of resources for its prehistoric inhabitants. For our purposes, we have divided the Ballona into two broad areas. Below the Westchester Bluffs were the lowlands with lagoons, mudflats, freshwater and saltwater marshes, riparian areas, and the surrounding coastal plain. On top of the bluffs was an extensive coastal prairie that at one time contained numerous vernal pools.

Wigand (see Chapter 9 in Volume 3 of this series) used regional pollen data to argue for a dramatic increase in both annual temperature and precipitation between 8000 and 7000 cal b.p. (see also Volume 1 of this series). This climatic event resulted in the creation of a rich marsh at the base of the bluffs and, as determined from radiocarbon dates, the appearance of humans in the Ballona during that time. That early Millingstone occupation reflected the estuary and bay-shore adaptation common in the early Holocene in coastal California and was focused on the bluff tops above and west of the Lincoln Gap. Midden deposits were sparse, lacked diversity, and suggested a small and highly mobile foraging population that occupied the Ballona on a short-term, seasonal basis.

By 5000 cal b.p., the rise in sea level had slowed markedly, and a barrier was forming across the mouth of the coastal inlet leading to the creation of Ballona Bay. Subsequent changes to the Ballona between 5000 and 4000 cal b.p. were largely driven by sedimentation that continued to decrease the amount of open water and to reestablish marshy areas in the wetlands. These open estuarine conditions would have been conducive to human settlement. Yet of the 181 radiocarbon dates obtained from 12 prehistoric sites in the Ballona, none dated to the period between 6000 and 5000 cal b.p. Currently, we have no good explanation for that hiatus. Several radiocarbon samples from the Heron Pointe Project on Landing Hill (to the south of the Ballona) in Orange County, taken from ORA-264, ORA-263, ORA-262, ORA-1472, and ORA-260, have yielded dates between 6000 and 5000 cal b.p.; the earliest occupation was around 5600 cal b.p. (Cleland et al. 2007). In other words, although areas to the south of the Ballona had human occupation during that time, there is no archaeological evidence of occupation in the Ballona between 6000 and 5000 cal b.p. The first occupation at Landing Hill was later than at other locations along the coast, such as ORA-64 along Newport Beach and ORA-83 at Bolsa Chica, among others (Cleland et al. 2007), which may indicate movement of population to the south. However, the impetus for such movement remains elusive. There was a dramatic decline in the effective precipitation throughout southern California after 5000 cal b.p., and at that time, the Ballona was resettled.

By the Intermediate period, beginning around 3000 cal b.p., settlement had increased on the bluff tops as well as in lowland areas, especially at upstream locations along Centinela and Ballona Creeks. Eleven of the 12 sites studied in the Ballona were occupied during the period. All well-drained landforms in the wetlands and bluff tops hosted sites at that time. Unlike those of the Millingstone period, however, Intermediate period sites were relatively large and contained hundreds of features, including thermal features, mortuary features, and houses, suggesting the presence of much larger and more intensively occupied settlements. A peak of occupation between 2600 and 2000 cal b.p. coincided with a huge spike in precipitation that followed a long period of declining precipitation. Wigand (see Chapter 9 in Volume 3 of this series) suggested that the dramatic increase in rainfall during that brief period would have resulted in peak productivity for the resources in both the Ballona wetlands and the surrounding coastal prairie. The freshwater and saltwater marshes and tidal flats of the estuary probably were also at their peaks of development during the Intermediate period.

By 1000 cal b.p., settlement changed fundamentally. As the lagoon became a sediment-choked estuary, the bluff tops and most areas of the wetlands were abandoned, and there appears to have been a return to a pattern of small, residentially mobile groups exploiting the mudflats around the lagoon and the surrounding coastal plain. Around 2000 cal b.p., nearly every habitable location on the bluff tops and along Centinela Creek hosted human activity. Less than a thousand years later, nearly all occupation was concentrated along the lagoon edge and near the mouth of Centinela Creek. Why did settlement change so dramatically between 2000 and 1000 cal b.p.? Wigand's paleoenvironmental reconstruction suggests that by 1000 cal b.p., there was a return to drier conditions regionally, there was less precipitation annually, and there were cyclical episodes of wet climate alternating with extreme drought. Those deteriorating conditions would have severely impacted the vernal pools and reduced the freshwater and terrestrial resources of the coastal prairie. Although such speculation may be deterministic, we can only speculate that the adverse environmental conditions at the beginning of the Late period may have been exacerbated by a shift in the flow of the Los Angeles River away from the Ballona, leaving the wetlands without their most important source of freshwater. There was a similar pattern of population decline during the Late period to the south of the Ballona. For example, in Orange County, at Landing Hill and Bolsa Chica Bay, there was a decline in prehistoric occupation of coastal wetlands that was most likely because of the siltation of the lagoon and the degradation of resource habitats (Cleland et al. 2007; Koerper, Mason, and Peterson 2002). In contrast, there was a resurgence of occupation in some inland areas, such as the San Joaquin Hills (Koerper, Mason, and Peterson 2002:73; Mason and Peterson 1994b). Again, although our speculation may be deterministic, the coastal plains (such as Ballona, Bolsa Chica, and Landing Hill) became less desirable as habitation areas during the Late period because of siltation and the consequently reduced productivity, which may have influenced settlement reorientation. It should be noted, however, that based on the data from ORA-262 (Cleland et al. 2007), Alamitos Bay may have remained relatively productive during that time.

A resurgence of settlement in the Ballona near the end of the prehistoric period may have been associated with the return of the Los Angeles River to the Ballona, because when the Spanish arrived, they found it flowing into Santa Monica Bay through Ballona Creek. The Los Angeles River would have revitalized the wetlands, but by that time, the open embayment of the Millingstone period had evolved into a silt-laden bay.

Coastal Adaptation: Maritime vs. Littoral Adaptation

The character and longevity of maritime adaptations are major topics in California archaeology. Overall, it is rare for authors to define what they mean by the terms "maritime adaptation" and "littoral adaptation" (see Jones, Porcasi, et al. 2008:292). The difference in these two adaptations, however, has implications for social organization, logistical planning, and—most importantly—the subsistence system. For example, deep-sea fishing necessitates oceangoing technology, and the construction, maintenance, and use of seafaring boats necessitate a certain level of social organization, labor, and resource surplus (Gould 1975; Hildebrandt and Levulett 1997). Given the significant implications of these two adaptations, it is imperative that scholars be able to quantify the characteristics of each.

Therefore, it is somewhat surprising that there has been sparse discussion in the literature of what exactly constitutes a littoral adaptation as opposed to a maritime one. What discussion does exist has been centered on the Channel Islands and the coast of the central California mainland. For example, Kroeber (1925:550) noted that the Chumash were "nearly [more] maritime in their habits than any other California group." This implies that in Kroeber's eyes, at least at the time of European contact, there were no "purely" or "fully" maritime-adapted peoples in California. Yet archaeologists commonly use the term "maritime adaptation" to refer to the diets of prehistoric peoples living along the coast. What has remained elusive is a definition of a maritime diet: what kinds of animals, and in what relative proportions, qualify a diet as maritime? And what technologies, such as seafaring boats and fishing tackle, were employed in that adaptation? Erlandson (1991b, 1994) considered the problem by defining and ranking the component portions of shell-midden dietary refuse. He argued that abundant quantities of both shellfish and finfish (a term that excludes groups like sharks and rays) should be the hallmarks of a maritime diet. However, Erlandson (1994:13) admitted that those interpretations were specifically geared toward studying shell middens of the Channel Islands, and mainland Chumash adaptations may have differed in kind and/or degree (Erlandson, Rick, and Vellanoweth 2008). Meighan (1989) argued that during the Millingstone period, coastal mainland groups primarily consumed plant foods, made little effort to collect shellfish, and in general were not constant and active pursuers of maritime animals, whether finfish or marine mammals. Koerper (1981), discussing ORA-64, in Orange County, proposed that there was a relative lack of interest in maritime foods despite the coastal location: the dietary contribution of vertebrates (both terrestrial and aquatic) outweighed that of shellfish. Erlandson's view in the early 1990s was that the dietary contribution of shellfish had been consistently underestimated; on the basis of his meat-weight analyses, he argued that shellfish made up 60–95 percent of consumed meat during the Millingstone period at mainland sites in the Santa Barbara area. He suggested that marine resources in general (including shellfish and finfish) accounted for 75–97 percent of Millingstone period diets (Erlandson 1991b, 1994) and proposed such a dietary regimen for the entire southern and central California coast, including the islands.

Other researchers, such as Colten (1992), Glassow (1992), and Salls (1991), have implied definitions of maritime adaptation similar to Erlandson's (1991b, 1994). Salls (1991) and Colten (1992) adhered to Erlandson's insistence on the primacy of fish and shellfish in maritime adaptations; however, Colten (1992) also implied that truly maritime subsistence regimens should also feature offshore species. Colten's review of faunal remains from the Goleta area near Santa Barbara is particularly relevant to the PVAHP, given that the sites are situated in and around a mainland estuary. Colten (1992) emphasized the recovery of offshore species, such as kelpfish, sheephead, and soupfin shark (*Galeorhinus galeus*), from SBA-142, even though they were minor components in comparison to the estuarine fish. Colten (1992) asserted that the pursuit of offshore species was an expensive endeavor, in terms of labor investment, but that such fishing strategies were key to the recognition and development of a relatively late maritime adaptation. According to Colten (1992), the surrounding and contemporary sites in the Goleta area had similar faunal assemblages and therefore shared a regional maritime adaptation during the Millingstone period. The early Millingstone assemblage from VEN-1, farther south along the coast, appeared to represent a largely maritime economy, as determined from a great preponderance of fish bone (42 percent) in the faunal remains, followed by almost equal proportions of sea mammals (14 percent) and terrestrial mammals (16.5 percent) (Dallas 2004:158).

Though not in disagreement with Colten's (1992) and Erlandson's (1994) considerations of maritime adaptations, Glassow (1992) described a broader dietary composition for a maritime adaptation, based on his work at Vandenberg Air Force Base, in the Santa Barbara region. Glassow (1992:117, 120, 123) argued that after 8000 cal b.p., terrestrial mammals probably were not as important, because shellfish had become the single-most-important taxonomic category for meat. At the same time, elk (an artiodactyl), as well as a large variety of birds, were also hunted. Thus, we think even if shellfish were indeed the principal source of meat at the time, and finfish as well as sea mammals added to that marine aspect, terrestrial resources like elk, rabbits, and birds should not be dismissed as unimportant dietary components. Such an inclusive diet would make the subsistence economy of the area mixed, rather than particularly maritime, in orientation.

From the perspective of the islands, Raab (2009b) argued for a maritime adaptation that emphasized the hunting of sea mammals, especially ones that had to be pursued in open waters, like dolphins. In that model, shellfish harvesting as a maritime economic feature is less important, because shellfish require little technology, gender-role development, or social complexity. Erlandson et al. (2009) recently changed their stance and became more aligned with Raab (2009b), suggesting that the primacy of shellfish harvesting as a defining feature of marine diets was overemphasized in their earlier view. What they have advocated most recently is a broader definition of a marine diet that includes a dietary strategy shaped by logistical residential movements of the population. Their data, based on Channel Islands excavations, have demonstrated combined foci on fishing, hunting of sea mammals (including dolphins), and collecting shellfish, especially the larger species. The change in stance concerning prehistoric hunting was not entirely based on faunal remains; the authors integrated types of stone tools into their analysis, suggesting that the tools were especially designed for attacking pinnipeds in rookeries (Erlandson et al. 2009).

The issue of pinniped exploitation is an intriguing facet in the debate of maritime vs. littoral adaptation. Pinnipeds include seals (Phocidae), harbor seals (*Phoca vitulina*), walruses (*Odobenus rosmarus*), and sea lions (Otariidae). Although some pinnipeds were captured on open ocean waters through use of watercraft, pinnipeds typically were harvested on beaches; the hunter(s) snuck up on the animals on shore and either clubbed them or hunted them with spears or arrows (Hildebrandt and Jones 1992; Porcasi and Fujita 2000; Whitaker and Hildebrandt 2011). In the latter method, there was low labor investment, and typically, the returns were high and did not necessitate seafaring technology. Therefore, the question is whether pinniped exploitation by prehistoric coastal populations is necessarily indicative of maritime adaptation. If cetaceans (such as dolphins [Delphinidae], porpoises [Phocoenidae], and whales [Cetacea]) are represented in the collection, then the presence of seafaring technology (or, in some cases, possibly scavenging along the shoreline) is suggested.

Although Erlandson (1994) initially emphasized shellfish as key to and, indeed, an overwhelmingly important component of marine diets, he more recently deemphasized shellfish in favor of a diverse dietary model (Erlandson et al. 2009). In that view, shellfish, with the possible exception of abalone (*Haliotis* spp.) and other species that require diving for collection, should be seen as components of both littoral and maritime adaptations. Archaeologists working on the Channel Islands have discussed abalone in terms of change over time in average shell sizes and species frequencies (e.g., Kennett 2005; Martz et al. 1995). In her argument in favor of a maritime subsistence for the Chumash, Gamble (2008:154) used data reported by Erlandson, Rick, and Vellanoweth (2008) as a baseline for a maritime subsistence profile for the Chumash living on the mainland near Santa Barbara in the late prehistoric period. That profile was made up principally of marine and land mammals (40 and 30 percent, respectively), in addition to 25 percent fish and 3 percent shellfish; those percentages were based on weight (although the number of identified specimens percentages were not very different [Erlandson, Rick, and Vellonoweth 2008:165–169]).

As demonstrated by Erlandson, Rick, and Vellonoweth (2008) for SBA-72, baseline expectations can be established for maritime foragers. If Gamble's (2008) percentages were what should be expected for a mainland maritime-foraging economy of the late prehistoric period, what should we expect for those dating to the early or middle Holocene? For the early Holocene, Erlandson (1994:277) presented data from several sites in Santa Barbara County that suggested, on the basis of "protein yield and other sources," that shellfish were the most important component of the diet (approximately 77 percent), followed by fish (12 percent), terrestrial vertebrates (11 percent), and sea mammals (less than 1 percent). That is quite different from the maritime profile later published for the late Holocene (Erlandson 2002b). The late Holocene data set suggests that in the late prehistoric period, the Santa Barbara area hosted human populations that emphasized finfish (56 percent), followed by birds (18 percent), sea mammals (15 percent), and shellfish (10 percent). In other words, Erlandson's (1994) early Holocene faunal data did not reflect a maritime strategy but a strategy more akin to what we identify as a littoral adaptation (see below), with a small maritime component evident from the recovery of fish.

Jones, Porcasi, et al. (2008) presented faunal evidence from Diablo Canyon, with data from Millingstone, Middle (roughly equivalent to the Intermediate period in the Ballona area), and Late period occupations, and they suggested that maritime orientations changed over time. The early and late Millingstone period collections, both consisting of small samples (NISP = 80 for the early Millingstone period and 787 for the late Millingstone period), contained few to no sea mammals but had relatively similar proportions of terrestrial-mammal (34 percent) and fish (approximately 46 percent) bones. The Middle period component at the site was quite different; the importance of terrestrial mammals declined to less than 20 percent, whereas fish remains dominated the sample, accounting for 70 percent, and fishhooks made of shell appeared for the first time. Marine mammals also were first incorporated into the populations' diets in significant numbers at that time, although they accounted for only 7 percent of identifiable bones. The Late period component in Diablo Canyon seems to have been an outgrowth from the Middle period and appears to have resulted from an increase in population size (Jones, Porcasi, et al. 2008:308). The observed dietary changes between the Middle and Late periods were slight: a 2 percent increase in the relative abundance of fish, the same percentage of increase for sea mammals, and slightly lower percentages for terrestrial mammals and marine birds.

Despite the increased evidence of marine exploitation over time, Jones, Porcasi, et al. (2008:311) argued that the initial Millingstone period coastal adaptation at Diablo Canyon involved "a wide range of terrestrial and marine foods including deer, marine birds (especially the extinct flightless duck), rabbits, open-coast shellfish, and fish." They further argued that the adaptive pattern "almost certainly involved the use of watercraft" and that the site's earliest inhabitants "had already invested in development of watercraft" (Jones, Porcasi, et al. 2008:311). There was little to suggest, however, that the faunal and artifact assemblages from the earliest components at the site represented a well-developed maritime adaptation. Although rockfish (*Sebastes* spp.) and cabezon (*Scorpaenichthys marmoratus*), which probably were caught with hook and line, were the most abundant fish remains throughout the site's occupation (Jones, Porcasi, et al. 2008:302), fish bones did not dominate the assemblage to the same extent as in the Middle and Late period components at the site. Mammal bone, especially deer bone, constituted a major proportion of the faunal assemblage from the late Millingstone period to the Late period. Furthermore, few deep-sea fish were present anywhere in the faunal collection from Diablo Canyon, and the marine mammals present were pinnipeds and sea otters that could have been hunted on the open coastline. By their own calculations, the only food source that might have required the use of watercraft was Canada goose (*Branta canadensis*), which was not a significant component of the faunal collection from the site (Jones, Porcasi, et al. 2008:Table 13). Thus, their claim for the early use of watercraft at the site is not supported, and there is little reason to believe that watercraft was even necessary during the Middle and Late period occupations.

Hildebrandt and Carpenter (2006:285) asserted that maritime cultures in California were limited to the Chumash and the Gabrielino/Tongva along the Santa Barbara Channel and the Tolowa and the Turok on the North Coast. They also stated that the mainland Chumash and Gabrielino/Tongva depended largely on ocean fishing and hunting (Hildebrandt and Carpenter 2006:285), but they were not clear about whether that was true only during the Protohistoric and Historical periods or it extended to earlier periods. Gamble (2008) and Gamble and Russell (2002) argued that there was no evidence of plank canoes (or maritime subsistence) among the mainland Gabrielino/Tongva until the Historical period, and that is corroborated by the PVAHP data (see Chapter 15 in Volume 3 of this series). Therefore, Hildebrandt and Carpenter's (2006) argument that the mainland Gabrielino/Tongva were maritime and depended largely on ocean fishing and hunting should be refined to include only the Historical period populations on the mainland; however, the Gabrielino/Tongva populations on the southern Channel Islands were maritime groups from early on.

Although the above discussion does not present a specific definition of a maritime adaptation, we present the following nonquantifiable dietary features as hallmarks of a maritime adaptation: significant investment in hunting sea mammals and large deep-sea fish, a diverse array of maritime resources that extended from estuarine to open-water organisms, and a shift over time toward a greater emphasis on finfish, whether accompanied by a change in the importance of sea mammals or not. Following Colten (1992), we argue also that if a subsistence strategy was maritime rather than littoral, there should be more than occasional evidence of the exploitation of offshore species, whether they were deepwater sharks, cetaceans, or large finfish. Finally, we argue that the use of watercraft and other specialized technologies, such as the shell fishhook, were essential to a true maritime adaptation along the southern California coast.

From the foregoing summaries and implied definitions of maritime economies, we suggest that a maritime subsistence economy in southern California should have produced a nutritional profile in which, initially, most animal protein was derived from sea mammals, with an increase through time in the contribution of finfish. A large portion of those finfish would have been pelagic fish taken in open waters, although some of them could have been schooling species that were captured nearshore. Along with increasing nutritional gains from finfish, there should have been, over time, a concomitant decrease in the importance of shellfish, as well as a steady terrestrial-mammal component. Avifauna, especially marine birds, also should have constituted an important part of the collection (Jones, Porcasi, et al. 2008:307).

In addition to faunal evidence, detecting a true maritime economy along the Southern California Bight requires evidence of technological adaptations. Boats, especially the *tomol* (sewn-plank canoe), and shell fishhooks have long been considered specialized technological attributes of a maritime adaptation in this region. Although a variety of simple boats may have been available to early inhabitants of the coast (Fauvelle 2011), the development of the *tomol* at the end of the Intermediate period has been considered "the pivotal technology," because it "permitted open-ocean fishing of aggressive, large-bodied species such as swordfish and several varieties of tuna" and "facilitated the transport of hefty sea mammals after their capture" (Arnold and Walsh 2010:113). Replicative experiments have shown that the shell fishhook was most effective in capturing bottom-feeding fish, like those found in kelp beds and along rocky shorelines, rather than surface and schooling fish, such as bonito (Scombridae), yellowtail (*Seriola* spp.), and tuna (Scombridae) (Strudwick 1986:133–135) (but see Chapter 3 in Volume 3 of this series). The shell fishhook has greater antiquity than the *tomol*, and smaller and less-effective watercraft were undoubtedly available to the people of the Millingstone and Intermediate periods. Strudwick (1986:270, 278) suggested that the shell fishhook was known to the inhabitants of the California coast as early as 4500 b.p., if not earlier, and may have derived from the northern Channel Islands. Shell fishhooks, however, are most abundant in the Santa Barbara Channel area, especially the islands, and are relatively rare at mainland sites.

We distinguish this type of maritime adaptation, which has been generally attributed to populations along the Southern California Bight, from littoral adaptation; the latter focuses more on the terrestrial resources of the coast and the aquatic resources of coastal estuaries and open coastlines. The two types of adaptations—maritime and littoral—share an emphasis on aquatic resources such as shellfish, finfish, sea mammals, and waterfowl. However, in the littoral adaptation, unlike the maritime adaptation, terrestrial mammals dominated the vertebrate faunal remains, and sea mammals and finfish, especially pelagic species, constituted only a small part of the faunal assemblage. The technological hallmarks of the maritime adaptation, the *tomol* and the shell fishhook, were also absent from the littoral adaptation, in which mainly nets and spears were used to collect shallow-water species.

The littoral adaptation found on the Southern California Bight can be likened to the lacustrine adaptation documented in the Great Basin. The estuaries of the Southern California Bight and vernal pools, like those that once flanked the Ballona wetlands, presented adaptive opportunities similar to those offered by the wetlands of the Great Basin, and similar technologies and subsistence practices could have been employed in both regions (Ciolek-Torrello and Douglass 2002). The Great Basin, best known for vast stretches of sagebrush and arid mountain ranges, also contains extensive wetlands (Kelly 1999:117). Although they constitute only a small percentage of the area of the Great Basin, they were critical to the survival of both prehistoric and Historical period Native American populations (Fowler and Fowler 1990). The use of wetlands by prehistoric hunter-gatherers was part of a regional land-use pattern that incorporated surrounding upland and desert habitats (Rhode 1990:107).

Like their coastal counterparts, Great Basin wetlands provided a host of plant resources, such as bulrushes, cattails (*Typha* spp.), and various marsh grasses, the roots, tubers, seeds, shoots, and pollen of which were exploited for food (Kelly 2001). In addition, the wetlands contained many waterfowl species and a variety of aquatic and terrestrial mammals that were important sources of food and pelts (Schmitt and Sharp 1990:91). Greenspan (1990:229) argued that freshwater fish from those wetlands were also an important dietary component throughout the Great Basin, although the populations living near the rich lacustrine basins of western Nevada showed the strongest reliance on fish in ethnographic times (see also Tuohy 1990). Caches found in caves in the nearby mountains contained numerous fishhooks, duck decoys, fishing lines, and nets that attest to the importance of fishing and of hunting waterfowl (Kelly 1999:140). Freshwater mussels, clams, and gastropods also were available, although their dietary role is generally considered to have been marginal (Drews 1990:63, 72). In contrast, upland areas were important sources of pinyon and big game, as well as stone for tools.

Although the wetlands were critical components of settlement and subsistence systems in the Great Basin, the importance of other resource areas varied from place to place, as well as through time. Near the Carson Desert at Walker Lake, for example, uplands near the lake were occupied primarily for short-term logistic foraging from residential bases located near the lake, whereas uplands farther from the lake were occupied on a longer-term residential basis (Rhode 1990:107). Weide (1968) originally proposed that lake edges and valley floors were the primary foci of settlement and subsistence in the Warner Valley of southeastern Oregon. More-recent evidence, however, indicated a pattern more like that at Walker Lake, in which a tethered strategy focused primarily on wetlands, and upland areas constituted a secondary focus (Cannon et al. 1990:179; Kelly 1999). A similar pattern was evident in the Lake Mohave area, in the Mojave Desert of California, during the early Holocene: upland resources were distant from the wetlands, and as a result, settlement was concentrated in the wetlands, and smaller, seasonal camps were used in the uplands.

The prehistoric adaptations of coastal estuaries, such as found in the Ballona, had much in common with those of Great Basin wetlands—with the caveat, of course, that the Ballona had an ocean and a wider resource base than the Great Basin's. In its early manifestation as an open lagoon, the Ballona would have presented opportunities to hunter-gatherers similar to those offered by the rich lacustrine areas of the Great Basin (Ciolek-Torrello and Douglass 2002). With economic activities limited largely to fishing, only temporary camps would be expected around the edge of the lagoon in the Ballona. As the lagoon developed, it came to resemble Great Basin wetlands, like Stillwater Marsh (note, however, that waterfowl were important at Stillwater Marsh but not as important in the Ballona). The presence of semipermanent villages on the bluff tops around the Ballona is better understood in light of the greater diversity of aquatic and terrestrial resources during the Intermediate period. The terrestrially oriented creek- and lagoon-edge camps of that time are not as easily explained. Perhaps most importantly, we must recognize that throughout much of its prehistory, the Ballona, like the Great Basin wetlands, was probably only one component of a much larger subsistence and settlement system.

Ballona Populations

The Ballona is a useful case study of the nature of coastal adaptations (maritime vs. littoral orientation) in southern California. The adaptations of the Ballona populations through time can be investigated by synthesizing the archaeological data recovered over the last 3 decades. Data were drawn from the five PVAHP sites with strong contexts (LAN-54, LAN-2768, LAN-211, LAN-62, and LAN-193) in addition to the previously excavated lowland sites of LAN-47 (Altschul, Homburg, and Ciolek-Torrello 1992; Dillon et al. 1988) and LAN-60 (Grenda et al. 1994) in the Ballona. Data from several sites on the Westchester Bluffs overlooking the Ballona marshlands were also incorporated, and those sites included LAN-59 (Van Horn 1984a); LAN-61a, LAN-61b, and LAN-61c (Van Horn and Murray 1985); and LAN-63 and LAN-64 (Douglass et al. 2005; Van Horn 1987). (Note that data from LAN-206 were not included because of limited data collection at the site). Trends in these data are summarized to address three issues regarding vertebrate and invertebrate exploitation that inform on coastal adaptation through time: (1) effects of the MCA on hunting, (2) fishing and shellfish harvesting in the region, and (3) changes in large-mammal hunting.

There was considerable conservatism in subsistence practices in the Ballona over an 8,000-year span. In terms of vertebrate and invertebrate fauna, the principal trend through time was one of stability in diet rather than change (Table 12). For the most part, the types of animal foods most often consumed by native populations remained largely similar in terms of relative importance from the Millingstone period (starting ca. 8500 cal b.p.) through the Mission period. The relatively small differences that we observed in the abundance of particular animal resources can be best explained by (1) the gradual evolution of the Ballona from an open embayment at the beginning of the Millingstone period to a sediment-choked estuary in the Historical period, (2) climatic fluctuations, and (3) shifts in the flow of the Los Angeles River.

Table 12. Distribution of Vertebrate Faunal Groups over Time in the Ballona

Category	Millingstone Period (%)	Intermediate Period (%)	Late Period (%)	Protohistoric through Mission Period (%)
Fishes	5.00	9.00	6.00	16.00
Birds	6.00	2.00	6.00	8.00
Reptiles	2.00	2.00	—	3.00
Sea mammals, among all identified vertebrates	0.04	0.03	0.10	0.10
Pelagic sea mammals, among sea mammals	—	73.00	—	19.00
Nearshore/pelagic sea mammals, among sea mammals	100.00	27.00	100.00	81.00
Terrestrial mammals, among identified vertebrates	87.00	84.00	86.00	72.00
Wetland terrestrial taxa (birds, reptiles, amphibians, and mammals)	1.00	1.00	5.00	0.10
Aquatic fauna (all fishes, all sea mammals, and waterfowl)	6.00	9.00	10.00	16.00

Note: Data are for identified vertebrates and do not include data from burials.

Table 13. Summary of Fish Remains from the Ballona, by Period

Category	Millingstone Period (%)	Intermediate Period (%)	Late Period (%)	Protohistoric through Mission Period (%)
Pelagic fishes[a]	16.0	42.0	14.0	3.0
Nearshore/estuarine fishes[a]	83.0	56.0	85.0	97.0
Freshwater/estuarine fishes[a]	1.0	—	1.0	0.2
All fishes, among vertebrates[b]	5.0	9.0	6.0	16.0

Note: Calculations do not include data from burials.
[a] Values are percentages among identified fishes.
[b] Values are percentages among identified and unidentified vertebrates.

Millingstone Period (6550–1050 cal B.C.)

The vertebrate collection for the Millingstone period in the Ballona was dominated by terrestrial mammals (86.7 percent); members of other vertebrate classes were found in low frequencies. Fish remains were rare, and they were represented primarily by nearshore/estuarine species (Table 13). Pelagic fish constituted less than 1 percent of all identified vertebrates (and 16 percent of all identified fish). Aquatic fauna accounted for less than 6 percent of all vertebrates from this period (see Table 12). The Ballona occupants during the Millingstone period targeted terrestrial mammals; sea mammals were represented by only two individuals associated with nearshore/pelagic habitats.

The most important shellfish during the Millingstone period, by both weight and count, was the venus clam (*Chione*), a shallow-water organism dwelling on sand and mud substrates that can also be found in bays. By weight, scallops (*Argopecten*) and Pismo clams (*Tivela*) were equally important; both were second to venus clams. In the bluff-top sites, venus clams were also the most numerous by count, followed by scallops; oysters were third. Interestingly, no Pismo clams were recovered from Millingstone deposits on the bluff tops. In contrast, Pismo clams made up 18 percent (by weight) of the shellfish collection from the lowland sites. Pismo clams were present in the highest frequencies in the Millingstone period and steadily decreased through time. Scallops, like venus clams, are adapted to soft substrates, shallow water, and bays. Oysters can be found either on rocks or on sandbars but also in bays. Pismo clams prefer open, sandy beaches—a habitat that would have steadily decreased as the Ballona evolved into a sediment-filled estuary.

Intermediate Period (1050 cal B.C.–cal A.D. 950)

Analysis of faunal collections from Intermediate period deposits has demonstrated a relative abundance of maritime and littoral fauna compared to the preceding Millingstone period and the subsequent Late period. Fish exploitation increased in the Intermediate period, relative to the Millingstone and Late period patterns (see Tables 12 and 13). In particular, procurement of

Table 14. Exploitation of Pelagic Animals and Other Nonterrestrial Resources during the Intermediate Period in the Ballona

Category	Bluff Tops (%)	Lowlands (%)
Pelagic fishes[a]	44.0	43.0
Nearshore/estuarine fishes[a]	56.0	57.0
Freshwater/estuarine fishes[a]	0.5	0.2
All fishes, among vertebrates[b]	24.0	6.0

Note: Calculations do not include data from burials.
[a] Values are percentages among identified fishes.
[b] Values are percentages among identified and unidentified vertebrates.

pelagic fish was at its height in the Ballona (accounting for 42.3 percent of all fish remains) during the Intermediate period. Sea mammals were present in percentages similar to those for the previous period; however, in the Intermediate period, they included and were dominated by pelagic sea mammals. Interestingly, those pelagic sea mammals were recovered primarily from the bluff-top sites. Overall, aquatic taxa accounted for 9.4 percent of the Intermediate period collection.

There were other distinctions between the Intermediate period collections from the bluff tops and those from the lowlands within the Ballona, specifically in terms of fish exploitation (Table 14). The collection from Intermediate period bluff-top sites had more fish remains (24.2 percent) than the lowlands collection (6.2 percent); however, the compositions of the (pelagic, nearshore/estuarine) fish collections were similar in the two areas. Collections from earlier excavations of bluff-top sites by Van Horn and Associates (Van Horn 1984a) suggested even greater importance of fish in the Intermediate period diet. In other words, bluff-top populations ate more fish (relative to other animals in their diet) than did lowland occupants. Similarly, invertebrates were much more abundant in the collections from bluff-top sites and were virtually absent from some of the lowland sites, such as LAN-193 and LAN-2768. In contrast, the diversity of faunal remains was greater in the Ballona lowlands (72 species) than on the bluff tops (15 species). Perhaps the vernal pools on the bluff tops (identified by Wigand [2005]) were not large enough to attract terrestrial animals or waterfowl.

Distance may not have been a determining factor in the relative lack of diversity in the bluff-top faunal collections, because many of those sites had higher proportions of fish bone and shellfish remains than did the lowland sites. In fact, many of the bluff-top sites were only a short distance from the lowlands (elevation 30.5 m [100 feet] above mean sea level), and some may actually have been closer to wetland resources than the more-inland lowland sites. Differences in site function may have been more important factors in the distribution of faunal remains during the Intermediate period. Some of the lowland sites, especially LAN-60, LAN-193, and LAN-2768, appear to have been specialized procurement and processing camps during the Intermediate period, whereas bluff-top sites like LAN-61a, LAN-61b, and LAN-63 were the primary residential areas during that time. In other words, there may have been a Lincoln Gap community in which all the sites on the bluff and LAN-62 represented a single community. In such a case, habitation sites would have been on the bluff top, and resource-procurement and -processing sites would have been in the lowlands. Fish caught in the lowlands would have been eaten and deposited at the bluff-top sites.

The use and importance of waterfowl remains unclear. Only 56 pieces of bird bone were recovered from SRI's excavations at LAN-63 and LAN-64 on the bluff tops. Of those, only 3 specimens could be identified more specifically, and 1 of them was a bone from a waterfowl. Although waterfowl constituted one-third of the identified birds, the sample size was too small to allow any firm conclusions. A larger, albeit still small, collection of bird bones (NISP = 249) was recovered by Van Horn (1987) during his earlier investigations at LAN-63. All were identified as waterfowl (Colby 1987a, 1987b), suggesting that waterfowl may have been the primary component of bird exploitation at the bluff-top sites.

Overall, bird remains were a small part of both SRI's and Van Horn's faunal collections from LAN-63 and LAN-64. Much more substantial evidence of waterfowl was obtained during investigations by Van Horn and Associates from LAN-61a and LAN-61b, located along the bluff tops, overlooking LAN-62. In her 1989 study, Brown (1989:21) reported an NISP of 2,316 bird bones, of which 1,281 could be identified to more-specific taxa. Of those, all but 8 were from waterfowl. Waterfowl also constituted most of the large collection of avifauna (waterfowl NISP = 653; identifiable NISP = 675; total NISP = 821) from LAN-59, a terminal Intermediate period site located at the eastern end of the bluff tops (Brown 1989). Unfortunately, Brown did not report the total number of vertebrate remains identified at those sites. In an earlier study, Brown and Smith (1985) reported a much smaller collection of bird bone (NISP = 388) from LAN-61a and LAN-61b that constituted about 1.1 percent of the vertebrate fauna—figures more similar to those from LAN-63 and LAN-64. That earlier study, however, may have been preliminary and may not have included the entire collection (Brown 1989:1). Thus, although the frequency of waterfowl was very high at those sites, we were unable to calculate the importance of waterfowl relative to other vertebrate fauna. Regardless of these problems, waterfowl appear to have been an important part of the economy of these bluff-top sites. Brown (1989), however, suggested that birds were collected more for their plumage than for subsistence purposes (but see Fenenga 1990). Regardless of their use, waterfowl probably were of much greater importance to the Intermediate period economy than is suggested by the PVAHP collection alone.

The recovery of pelagic fish and pelagic sea mammals from Intermediate period deposits in the Ballona suggests that the inhabitants either had the capability of harvesting offshore food resources or were engaged in trade with groups who did (see Table 14). To harvest offshore resources, a seacraft such as a *tomol* would have been necessary. Fauvelle (2011) suggested that access to high-quality asphaltum was essential for the construction and maintenance of *tomols* and that only three such sources were present: two on the Santa Barbara mainland and a third at the La Brea Tar Pits. On the basis of that evidence, Fauvelle (2011:155) conjectured that the southern Channel Islands were an important source of plank-canoe innovation. Ballona Creek drains the La Brea Tar Pits; so, the residents of the Ballona could have controlled that source of asphaltum. However, apart from the recovery of a canoe effigy made of steatite from an Intermediate period context at LAN-63 on the bluff tops (John Douglass, personal communication 2011), there was no archaeological evidence of *tomols* in the form of redwood planks, asphaltum plugs, or a lithic tool kit for making *tomols* (see Gamble 2002) in the Ballona from the Intermediate (or any other) period. Although the neighboring Chumash, in the north, were using the plank canoe as early as 1,300 years ago, Gamble (2002) noted that there was little evidence of use of the plank canoe in the Gabrielino/Tongva region south of Malibu, along Santa Monica Bay and north of the Ballona, prior to the Historical period. The first Spanish explorers along the southern California coast noted that the Gabrielino/Tongva used the *ti'at*, a plank canoe that closely resembled the *tomol* (McCawley 1996:123). The Gabrielino/Tongva, however, also used less-seaworthy tule canoes (Hudson and Blackburn 1982:331–349) to travel between the islands and the mainland. Unlike plank canoes, tule boats leave few archaeological indicators; they might have been used by the people of the Ballona.

Nine fishhooks made of abalone and mussel shell were recovered from the Ballona excavations (see Chapter 3 in Volume 3 of this series). Eight of them were recovered from LAN-62: six from Late through Mission period contexts, and two from undated contexts. A single fishhook made from mussel shell was recovered from an undated context at LAN-2768, although with the exception of a few isolated Rancho period artifacts, all dated materials from that site dated to the Intermediate period. Thus, shell fishhooks may have been used by the Intermediate period inhabitants of the Ballona, but they are extremely rare.

The recovery of pelagic fish does not necessarily suggest cultural affiliation between the Ballona occupants and the Chumash. Instead, it indicates evidence of possible exchange between those populations or evidence that the Gabrielino/Tongva lived in the southern Channel Islands. The Ballona populations did interact with the Channel Islanders (specifically, the inhabitants of Santa Catalina Island), as evidenced by the recovery of steatite from Intermediate period contexts and forward in the Ballona. In summary, the Intermediate period occupants of the Ballona focused on the exploitation of littoral and terrestrial vertebrate fauna, but maritime animals accounted for a higher percentage of the faunal remains than they did during other periods.

The invertebrate sample from the Intermediate period differed from that of the preceding Millingstone period. Venus clam exploitation was similar to that in the Millingstone period, but overall, there was a sharp increase in the importance of scallops and a decrease in Pismo clams. There are no apparent ecological explanations to account for that change. In general, the Ballona estuary was at its productive peak during the early through middle Intermediate period. As the estuary expanded, the extent of beaches may have been reduced, and that may account for the decrease in Pismo clams but not the increasing importance of scallops.

The invertebrate collections from Van Horn's (1987) excavations on the bluff tops did not display the same trend as those in the lowlands. In the bluff-top collections, the numbers of scallops decreased sharply in the Intermediate period, whereas venus clams attained greater dominance and accounted for three-quarters of all identifiable shellfish. The notable difference in exploitation between the bluff tops and the lowlands could have resulted from populations having targeted different habitats or from differences in site function.

Finally, there was variation in shellfish exploitation during the course of the Intermediate period in the Ballona. The early Intermediate period collection differed considerably, by weight, from that of the late Intermediate period. During the early Intermediate period, the people of the Ballona principally harvested Pacific littleneck clams (*Protothaca staminea*) and oysters (Ostreidae) and, to a lesser extent, scallops and venus clams. By the late Intermediate period, the population had considerably changed their shellfish-harvesting practices or preferences and focused mainly on venus and littleneck clams, nearly abandoning the harvest of scallops, Pismo clams, and oysters. That change may be explained, at least in part, by the reduction of open water and the beginning of siltation in the lagoon.

Late Period (cal A.D. 950–1542)

During the Late period, Ballona populations continued a diverse animal-food diet, but with a focus on terrestrial animals. Compared to the previous Intermediate period, there was a notable decrease in the exploitation of pelagic fish but an increase in the exploitation of nearshore/estuarine fish (see Table 12). In the fish collection, the remains of pelagic fish were down to 14.2 percent from the previous 42.3 percent, but nearshore estuarine fish increased in frequency from 56 to 85 percent of the collection (see Table 13).

Overall, then, there appears to have been a decline in availability or the exploitation of fish during the Late period, but there was only a small concomitant decline in the degree to which aquatic fauna in general (sea mammals, waterfowl, and fish) were successfully hunted. The focus of vertebrate exploitation was on the estuarine habitat during this time. There was a notable increase in bird remains from the previous Intermediate period; in particular, waterfowl were targeted. Waterfowl accounted for more than 78 percent of the bird remains (1,052 of the 1,347 NISP), in a pattern similar to that of the Intermediate period faunal collections from the bluff-top sites—LAN-59, LAN-61a, and LAN-61b—investigated by Van Horn and Associates (Brown 1989). Overall, the diversity of faunal taxa and the frequencies of faunal remains associated with wetlands increased in importance during the Late period (partly because of the increased frequency of waterfowl remains). That is indeed intriguing, because the increase in waterfowl was not associated with the previous wetter Intermediate period but with the Late period. The Late period vertebrate collection was distinct from that of the Intermediate period but had some similarities to the Millingstone period collection, especially in terms of maritime exploitation, with increases in some faunal groups and decreases in others.

Exploitation trends in the Late period invertebrate data showed both continuity with and change from those of the preceding Intermediate period. Venus clams continued to be the focus of exploitation, but oysters were also targeted once again. Overall, the Late period invertebrate collection was much smaller than the invertebrate collections from other periods and reflected the much smaller Late period occupation of the area. The Ballona area was largely abandoned during much of the Late period, which was a time of fluctuating conditions, with floods and droughts, and continuing siltation of the estuary. Thus, the small size of the collection and the changes that we see as having happened during the Late period may reflect adverse conditions and a dramatically reduced population.

The Ballona may not have been sufficiently productive during the Late period to support a significant human population. Only a single small site, LAN-47, was occupied during the early part of the Late period. The early Late period coincided with the MCA, a period when much of the Southern California Bight experienced climatic stress (discussed further below). Human populations along much of the bight responded to that stress by intensifying the exploitation of pelagic resources (Arnold 1992a, 1992b; Glassow et al. 2007; Jones et al. 1999; Jones and Schwitalla 2008; Kennett 2005; Martz et al. 1995). The Ballona population's response to that stress appears to have been abandonment of much of the area, as determined from the very limited Late period deposits and the absence of any evidence of maritime adaptation. Like their Great Basin counterparts, most of the people of the Ballona probably shifted their residence and subsistence activities to upland areas when conditions in the wetlands deteriorated. Paradoxically, the small remnant population settled on the lagoon edge and focused their subsistence activities on the wetlands. There is no evidence to suggest that the Ballona population responded to the adverse conditions of the MCA by intensifying exploitation of pelagic resources, as has been suggested for other areas of the bight.

Protohistoric through Mission Period (A.D. 1542–1834)

In a broad sense, the vertebrate collection from the Protohistoric through Mission period was similar to those from the earlier periods and reflected the same general type of subsistence strategy. Some notable differences, however, were apparent. First, terrestrial mammals accounted for 72 percent of the identified vertebrate collection; in collections from all previous periods, terrestrial mammals accounted for more than 84 percent of the identified vertebrates (see Table 12). Note, however, that although the exploitation of terrestrial wild mammals decreased, large wild mammals accounted for a much higher percentage of the mammals during the Protohistoric through Mission period (27 percent) than during the earlier Millingstone (2 percent), Intermediate (4 percent), and Late (7 percent) periods. This intriguing pattern of increased exploitation of large mammals is discussed later in this chapter. Sea-mammal exploitation remained largely unchanged from that of the preceding Late period, although most of the remains were of taxa from nearshore habitats—the reverse of the pattern evident in the Intermediate period, when most were from pelagic habitats. Also notable was a significant increase in fish remains, which constituted 15.7 percent of the Protohistoric through Mission period collection, from the previous high of 9 percent in the Intermediate period. Even more dramatic was that pelagic fish continued to decrease in importance, accounting for only 3.2 percent of all fish remains, whereas estuarine fish constituted almost 97 percent of the fish remains. Thus, despite an overall increased focus on fishing, the importance of offshore fishing continued to decrease from the Intermediate period until it was almost nonexistent in the Protohistoric through Mission period.

Given that Intermediate period sites were mixtures of habitation and special-purpose, subsistence-related sites, whereas Protohistoric through Mission period sites were primarily habitation sites, that trend may reflect site function. The pattern does not change, however, if we restrict the comparison of Intermediate period habitation sites to Protohistoric through Mission period sites. Overall, fish bones constituted more than 24 percent of the identifiable vertebrates from Intermediate period habitation sites, indicating that fishing was a major component of the subsistence practices at those sites. However, only slightly more than 55 percent were nearshore/estuarine fish, suggesting a much more diversified fishing strategy than that of the Protohistoric through Mission period, when nearshore/estuarine fish made up almost 97 percent of the fish. The shell fishhooks from Late through Mission period contexts at LAN-62 indicate that offshore fishing may have continued during that time, although the small size of the collection suggests that the activity was not significant.

The increased emphasis on estuarine resources may reflect their increased availability and/or change in socioeconomic ties with island or Chumash populations from whom offshore foods could have been obtained. It should be recalled, however, that the paleoenvironmental reconstruction suggested that the Ballona estuary was least productive during the Protohistoric through Mission period. The decreased availability of estuarine resources has been suggested by avifaunal evidence; however, the increase in fish remains suggests the opposite. It is unclear whether birds ever constituted an important part of the Ballona diet, but waterfowl, presumably mostly from estuarine habitats, reached a peak of 15.9 percent of the bird remains in the Late period contexts at PVAHP sites and constituted more than 78 percent of the birds from the Late period Admiralty site. Although birds were actually more numerous, overall, in Protohistoric through Mission period contexts at the PVAHP sites, waterfowl constituted less than 1 percent of the birds, indicating a dramatic increase in emphasis on birds other than waterfowl. Furthermore, one of the major changes in human diet during this time, in terms of animal foods, was the introduction of domesticated animals into the landscape and the corpus of food. During the Mission period, cattle, sheep, goats, pigs, and chickens were consumed on occasion by the Ballona population. Those new foods were not critical to the subsistence base but may have provided important supplements that replaced pelagic resources in the diet and allowed a greater emphasis on local estuarine resources. It is known from historical sources that during the Mission period, the Los Angeles River flowed into the Ballona; that flow would have benefitted its wetland resources tremendously and would also have temporarily counteracted the effects of gradual infilling of the estuary.

The invertebrate collection from the Protohistoric through Mission period was similar to that of the Intermediate period. The three most important species (by weight) were abalone, scallops, and venus clams, and the most abundant shellfish were scallops and venus clams. The dominance of those two genera was similar to what was observed in the Intermediate period. Surprisingly, abalone accounted for 41 percent of all Protohistoric through Mission period shellfish, by weight, and was much more abundant than in previous periods (from 9 percent in the Late period to 1–2 percent in the Intermediate and Millingstone periods). Abalone shells are heavy compared to those of other species, and they contain considerably more meat. The Protohistoric through Mission period deposits at LAN-62 and LAN-211 yielded at least 58 unworked abalone shells. The human burials (many of which dated to the Protohistoric through Mission period) yielded an additional 35 unworked abalone shells. At least some of the abalone shells (n = 21) may have been containers and/or receptacles, rather than food remains, as reported by Cannon (see Chapter 3 in Volume 3 of this series). Regardless of their use as containers and/or food, the relative abundance of abalone in the Protohistoric through Mission period is noteworthy, because those shellfish must have been obtained, directly or through trade, from the Chumash territory to the north, the Palos Verdes Peninsula to the south, or the Channel Islands to the west.

Maritime or Littoral in the Ballona: A Summary Discussion

In addressing the question of whether aboriginal subsistence in the Ballona involved maritime or littoral strategies, the long-term trends in the faunal data indicate that the adaptation was littoral. This conclusion is based on the absence of a nutritional profile, for any time period, in which most of the animal protein was derived from sea mammals (nonpinniped) or pelagic fish. Although there was an increase in pelagic fish (such as mackerels, tunas, and fish in the herring family) during the Intermediate and Protohistoric through Mission periods, those fish were not the primary components in the diet, and at no time did they constitute more than 2 percent of the diet. Furthermore, there was no noticeable shift over time toward a greater emphasis on finfish. In other words, at no time did the Ballona faunal collection indicate more than a seemingly occasional exploitation of offshore species, whether they were deepwater sharks, cetaceans, or finfish.

Regardless of time period, the most important sources of terrestrial meat were rodents, rabbits, and artiodactyls, and those animals made up a steady proportion of the diet through time (Figure 68). Fishing generally increased through time, particularly during the Intermediate period, followed by a decline during the Late period and a subsequent resurgence during the Protohistoric through Mission period (Figure 69). Animal foods from aquatic habitats did not play a major role in the diet until the Intermediate period, when aquatic-vertebrate foods slowly became incorporated in higher frequencies. Aquatic fauna accounted for one-sixth of the diet during the Protohistoric through Mission period (see Table 12). Of course, most of them from Protohistoric through Mission period deposits, such as bat rays (*Myliobatis californica*), stingrays (Myliobatiformes), thornback rays (*Raja clavata*), and shovelnose guitarfish (*Rhinobatos productus*), were from estuarine and nearshore habitats. Fishing was never a primary subsistence strategy in the Ballona, as determined from the relative abundance of fish compared to other vertebrate fauna. Only a handful of shell fishhooks and some 100 fishing implements made of bone have been recovered, mostly from Protohistoric through Mission period deposits, and they have included barbs, fishhooks, and harpoon heads. There was also evidence of fishnets in the Ballona; more than 100 carbonized cordage fragments were recovered from Protohistoric through Mission period burials, probably from nets made of bast fibers (see Chapter 5 in Volume 3 of this series). Those nets indicated that procuring schooling surf fish and lagoonal fish also may have been an important activity. Barbs were used as early as the Millingstone period, whereas fishhooks first appeared in Intermediate period deposits starting around 3000 cal b.p. Harpoon tools were found only in Protohistoric through Mission period deposits. No fishing-weir stakes have been recovered.

Plank canoes are considered a hallmark of the California maritime economy, and their presence in the Ballona during the Historical period is a matter of debate (see Gamble [2002] for a discussion of the absence of plank canoes in the Gabrielino/Tongva region); there is no direct evidence of watercraft in the Ballona before that time. In addition, no tools related to canoe manufacture have been recovered (see Volume 3 of this series). Instead, the residents of the Ballona probably fished in the lagoon and on the coastal shores using harpoons, barbs, and nets—a technology associated with

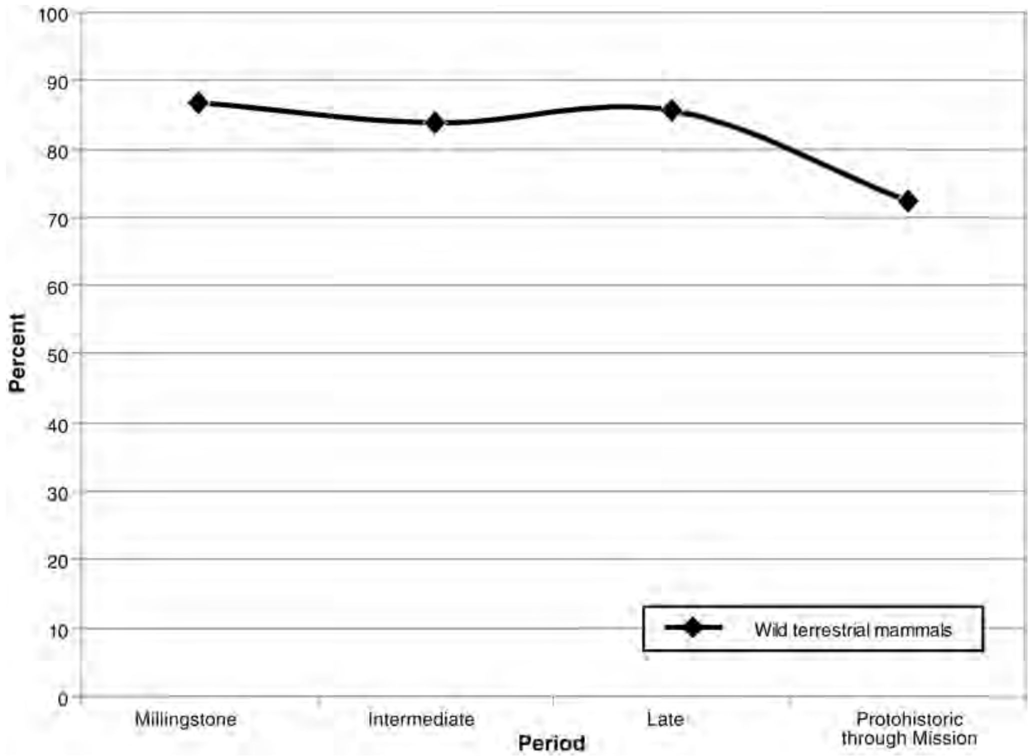

Figure 68. Exploitation of mammals over time in the Ballona.

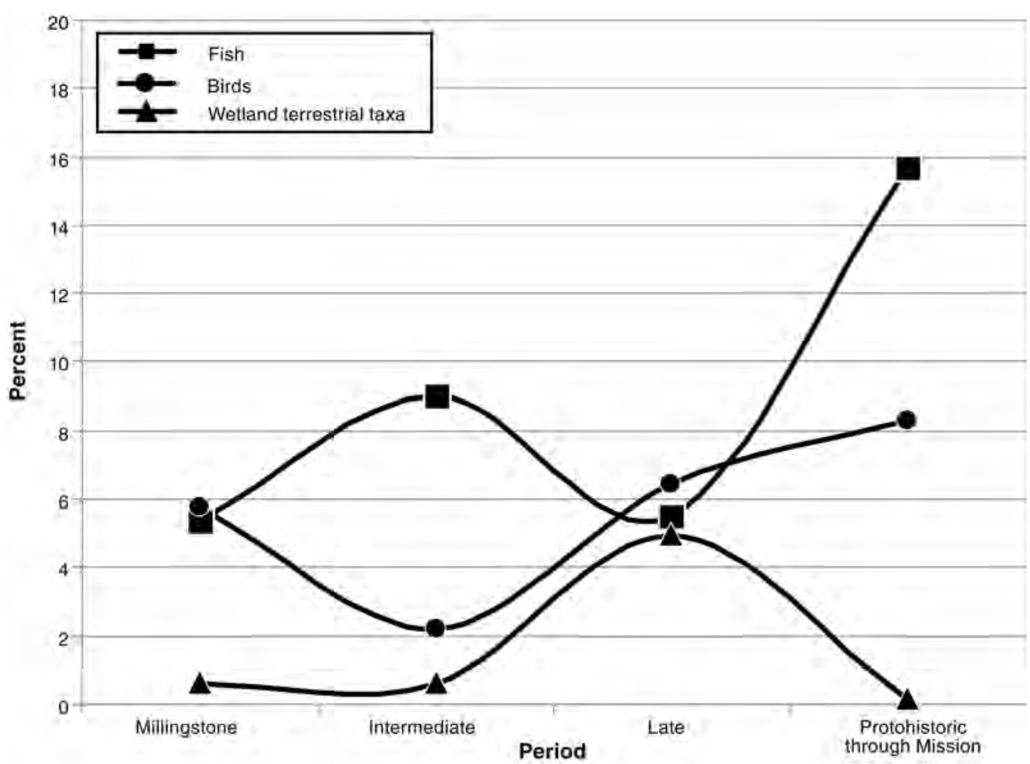

Figure 69. Aquatic-resource exploitation over time in the Ballona.

littoral and inland economies. We suspect that the inhabitants of the Ballona may have used tule boats for nearshore activities. Alternatively, it is plausible that the Ballona populations may have docked their plank canoes or similar watercraft at the beach (a few kilometers from the settlement), rather than bringing the watercraft into the village(s). That alternative would account for the lack of evidence of those boats in the archaeological record at the campsites. Although that may be possible, if it happened, there would have been evidence of watercraft construction and maintenance (lithic tool kits and asphaltum plugs) at the campsites, at least in low frequencies.

Gamble (2008) indicated that the Chumash maritime strategy was characterized by a diet consisting of sea mammals (40 percent) and fish (25 percent). None of the collections from the Ballona sites had such characteristics, and except during the late Intermediate period, fish were never a very important food resource. Collecting shellfish and hunting small game, however, remained at steady levels through time. The contribution of aquatic game to the diet of Ballona populations varied through time, both in relative contributions of animal groups and in the types of fauna present. The coastal-dwelling Ballona populations always took a portion of their foods from the various bodies of water that bordered them. The extent to which they relied on such habitats for hunting, shellfish harvesting, and fishing varied through time.

On the basis of evidence from Landing Hill at Seal Beach (ORA-260, ORA-261, ORA-262, ORA-263, ORA-264, and ORA-1472), Hildebrandt and Carpenter (2007) asserted that pinniped rookeries did not exist in southern California because of a lack of appropriate rocky habitats (note that Hildebrandt and Carpenter [2007] ignored the Palos Verdes area, which has a rocky shore). The data from the Ballona sites present a challenge to this assertion. Although sea-mammal bones were not abundant within the PVAHP, they were not as sparse as at Landing Hill, where just 1 sea-mammal-bone fragment (from a sea otter) was recovered. In contrast, 156 bones from whales, dolphins, sea otters, seals, and sea lions were recovered from dated contexts in the Ballona, mostly from Protohistoric through Mission period contexts (40 percent) and secondarily from Intermediate period contexts (26 percent). However, sea mammals constituted less than 1 percent of all vertebrate remains in any given period. Of the 156 sea-mammal bones from dated contexts, 35 were from pinnipeds; most (n = 29) were recovered from deposits dated to post–1000 cal b.p. Hildebrandt and Jones (2002) suggested that there were no pinniped rookeries in southern California after 1500 cal b.p., and as noted, Hildebrandt and Carpenter (2007) suggested that the lack of rookeries was one possible explanation for the dearth of sea-mammal remains at Landing Hill. The data from the Ballona sites contradict that explanation, given the relatively greater abundance of sea-mammal bones from deposits dated after 1000 cal b.p. It is possible that those pinnipeds were obtained from the islanders through trade or were harvested along the rocky shores of the Palos Verdes area. The faunal assemblage from the Ballona suggests that pinnipeds were consumed in the greater Los Angeles Basin region through time, although in low quantities. The frequencies were low enough that they might just represent animals that occasionally washed up on the beach or swam into the estuary. Seals often bask on the insides of coastal dunes and commonly travel inland, up drainages, in search of freshwater or estuarine fish. The fact that the remains of pinnipeds and other sea mammals were not abundant is a different issue and could be explained by several causes. Perhaps the Ballona populations simply were not able to hunt large game successfully, possibly for technological reasons. Alternatively, they may not have been interested in pursuing those animals that frequently, given the necessary time investment it would have involved and the presence of rich alternative resources, such as littoral animals.

Maritime adaptation, therefore, was absent from the Ballona, despite the fact that the Chumash (to the north) were strong maritime hunters as of the Intermediate period (referred to as the Middle period in the Chumash literature). To the south of the Ballona on the mainland, along the San Diego County coast, the inhabitants of the rocky coast of Point Loma appear to have had an early maritime coastal adaptation. SDI-48, located on the bay side of Point Loma, has a record of human occupation from 5000 cal b.p. (Gallegos and Kyle 1998); SDI-10945, also on the bay side, has evidence of human occupation dating to 2000 cal b.p. (Pigniolo et al. 1991). Both sites have been characterized as exhibiting a maritime subsistence system with evidence of sea-mammal hunting (Noah 1998). Taxa recovered included sea otter (*Enhydra lutris*), California sea lion (*Zalophus californianus*), southern fur seal (*Arctocephalus* spp.), and harbor seal. On the basis of the high frequencies of California sea lions, Gallegos and Kyle (1998) concluded that there was a rookery near the site and that the rookery has since disappeared. The main argument for why the Ballona populations never turned to maritime strategies is that the local lagoonal resources provided an ample food base and were sufficiently stable to provide for the populations. As evidenced by the recovery of pelagic fish and pelagic sea mammals (although in very low frequencies), it is clear that those resources were obtained occasionally by accident or through trade, but they were not primary components of the human diet.

If, by the term "maritime adaptation," one defines a hunting and fishing strategy in which deep-sea fish, cetaceans, and pinnipeds formed large percentages of the diet (e.g., Gamble's [2008:154] figures of 40 percent marine mammals and 25 percent fish), then the diets adopted by the people of the Ballona area simply did not qualify as such in any period, and the same would be true for many of the people who inhabited the mainland coast of the Southern California Bight. The Ballona population could, however, be said to have maintained a littoral adaptation in some periods. Although it is difficult to assess the proper role of shellfish, both in general terms of meat yields (but see Erlandson 1994) and how they fit into the dietary strategies of maritime vs. littoral hunter-gatherers, it is important to note that shellfish were an important dietary component in the Ballona during all time periods.

Table 15. Plant Use over Time in the Ballona Lowlands

Category	Millingstone Period	Intermediate Period	Late Period	Protohistoric through Mission Period
Seed density (n/liter)	1.1	1.1	8.1	567.4
Grass density (n/liter)	0.4	0.2	4.7	489.0
Nutshell (g/liter)	0.0002	0.0001	0.0005	0.02
Poaceae (grasses)	38%	17%	58%	86%
Hordeum pusillum	12%	2%	21%	13%
Phalaris cf. *caroliniana*	26%	4%	32%	67%
Wetland taxa	42%	21%	67%	85%

Note: % = percentage of total seeds within each temporal component.

Nonetheless, this discussion raises the question of the appropriateness of a dichotomy between littoral and maritime foragers. Did such a dichotomy exist? Perhaps there has been too little discussion of the definition of the maritime adaptation, as well as too few attempts to isolate a littoral adaptation, because the dichotomy is false. Those who lived along coasts or islands, even if they often pursued sea mammals in rookeries or tunas from *tomols*, would probably not have missed the chance to hunt shorebirds and to fish for estuarine or nearshore species. Certainly, people oriented toward both sea and shore harvested shellfish in abundance. Perhaps it would be more appropriate to think of the adaptations as a continuum upon which we can measure people's relative dependence on the ocean. Many of the differences between adaptations depend on the environment—the presence of estuaries vs. rocky shores and access to deep water. But the variation in diet through time in the Ballona, as limited as it was, is significant and suggests other factors at play, such as changing demographic patterns and social organization (see Chapters 3 and 5 in this volume).

The Nature and Character of Resource Exploitation in the Ballona

Subsistence data from the Ballona provide the most-detailed and longest continuous record of aboriginal subsistence in the Los Angeles Basin. For much of the 8,000-year span, from the early Millingstone period through most of the Mission period, subsistence practices changed little; minor changes in resource use primarily reflected climatic fluctuations and the evolution of the Ballona from an open embayment to a sediment-choked estuary. Despite that general pattern of cultural conservatism, several punctuated changes in resource exploitation have been observed, especially in the Protohistoric through Mission period. What remained largely constant throughout the long span of human occupation was a dependence on small to medium-sized terrestrial fauna, estuarine shellfish, and wild grasses. The paleodiet of the Ballona populations was a balance between protein gleaned from the terrestrial fauna, augmented by estuarine shellfish and fish and occasionally marine fish, and calories from grasses and other small-seeded plants.

The broad-spectrum subsistence pattern depended on variation in resource availability. Shellfish, for example, were generally a minor component of the diet, although depending on their abundance in relation to the labor invested, there were probably times when shellfish fulfilled most of the caloric or protein needs of the population (Reddy 1996). On the basis of proximate analysis and the behavioral ecology of the bean clam (Gould beanclam [*Donax gouldii*]), Reddy (1996) has argued that some shellfish (like bean clam), which are low in calories but high in protein, would have been primary components of the diet when there was a resurgence in their populations and they were available in large quantities. In other words, their harvest would have required a low investment in labor (because they would have been available in very high quantities), and the returns would have been high enough to fulfill daily energy values. Alternatively, such shellfish would have been secondary components of the prehistoric diet when their populations (availability) were low, and during such times, these foods could fulfill only daily protein needs. We are not arguing that prehistoric populations were managing their protein and caloric intakes, rather that the balanced diet would have enhanced the success of the adaptation and the survival of the population. The main paleodietary components in each of the main cultural periods, of course, varied, but the overall signatures remained largely consistent.

During the Millingstone period, small terrestrial mammals were the main animal foods; nearshore/estuarine fish were minor components. Shellfish from the estuarine habitats were collected, and the populations focused on venus clams and scallops, which were available in habitats in the immediate vicinity. Pismo clams, which are found in the sandy intertidal zones, were also harvested. In terms of plant consumption, the diet was relatively diverse and comprised grasses and other small-seeded annual plants but minimal quantities of acorns and other nuts (Table 15). Grasses accounted for less

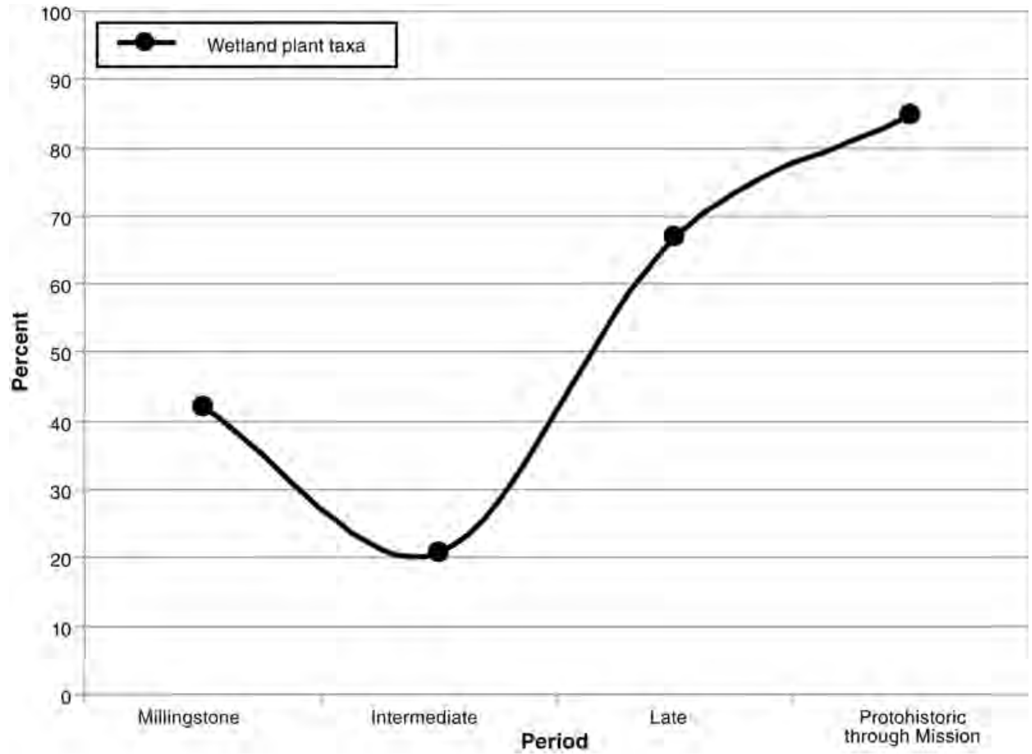

Figure 70. Wetland taxa over time in the Ballona.

than 40 percent of the macrobotanical collection and were dominated by *Phalaris* cf. *caroliniana* (Carolina canarygrass, or maygrass) and *Hordeum pusillum* (little barley). Wetland taxa constituted 42 percent of the macrobotanical collection (Figure 70), indicating that plant exploitation targeted the local wetlands, but the catchment area (defined as a daily foraging range of up to 6 km) also included the more distant Los Angeles plains and prairies. Overall, plant usage was low, as indicated by a seed density of 1.1 seeds per liter. Of course, a low density of seeds could have been the result of poorer preservation in the older deposits. Sites in other parts of California, however, have yielded carbonized seeds and nutshells from such early sites in much higher densities (e.g., Wohlgemuth 1996). The diet breadth of the Millingstone period populations in the Ballona was narrow, given that the strategies involved capture of a wide range of small-package animal and plant resources. A portion of the plant collection was opportunistic during daily foraging forays, and plant collection could have been a secondary activity during shellfish collection along the lagoon or the sandy beaches to the west.

The Intermediate period subsistence strategies retained much of the character of the previous Millingstone period, with some important changes. Small mammals still were the primary sources of animal food and protein; however, fish exploitation—in particular, the procurement of pelagic fish—increased. Earlier in this chapter, the implications of pelagic-fish consumption were discussed in terms of trade and exchange with the Channel Islanders and/or the mainland Chumash. Collection of shellfish (venus clams and scallops) continued to be a focus of harvesting in the estuarine habitats; however, there was a decrease in the use of open sandy-beach habitats, as evidenced by a decrease in the use of Pismo clams. Wigand's (see Chapter 9 in Volume 3 of this series) climatic reconstruction suggests that the Ballona Lagoon was at its productive peak during the Intermediate period, especially during the 200-year span around 2000 cal b.p., when climatic conditions were optimal for the freshwater wetlands and when focusing labor and effort on that habitat was more productive. Thus, the slight shift in resource use was probably a result of changing environmental conditions rather than a calculated shift in strategy.

Plant use during the Intermediate period was largely similar to that of the previous period in terms of the types of plants exploited, but the Intermediate deposits had even lower densities of seeds. Both wetland taxa and grasses decreased in relative importance, and other small-seeded plants, such as *Calandrinia* sp. (redmaids), were exploited. The two grasses *Phalaris* cf. *caroliniana* and *Hordeum pusillum* were still used. The low density of seeds in Ballona deposits dating to the Intermediate period is in sharp contrast to the densities of Middle period assemblages in central California (Wohlgemuth 1996); however, the low density of seeds is similar to seed densities described by Reddy (1999, 2004a) for sites along the coast and to the south, in San Diego County. If the low densities of seeds in those older deposits were the results of taphonomic causes, such as poorer preservation, then similarly low densities should also be common elsewhere in the state. Therefore, it is not clear why seed densities were lower in Intermediate period contexts in southern California than in contemporary contexts in central California. One might still argue for the possibility of poorer preservation at coastal sites than at inland sites. However, seed densities were also higher in the older Millingstone period contexts in the Ballona, where we would expect even poorer preservation.

The Intermediate period faunal collection from the Ballona was similar to the collection from Landing Hill. Hildebrandt and Carpenter (2007) did not find any pelagic sea mammals or pelagic fish at the site and have described the prehistoric inhabitants of Landing Hill as focused on estuarine resources (shellfish and fish) and on medium-sized and small terrestrial mammals. Over time, the diet breadth of the Landing Hill populations broadened to include lower-ranked small mammals, such as rodents.

During the Late period, paleodiet and exploitation strategies continued to focus on estuarine resources, despite the paleoenvironmental model's suggestion that there was a reduction in the size of the estuary (see Volume 1 of this series). The exploitation of terrestrial mammals remained similar to that of previous periods (see Figure 68), but there was a noticeable decrease in fish consumption (see Figure 69). Among the fish consumed, the focus changed to estuarine fish (up to 85 percent), and there was a dramatic drop in pelagic fish (down to 14 percent) (see Table 13). Venus clams continued to be the focus of exploitation, and oysters were also harvested. In terms of plant food, there was a considerable increase in seed density up to 8.1 seeds per liter (compared to 1.1 seeds per liter in previous periods) (see Table 15). Grasses accounted for more than half of the Late period carbonized-seed collection; *Phalaris* cf. *caroliniana* and *Hordeum pusillum* were the primary grass foods. Wetland plant taxa increased appreciably (to 67 percent) from their representation in the Intermediate period collection.

The Mission period in the Ballona witnessed a major change in Native Californian subsistence systems with the introduction of domesticated plants and animals into the aboriginal diet. There was an overall decrease in the exploitation of terrestrial mammals (see Figure 68; Table 12) and an associated increase in fish consumption. The fish consumed were primarily from nearshore/estuarine habitats (97 percent); pelagic fish accounted for only 3 percent of the fish collection (see Table 13). That pattern reflects a long-term trend in which the focus of fish exploitation continued to change from offshore to estuarine habitats from the Intermediate period through the Protohistoric and Mission periods. More dramatic was the increase in plant use, as evidenced by the very high density of seeds (567 seeds per liter) (see Table 15). The high density of seeds indicates greater use of plants, but it also could be the result of better preservation in the younger sediments and the presence of unique contexts, such as mourning features, which included large quantities of food offerings. Regardless of those caveats, the increase in plant use is notable. Grasses accounted for the majority of the carbonized seeds (86 percent), with a focus on *Phalaris* cf. *caroliniana* (67 percent).

Ballona subsistence systems differed considerably from those of the mainland Chumash to the north. Chumash subsistence has been characterized by large-game hunting and a maritime adaptation. Ballona subsistence strategies shared similarities to those defined farther to the south, in the northern part of San Diego County. In both areas, small mammals were common in collections from the Millingstone and Intermediate periods (known as the Archaic period in northern San Diego) (Wake 1999). The remains of sea mammals were recovered in very low frequencies in the Intermediate period, as in the Ballona, but unlike the pattern in the Ballona, remains of sea mammals disappeared completely after the Intermediate period. Fish were exploited throughout the entire sequence, but in low numbers. Wake (1999) asserted that there was a change in subsistence strategy in northern San Diego County that started about 1000 b.p. and was marked by a decrease in fish, the absence of sea mammals, and a focus on small terrestrial mammals. Also noteworthy is that large mammals were rare throughout the sequence. Shellfish were important along lagoons (see Byrd and Reddy 2002; Gallegos 1987).

The subsistence data from the Ballona sites indicated that the populations had a relatively stable subsistence base punctuated with specific changes at different times. Using the rich subsistence data from the Ballona, the following discussion addresses four specific issues that have been given considerable attention and debate in the archaeological literature: faunal exploitation in the Ballona during the MCA, trends in mammal exploitation in coastal southern California, the varying status and use of nut foods in coastal southern California, and trends in plant-use patterns in coastal California relative to other parts of the state.

Faunal Exploitation during the Medieval Climatic Anomaly in the Ballona

Climatologists have identified the interval between A.D. 800 and 1350 (1050 and 650 cal b.p.) as a time of increased aridity and have termed this the Medieval Warm Period, the Secondary Climatic Optimum, the Little Optimum (Ingram et al. 1981; Sulman 1982), or the Medieval Climatic Anomaly (MCA) (Stine 1994). This interval also has been recognized as a time of epic droughts and warm temperatures in many parts of the world (Hughes and Diaz 1994; Lamb 1977, 1982). During this time, agriculturists and hunter-gatherers were confronted with serious and abrupt declines in productivity caused by repeated and prolonged droughts. Archaeologists have identified and argued in favor of a plethora of cultural changes that were the result of population/resource imbalances, drought-related environmental deterioration, and shortages of food and water (e.g., Arnold 1992a, 1992b; Glassow et al. 2007; Jones and Schwitalla 2008; Jones et al. 1999; Kennett 2005; Martz et al. 1995). For example, Arnold

(1992a, 1992b) linked a dramatic increase in the production of shell beads (as exchange commodities) on Santa Cruz Island to an interval of warm sea temperatures and depressed marine productivity and explained the emergence of elite-managed craft specialization as a response to environmental change.

The MCA was a period not just of drought but also of great fluctuations of drought and wet periods on a finer scale and at a regional level (Larson and Michaelsen 1989; Larson et al. 1994). Larson and Michaelsen (1989) and Larson et al. (1994) used a 1,600-year tree-ring record to elucidate the paleoclimate of coastal southern California; they noted that droughts occurred between A.D. 750 and 770, rainfall was high between a.d. 800 and 980, and drought developed rapidly again between A.D. 980 and 1030. Conditions were wetter between A.D. 1030 and 1100, but the interval between A.D. 1100 and 1250 was one of sustained drought; the period between A.D. 1120 and 1150 was particularly harsh. Davis (1992) reconstructed the coastal vegetation of southern California from a 7,000-year pollen core from San Joaquin Marsh, located 7 km from the Pacific Ocean at the head of Newport Bay, and the fluctuations of the MCA were evident.

In the Ballona, pollen and geomorphological studies have revealed a similar fluctuation of dry and wet episodes during the MCA (Wigand 2005; see also Chapter 9 in Volume 3 of this series). In particular, there was a wet period between 1100 and 900 cal b.p. (at the start of MCA) and drought episodes starting in 515 cal b.p. (after the MCA) (see Chapter 9 in Volume 3 of this series). Coupled with this evidence, the paleoenvironmental reconstruction (see Volume 1 of this series) indicates that the Ballona wetlands were beginning to silt in by the beginning of the MCA, and their productive capacity would have been reduced commensurately. We can only speculate, but the flow of the Los Angeles River may have shifted at that time, further reducing freshwater input into the Ballona. The overall result was that most of the Ballona was abandoned during the MCA, and only a single settlement—LAN-47—was occupied at that time.

Several scholars have discussed the change in specific maritime-foraging patterns from the early to the late Holocene (e.g., Erlandson 2002b; Kennett 2005; Munns and Arnold 2002; Raab 2009b). Raab (2009b) and Munns and Arnold (2002) have suggested that the importance of fishing increased over time, relative to both shellfish harvesting (Munns and Arnold 2002) and pinnipeds (Raab 2009b). Raab (2009b) argued that sea-mammal exploitation remained largely static over time, but he did note that pinnipeds became more important over time relative to dolphins and sea otters. Munns and Arnold (2002) also argued that pinnipeds increased in importance over time, especially at sites near rookeries. These considerations are important when evaluating the effects of the MCA (late Intermediate period to Late period) on hunting, fishing, and shellfish harvesting in this region. The climatic changes during that time may have resulted in changes in subsistence strategies. Kennett (2005:177–178, 187–198), Glassow et al. (2007), Jones and Schwitalla (2008), and Martz et al. (1995), among others, have argued that the droughts associated with the MCA depressed populations of terrestrial game and forced human populations to turn to marine resources, which were in a generally productive state at the time or were unaffected by the climatic conditions (although this argument does not take into account the fact that marine resources also shift dramatically during short-term climatic fluctuations, such as El Niño and La Niña). Erlandson (2002b) has suggested that the shift toward intensive fishing was spurred by technological developments, such as the introduction of the single-piece shell fishhook, seagoing boats (Gamble 2002), and wooden fish weirs.

Such economic shifts are expected of coastal and island hunting-and-gathering societies, although the resources on which such groups depended were, according to Kennett (2005), more stable than those of terrestrial hunter-gatherers. Kennett argued that coastal resources are stable when present but are extremely patchy because of the geomorphology of coastlines and differential wave patterns, which alternately either bring or fail to bring nutrient-rich waters, causing dependent sea life to be distributed unevenly. When climatic patterns changed and currents shifted, marine life also changed locally, causing hunter-gatherers to make compensatory changes, as well. Gamble (2005) and Raab, Porcasi, et al. (1995) have argued that the effects of any drought period on the native fauna and, consequently, on human populations of California have been overemphasized and that if there was a detrimental effect on resource availability, the populations responded by broadening their dietary spectrum. As noted, several scholars have argued that the MCA resulted in limiting the availability of terrestrial fauna, especially large game, and increasing the extent to which prehistoric populations had to rely on aquatic resources. Aquatic fauna in general, whether estuarine, inshore, or pelagic, should have been exploited more during the drought era (late Intermediate period through Late period) than either before or after, when the conditions had ameliorated, at the end of Late period. We should recognize, however, that some estuarine resources may have been adversely affected by droughts because of the reduction of freshwater inputs. The saltwater component of those estuaries might have become more productive in such times, although it would have provided plant and animal resources that were different from those in freshwater areas.

In the following discussion, data from the Ballona deposits dating to the late Intermediate and Late periods are compared with those dating to the pre-MCA period (Millingstone and early Intermediate periods) and the post-MCA period (Protohistoric through Mission period) (Table 16). Aquatic fauna (all fish, all sea mammals, and waterfowl) increased from the pre-MCA period to the MCA by only 3 percent; from the MCA to the post-MCA period, aquatic fauna increased by 8 percent. In terms of fish exploitation, the frequencies of fish were similar in the pre-MCA period and the MCA; however, there was a remarkable increase in the post-MCA period (up 11 percent) (see Table 16). During the pre-MCA period, pelagic fish were consumed in higher frequencies (39 percent of identified fish remains) than during the MCA period, when

Table 16. Summary of Ballona Vertebrates for the Late Intermediate and Late Periods (MCA)

Category	Pre-MCA (Millingstone and Early Intermediate Period) (%)	MCA (Late Intermediate and Late Period) (%)	Post-MCA (Protohistoric through Mission Period) (%)
Pelagic fishes, among identified fishes	39.00	14.00	3.00
Nearshore/estuarine fishes, among identified fishes	61.00	86.00	97.00
Freshwater/estuarine fishes, among identified fishes	0.30	0.50	0.20
All fishes, among all identified vertebrates	5.00	5.00	16.00
Birds, among all identified vertebrates	4.00	5.00	8.00
Waterfowl, among birds	6.00	60.00	1.00
Pelagic sea mammals, among identified sea mammals	14.00	—	19.00
Nearshore/pelagic sea mammals, among identified sea mammals	16.00	81.00	35.00
All sea mammals, among all identified vertebrates	0.02	0.10	0.10
All mammals, among all identified vertebrates	87.00	87.00	72.00
Wild, large terrestrial mammals, among identified mammals only	1.00	7.00	27.00
Wild, medium-sized terrestrial mammals, among identified mammals only	8.00	17.00	21.00
Wild, small terrestrial mammals, among identified mammals only	90.00	76.00	52.00
Wild terrestrial mammals, among identified vertebrates	51.00	78.00	4.00
Wetland taxa (terrestrial), among identified vertebrates	1.00	3.00	0.10
Aquatic fauna (all fishes, all sea mammals, and waterfowl)	5.00	8.00	16.00
Reptiles and amphibians	2.00	1.00	3.00

Note: Calculations do not include data from burials. Large mammals = deer and larger taxa; medium-sized mammals = rabbits, coyotes, and foxes; small mammals = rodents.

they accounted for only 14 percent. The exploitation of pelagic fish continued to drop noticeably in the post-MCA period, making up only 3 percent of the collection. Waterfowl exploitation increased dramatically during the MCA (see Table 16). In summary, the exploitation of aquatic fauna was generally similar between the MCA and the pre-MCA period, with the exception of the increase in waterfowl and the slight increase in aquatic fauna during the MCA. There were a few notable differences between the MCA and the post-MCA period, such as a distinct increase in aquatic fauna and a notable decrease in both pelagic fish and waterfowl during the post-MCA period.

The trends in the Ballona faunal data do not fit well with the expectations based on the faunal-exploitation patterns noted for the MCA in other areas in California, where exploitation of aquatic fauna increased significantly during the MCA relative to the pre-MCA period. Comparing the exploitation of terrestrial mammals, there was no difference between the pre-MCA period and the MCA, but there was a decrease from the MCA to the post-MCA period (see Table 16). We discerned a trend toward the exploitation of large and medium-sized mammals over time, whereas the consumption of small mammals decreased. Instead of focusing their subsistence practices more intensively on marine and other aquatic resources, the people of the Ballona responded to the adverse conditions of the MCA by leaving the area. Virtually every stable landform in the Ballona was occupied at some time during the Intermediate period. By the beginning of the Late period, only a single small site remained. That the site, LAN-47, was located at the edge of the lagoon suggests a greater focus on aquatic resources, but by a much smaller population.

Exploitation of Mammals

During the past few years, there has been a spirited debate on how and why subsistence strategies changed from the middle

Table 17. Frequencies of Wild Terrestrial Mammals over Time, by Size

Category	Millingstone Period (%)	Intermediate Period (%)	Late Period (%)	Protohistoric through Mission Period (%)
Large mammals	2	4	7	27
Medium-sized mammals	12	10	27	21
Small mammals	87	86	67	52
Total	100	100	100	100

Note: Calculations are for identified mammals only and do not include data from burials. Large mammals = deer and larger taxa; medium-sized mammals = rabbits, coyotes, and foxes; small mammals = rodents. Percentages are rounded to the nearest whole numbers.

to the late Holocene in California—in particular, in regard to the hunting of large mammals (Broughton and Bayham 2003; Hildebrandt and McGuire 2002; Jones, Fitzgerald, et al. 2002; Jones, Kennett, et al. 2008; McGuire and Hildebrandt 1994, 2005). Discussion has addressed the increase in hunting of highly ranked mammals (i.e., artiodactyls) in central California at the end of the middle Holocene (starting 4000 cal b.p. [the late Millingstone period in the Ballona]) (Hildebrandt and McGuire 2002; McGuire and Hildebrandt 1994, 2005). Hildebrandt and McGuire (2002) suggested that the increase may have occurred earlier along the Santa Barbara coast (around 5500 b.p.) with the advent of the "Hunting Culture" associated with a proliferation of hunting-related tools (e.g., large side-notched points). That emphasis on large game continued into the Middle period in the Santa Barbara area, with increased exploitation of sea mammals and large pelagic fish, which was associated with the introduction of the plank canoe and improvements in fishing technology (e.g., barbed harpoons and circular shell fishhooks). Note, however, that such an increase in large-mammal hunting (marine or terrestrial) was not observed everywhere in California. For example, it was absent in the San Diego region (Warren 1968). In central California, use of acorns increased at the same time. Before the Middle period, lower-ranked prey, more easily obtained small mammals, were more heavily exploited. After 1000 cal b.p. in central California (the Late period in the Ballona), large-game hunting decreased. Scholars have attributed those changes in artiodactyl exploitation to several factors, including changes in climate, demography, and social organization (Broughton and Bayham 2003; Hildebrandt and McGuire 2002). Others, using different data sets from central California, have argued for continuity in artiodactyl exploitation through time (Jones, Fitzgerald, et al. 2002; Jones, Kennett, et al. 2008). Broughton and Bayham (2003) have suggested that big-game hunting was a response to population pressures on food resources. In the following discussion, the merits of both models and their explanatory strengths are not debated; instead, we discuss whether our results from the Ballona exhibit a corresponding change in the relative importance of artiodactyls.

Hildebrandt and McGuire (2002) proposed that the increase in large-game hunting between 4000 and 2500 cal b.p. was related to social factors (the costly signaling model). They proposed that males, wanting to attract females as wives and mates, attempted to "show off" by hunting large-game animals, even when it was not optimal in terms of time and caloric expenditure. Broughton and Bayham (2003), in a reply to Hildebrandt and McGuire (2002), contended that evidence of big-game hunting (increased frequencies of artiodactyl kills and greater numbers of swordfish remains elsewhere) indicates desperation among hunter-gatherers (the climatic pressure model). That is, hunter-gatherers, forced by climatic changes to find new food sources to support a vulnerable and larger population, went after larger game that were more difficult to hunt successfully. Both models (costly signaling and climatic pressure) predict a rise in the frequency of remains of large-game animals in deposits dated to the late Holocene. Hildebrandt and McGuire (2003) further noted that the early Holocene featured climatic conditions similar to those of the Middle Archaic/late Holocene, but there was no increase in hunting or human population at that time. Therefore, Hildebrandt and McGuire (2003:791) argued that it was the population increase in the late Holocene as well as competition among males for females that drove the need for increased hunting—not climate.

Given that the ecological model (Broughton and Bayham 2003) and the social model (Hildebrandt and McGuire 2003) predict similar results, it is difficult to imagine what evidence could be mustered that could support one against the other. In other words, evidence from the Ballona area cannot support or refute either hypothesis. Furthermore, the Ballona deposits have no associated early Holocene (Paleocoastal) deposits; therefore, a major portion of Hildebrandt and McGuire's (2003) proposed test of their model is not possible. Finally, the Ballona data do not show the predicted changes in large-mammal hunting related to increasing population size. Only a slight increase (2 percent) in the exploitation of large mammals was evident from the Millingstone period through the Intermediate period (Table 17), when the human population of the Ballona increased dramatically. The similarly small increase (3 percent) in the relative abundance of large mammals during the Late period, which coincided with the MCA, was very modest in comparison to those at sites in central California, and it corresponded to an even more

Table 18. Mammal Indexes over Time

Index	Millingstone Period	Intermediate Period	Late Period	Protohistoric through Mission Period
Large-mammal index (large mammals/[small mammals + medium-sized mammals])	0.02	0.04	0.10	0.40
Medium-sized-mammal index (medium-sized mammals/[large mammals + small mammals])	0.10	0.40	0.20	1.30
Small-mammal index (small mammals/[medium-sized mammals + large mammals])	7.00	6.00	2.00	1.10

dramatic reduction in the size of the human occupation of the Ballona. There was, however, a notable increase (20 percent) in the exploitation of large mammals between the Late period and the Protohistoric through Mission period (see Table 17), when the human population size increased once again. The large-mammal index across time shows a rough measure of the proportion of large mammals to small and medium-sized mammals during each period (Table 18). The results show a consistently low level of large-game hunting through time until the Protohistoric through Mission period. In fact, the large-mammal-index score for the Protohistoric through Mission period is more than six times that of the Intermediate period. This trend does not fit any of the models for central California, which propose either an increase in artiodactyl exploitation between 4,000 and 2,500 years ago (Broughton and Bayham 2003; Hildebrandt and McGuire 2002) or a constant level of exploitation (Jones, Fitzgerald, et al. 2002; Jones, Kennett, et al. 2008). It is clear that important changes in subsistence during the Protohistoric through Mission period in the Ballona require a new model. In summary, the tradition of large-game hunting proposed by Hildebrandt and McGuire (2002, 2003) and disputed by Broughton and Bayham (2003) as well as Codding and Jones (2007), is not supported by data from the Ballona. However, the data also do not support Broughton's (1995) model, in which he argued in favor of an increase in large-game hunting when increased sedentism coupled with larger populations drove hunters farther in search of large prey, especially artiodactyls. These models rely on a significant rise in the proportion of large-game animals during ca. 4000–2500 b.p., but that pattern was not evident in the Ballona area. An increase in the hunting of large mammals would also be expected ca. 1000 b.p., when the bow and arrow was introduced into the Ballona area, as evidenced by the recovery of large numbers of projectile points. However, large game was heavily exploited only in the Protohistoric through Mission period, when the residents of the Ballona began to hunt deer more often, or at least more successfully, than before.

What, then, was driving the increase in large-mammal exploitation, particularly in the Protohistoric through Mission period? We believe that there were several factors in that increase. First, the dramatic rise in the use of large mammals could have been the result of the great increase in the local human population from the Late period minimum, which could support either the ecological or the social model. That, however, raises the questions of why a similar increase in large-mammal exploitation did not occur during the Intermediate period population maximum and why large-mammal exploitation increased slightly during the Late period minimum. Second, foraging range may have increased into more-distant areas of the interior, which were depopulated sooner than coastal areas during the early part of the Mission period. During the Mission period, foraging habits clearly were influenced by the introduction of domesticated mammals by the Spanish (e.g., Hackel 2005; Larson et al. 1994; Milliken 1995), although those animals may not have arrived in the Ballona area in large numbers until the early 1800s, with the establishment of Rancho de los Quintos (see Chapters 7 and 8 in this volume). Interestingly, over time, the diet breadth of the Ballona populations narrowed with the decrease in the exploitation of lower-ranked small mammals, such as rodents, in the Late and Protohistoric through Mission periods. The small-mammal index decreased steadily from the Millingstone period through the Protohistoric through Mission period: the index for the Protohistoric through Mission period is more than six times lower than that for the Millingstone period (see Table 18), although small mammals still constituted the highest percentage of all mammals in every period. Bettinger (1999) has argued that an increased reliance on small game suggests social resistance to sharing, because large game were perceived as public goods, whereas small game were private goods. In that view, the gradual decrease in small game suggests a long-term trend toward increased sharing.

Van Galder et al. (2010) have noted that not only was there a visible increase in the abundance of large-mammal remains during the Protohistoric through Mission period in the Ballona, but also there was a change in how large animal carcasses were processed. They were not as intensively processed during the Protohistoric through Mission period as in the prehistoric periods; that change may reflect the introduction of European tools, the greater exploitation of large mammals, or perhaps the adoption of European carcass-processing methods through which bones were not smashed to extract grease.

Elsewhere in contemporary Hispanic-occupied North America, colonial powers promoted Native American participation in the lucrative fur trade. A result was that native groups increased their take of deer and other animals used for hides and furs (Lapham 2005; Pavao-Zuckerman 2007), which they exchanged for trade goods, such as guns and horses. A similar phenomenon has been proposed for Mission period contexts in New Mexico to explain the increased exploitation of large mammals (Spielmann et al. 2009). Yet by the time the Spanish arrived in Alta California, they were wary of equipping Native Americans with horses and guns (ostensibly to hunt), which could then be turned against them, as had happened in their dealings with other tribes (Hackel 2005:338). Furthermore, the Spanish in California had little ability to provide guns to natives. Even soldiers stationed in Alta California found guns hard to come by, and their own firearms often were in need of repair (Hackel 2005:339). Finally, there is no historical evidence that a trade in deerskins ever developed in California, in contrast to the Russian-organized trade in sea otter pelts that developed elsewhere in California (Lightfoot 2005:115–124). Although deerskins were required as Native American tribute to Spanish missions in New Mexico during the Mission period (Spielmann et al. 2009), there is no evidence of a parallel requirement in California. Rather, we suggest that the surge in exploitation of large mammals may have been related to a decline in competition among native groups for the animals, given the general depopulation of the southern California landscape after establishment of the missions.

Trends in Plant Use

One of the more comprehensive models of prehistoric plant use in California has been proposed by Wohlgemuth (1996, 2002), who argued for diachronic variability in subsistence patterns on the basis of macrobotanical remains from 11 sites in the North Coast Ranges and the Central Valley of California. Large quantities of small seeds and few acorns characterized Early period sites (ca. 4500–2800 cal b.p.). In contrast, the macrobotanical remains of Middle period sites (ca. 2800–1200 cal b.p.) were dominated by acorns, and small seeds decreased in frequency. Late period sites (1200–100 cal b.p.) still contained large quantities of acorns, but once again, there was an increase in the quantities of small seeds. Wohlgemuth's (1996) explanation for the decline in the importance of small seeds in the Middle period followed by increased use in the Late period centers on his assumption that people who made more-intensive use of acorns may have sacrificed other resources in favor of acorns, in contrast to groups who used a more-diverse plant-gathering strategy. Groups who made more-intensive use of plant resources in general also were predicted to have been associated with more-varied seed assemblages. Therefore, he argued that the subsistence system changed from generalized to specialized and back to generalized. Furthermore, the need to exploit more small seeds in the Late period was considered directly related to the increasing needs of a larger population, given that acorns alone could not support larger populations. Therefore, small-seeded plants became more important to the subsistence system. This is further supported by ethnohistorical reports of controlled burning.

In coastal southern California, the only area with macrobotanical samples that are similar to those of Wohlgemuth (1996, 2002), in collecting and processing methods as well as time depth, is the northern part of coastal San Diego County, where more than 31 sites on Marine Corps Base Camp Pendleton, in varied environmental settings, have been sampled for macrobotanical remains. Those data, collected from sites dating to 6000 b.c.–a.d. 1700 (Eisentraut 1996; Klug and Popper 1995; Martin and Popper 1999; Reddy 1997, 1998, 1999, 2000a, 2000b, 2004a, 2004b, 2004c; Reddy, ed. 1997), have revealed an increase in acorn exploitation at the end of the late Holocene (approximately 500 cal b.p.). In contrast to central California, acorns were not an important resource, and they were not exploited in notable quantities until very late in the cultural sequence in the northern San Diego area. Grasses and legumes were more important plant resources throughout the sequence. In that context, it appears that acorns (particularly those from *Quercus agrifolia* Née [coast live oak] and *Q. engelmannii* Greene [Engelmann's oak] in coastal southern California) would not have been the preferred food when other resources, such as grasses, were readily available (see Chapter 14 in Volume 3 of this series).

The patterns in the plant data from the Ballona sites are more similar to those observed in coastal San Diego County than to those for central California. The exploitation of small seeds and acorns did not oscillate over time; instead, the use of small seeds and acorns was largely similar in the Millingstone and Intermediate periods and increased starting in the Late period (see Table 15). Frequency of nutshell was very low in general across the sequence. The macrobotanical data recovered from the archaeological deposits in the Ballona area suggest a general increase in grass exploitation over time, with a peak in the Protohistoric through Mission period, although there was a decrease in the Intermediate period (Figure 71). As discussed earlier in this chapter, the focus of grass exploitation was on *Phalaris* cf. *caroliniana* and *Hordeum pusillum*. *Phalaris* was preferred over *Hordeum* across the sequence; compared to *Phalaris*, use of *Hordeum* showed a notable decrease in the Protohistoric through Mission period (see Figure 71).

As discussed by Reddy (see Chapter 14 in Volume 3 of this series), the question of when acorns became an integral part of the diet among prehistoric Native Californian populations is an important research topic. After Basgall's (1987) seminal article on the antiquity of acorn economies, there has been much debate on the role and contribution of acorns. Basgall (1987) suggested that when grasses were abundant, acorn exploitation would have had to be viewed as a high-cost subsistence practice, because acorn use is very labor-intensive and has high time-energy costs relative to grass exploitation. What is still unaddressed in coastal southern California is the identification of other factors that could have played a role in developing acorn exploitation as a viable strategy. According to Basgall's (1987) and Bettinger

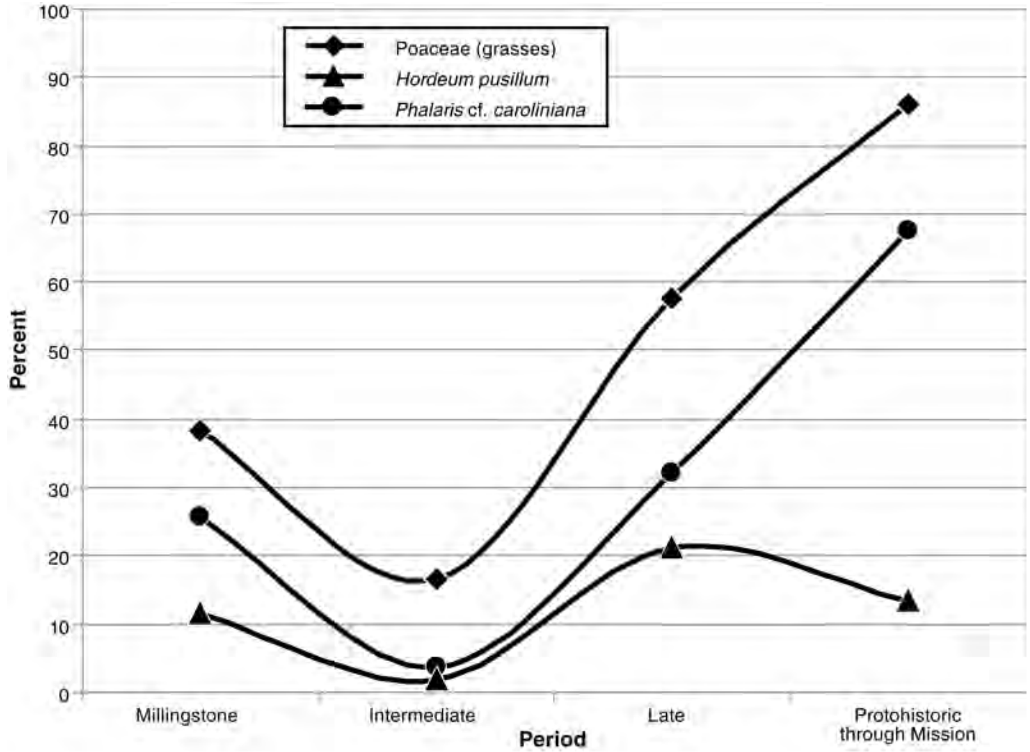

Figure 71. Plant use over time in the Ballona lowlands.

et al.'s (1997) labor-energy calculations, an investment in acorn exploitation would not have been an optimal strategy when other resources were readily available. As determined from evidence from sites in the Ballona area and coastal San Diego County, acorns were never the primary plant resource, although there is no doubt that acorns were a staple in the diet of some aboriginal California populations (Baumhoff 1963; Gifford 1931; Kroeber 1925).

Scholars have had varied perceptions of prehistoric acorn use; some have argued for intensive use starting in 4000 cal b.p. in northern California and the Central Valley (Hildebrandt and Mikkelsen 1993:34; Wohlgemuth 1996), and others have argued for use starting later in the late Holocene in the Santa Barbara Channel area and southern California (Glassow 1996; Reddy 1999). There has been a tendency to argue for early (middle Holocene) incorporation of acorns into the subsistence economy throughout California, rather than focusing on whether different regions could have had varying adaptive strategies. Reddy (see Chapter 14 in Volume 3 of this series) suggested two reasons that could account for the low amount of acorns apparently used by the coastal populations of southern California. First, this food might not have been important in the subsistence system because of the low encounter rate. In other words, wild grasses became more important when the effective abundance and encounter rate of acorns were low (Barlow and Heck 2002:137). If the abundance and encounter rate of acorns was higher than the rates of wild grasses, acorns should have been exploited more heavily. Second, when acorns were used in low quantities, the processing methods did not facilitate carbonization, and thus fewer acorns would have survived into the archaeological record. The most parsimonious explanation of the overall low density of acorns in the macrobotanical collections is that acorns were a minor part of the prehistoric diet in coastal southern California as compared to central California. Different regions of California had different subsistence strategies, and certain resources played different roles in the past. In contrast to what is suggested by the ethnohistorical accounts, acorns did not have a similar role and status in prehistoric subsistence systems throughout California. Plant use, much like material culture, has not been static through prehistory and has not been homogeneous throughout a region.

Land Use in the Protohistoric and Mission Periods

Ecological Change

The arrival of Spanish missionaries in the late 1700s, or perhaps that of the early explorers in the mid-1500s, brought about major changes in Native Californian subsistence systems and to the native landscapes. Several scholars (Hackel

2005; Larson et al. 1994; Milliken 1995) have argued that the introduction of domesticated animals and plants into Alta California by the Spanish had a deleterious effect on the continuation of native lifeways. They believe that this introduction triggered a major ecological change that, together with a number of associated Spanish practices, had broad and far-reaching effects on the diets of Native Californians. Hackel (2005:65) went so far as to argue eloquently that the "dual revolution," involving demographic collapse and ecological change, was as effective in conquering California as a climactic military victory:

> To Alta California, just as elsewhere in New Spain, Spaniards came equipped with unwitting silent armies of pathogens, plants, and animals that rendered them and their institutions nearly invincible. The Old World agents of "ecological imperialism" proved innately suited to the new region and so conquered with a brutal efficiency, undercutting its peoples and the foods they relied upon through demographic and ecological revolutions that dramatically transformed California's human and natural landscape.

Hackel (2005:71) went on to argue as follows:

> Just as European diseases radiated from Spanish centers of settlement into remote Indian villages in the years after 1770, so too did environmental degradation, as Spanish livestock invaded and then exhausted ecological niches farther and farther from the mission and presidio. Into this disturbed environment came a host of weeds and plants that Europeans had inadvertently brought with them. These Old World plants had shown themselves adept at coexisting alongside European grazing animals elsewhere. They were hardier than native grasses and bushes and more suited to dry, compacted soil, and, as a result, they succeeded many indigenous food sources.

Anderson et al. (1997) asserted that the pace of change was so rapid and enormous, especially at lower elevations, that by the time trained botanists and plant geographers arrived in the late nineteenth century to take photographs, many landscapes had been greatly modified. Most critically, the arrival of the Spanish brought about fire suppression, invasive weeds, and heavy, year-round grazing by cattle and sheep, all of which had an immediate and irreversible impact on native vegetation and quickly led to the eradication and replacement of native grasses with introduced species (Minnich 2008). Preston (1998) noted that one of the reasons why introduced weeds were so successful was that the native grasses required periodic disturbances, such as burning, to grow vigorously and to reproduce competitively. Some Native Californian groups were noted for the practice of burning grasslands to promote plant growth (Timbrook et al. 1982). The interruption of that management practice contributed to the reduced viability of native grasses and, ultimately, to encroachment and replacement by nonnative plants. For example, with a dramatic reduction in the cycle of fire maintenance, weedy herbs, especially thistles, which cattle find unpalatable and avoid, spread indiscriminately over millions of acres of former coastal prairie. Preston (1998) also observed that most of the invasive weeds had evolved in environments with domestic livestock in the Old World and therefore had a competitive advantage. In contrast, the native perennials and annuals evolved in a nonpastoral setting and therefore were at a competitive disadvantage, not adapted to intensive grazing and trampling by thousands of large, hoofed animals. Using evidence from Protohistoric archaeological sites, Preston (1998) noted that nonnative species gained a foothold in California long before the gold rush and that the environmental change began before the Mission period. To document how quickly the nonnative plants spread across the landscape, Minnich (2008) presented examples of plant observations made in the early 1800s by explorers in coastal California. Large stands of nonnative *Brassica nigra* (mustard) were observed in coastal areas between San Diego and Santa Barbara in 1827, and nonnative filaree (*Erodium*) was recovered from mission bricks throughout California between 1776 and the 1830s. José Longinos Martínez also noted, in 1792, that mustard was a common field plant in coastal California between San Diego and San Francisco (Longinos Martínez 1938:34).

Research at Mission Santa Clara has revealed that Old World weeds quickly dominated the landscape surrounding the mission, as determined from pollen and seed remains from adobe bricks and from seeds in archaeological samples (from contexts within an adobe residence that housed neophyte families). There was widespread proliferation of nonnative vegetation in the first decades of the 1800s (Allen 2010). In general, the stands of native trees around the mission remained, but the local grasses and weeds were replaced by nonnative plants (both domesticated and wild). It is not known whether that change in vegetation was confined primarily to the immediate environs of the mission or extended farther afield.

It is not surprising that the native landscape and vegetation were drastically changed by the introduction of domesticated animals. Once introduced, herds of horses, cattle, pigs, and, somewhat later, sheep multiplied quickly. The animals were allowed to range freely over California's grasslands, an excellent natural pasturage that allowed the herds to multiply quickly. Herding policies of the Spanish (which forbade Native Californians from killing them), a policy of exterminating predators (e.g., bears), and the small population of people of European descent and mission-dwelling Native Californians available to eat them no doubt also contributed to the explosive expansion of the domesticate population (Hackel 2005). Examination of data on domesticated animals from Mission San Gabriel (Engelhardt 1927a) and the Pueblo of Los Angeles (Mason 2004) showed a dramatic increase in the numbers of these animals in a 100-year period (Figure 72). Note that Mission San Gabriel's ranchlands were the most

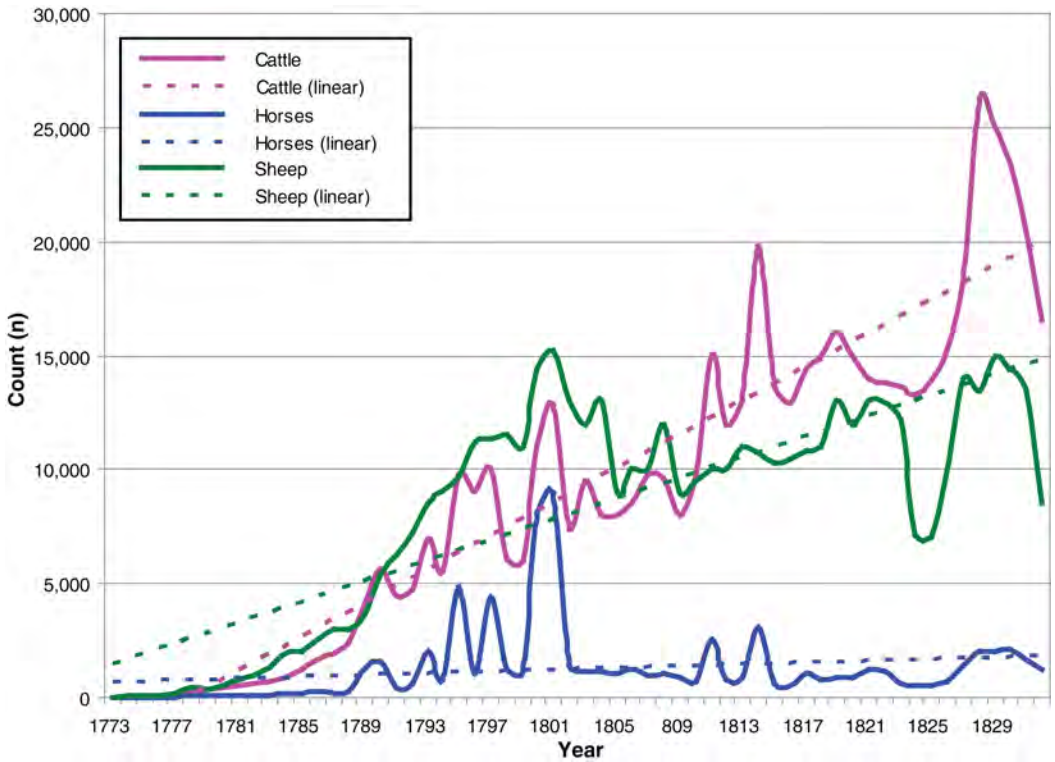

Figure 72. Cattle, horses, and sheep at Mission San Gabriel and the Pueblo of Los Angeles (Engelhardt 1927a; Mason 2004).

extensive of any of the California missions and extended over 2,100 square miles (Gentilcore 1961). In addition to the herds on mission lands, the ranchos in the area had many cattle and horses. When the numbers of cattle, sheep, and horses at the mission and the pueblo are compared, sheep populations expanded much faster than cattle and horse populations. Gentilcore (1961:Figure 7) also noted such rapid expansion at other missions (see also Hackel 2005). The distributions in Figure 72 show remarkable periodic increases and dips in the populations of all three animals.

Spanish colonists quickly recognized that the rapid increase in the herds of domesticated animals was having a deleterious effect on native vegetation and that they were rapidly running out of sufficient pasturage for their ever-growing herds, and that necessitated a reduction in herd size (Engelhardt 1927a; Mason 2004; Wade 2008). For example, in 1807, there was a slaughter (*matanza*) of stallions and mares owned by the pueblo settlers (*pobladores*). That was done to conserve pasture, because horses outnumbered cattle, and they were not needed in such large numbers (Mason 2004:43). Typically, horses were used at the mission(s), and they were also traded with the presidios and with northern Mexico; however, cattle had multiple uses: as food, soap and candles (from fat), glue and other materials (from hooves), and clothing and other items (from hides) (Gentilcore 1961; Wade 2008). There are accounts from Mission San Buenaventura of excess meat when cattle were slaughtered for hide and tallow during particular seasons; the excess meat could not be used by the mission or the neophytes and was burned in the fields (Wade 2008). Sheep were an important source of income to the mission, from both wool and milk, and there are no records of slaughtering sheep to curb population growth. That is indeed intriguing, because the grazing and browsing behavior of sheep and goats is much more destructive than that of cattle and horses; sheep and goats chew the grass down to the roots.

The differences between the animal herds kept by Mission San Gabriel and those of the Pueblo of Los Angeles are interesting. Although the data from the pueblo are not complete, it appears that the mission was more successful in raising cattle (Figure 73). With the exception of one year, 1801, the mission had more cattle than the pueblo. In contrast, the pueblo had more horses, despite occasional culling of herds (for example, in 1796 and 1817) (Figure 74). The differences in the cattle and horse populations between the mission and the pueblo could be a reflection of their different roles in the regional economy. The Pueblo of Los Angeles was established in 1781 to reduce military dependence on supply ships for food (Gumprecht 1999; Hackel 1998:117). Although there is a dearth of data for agricultural production from the pueblo, a surplus was produced periodically. Interestingly, despite their role in supplying the presidios, the *pobladores* were allowed to sell their produce to supply ships and to Baja California starting in 1801 (Hackel 1998). If the main objective of the pueblo was to provide agricultural products to the military, it is difficult to explain why horses were so numerous.

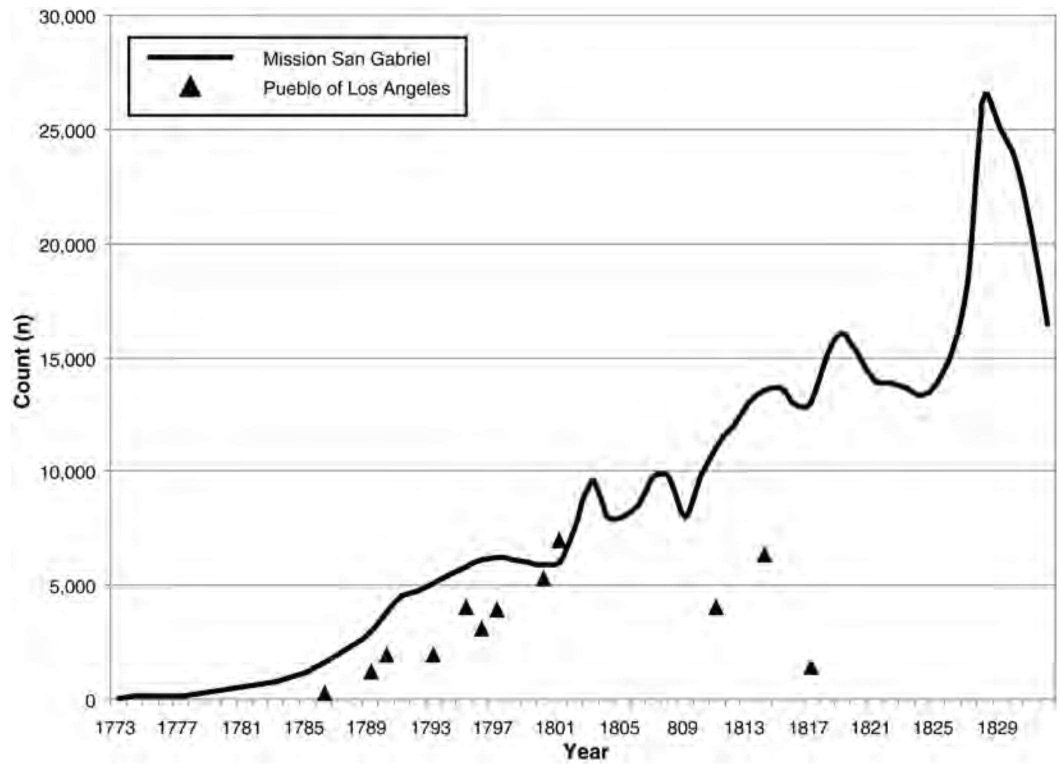

Figure 73. Cattle owned by Mission San Gabriel and the Pueblo of Los Angeles (Engelhardt 1927a; Mason 2004).

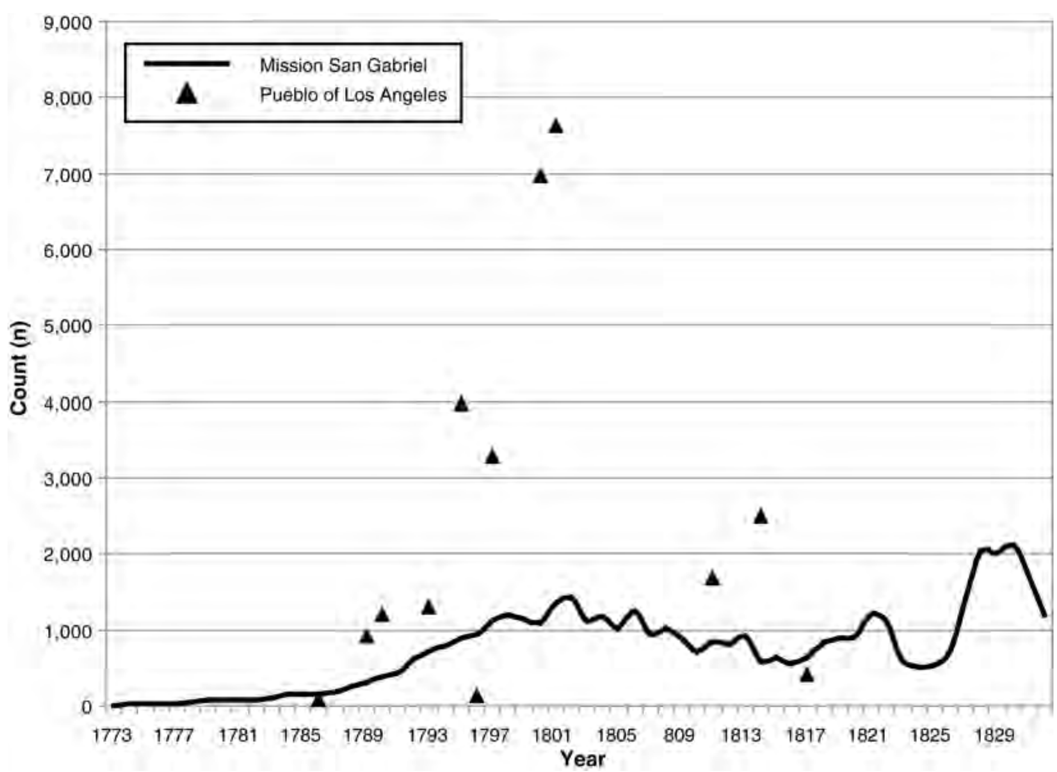

Figure 74. Horses at Mission San Gabriel and the Pueblo of Los Angeles (Engelhardt 1927a; Mason 2004).

Regardless, the subsistence economy of the Gabrielino/Tongva was severely affected by the expansion of the fields and herds of the Pueblo of Los Angeles and Mission San Gabriel. When crops failed, the Franciscans wanted neophytes to supplement their mission diet with native foods, because the missions could not provide sufficient quantities of food to feed them. Hackel (2005:84–86) described the system of leaves for neophytes that the missions adopted. That system allowed the neophytes to return to their old foraging areas to hunt and fish. The native landscape, however, was being destroyed by introduced plants and animals (Milliken 1995). As a result, the neophytes had to range much farther afield to obtain the native plants and animals that they had gathered and hunted in the past.

In addition, Native Californians, especially gentiles—those outside the mission system living in their native villages—could not take full advantage of the introduced species, which had replaced their native plants and animals. Despite periodic culling, horses remained valuable and off-limits to natives. Horse theft resulted in strict punishment (Spielmann et al. 2009). Spanish authorities severely punished Native Californians who were caught killing or stealing free-ranging cattle or horses (Hackel 2005; Silliman 2001:387). Nonetheless, there is no doubt that such offenses occurred. Mason's (2004:22) collection of documents from the Pueblo of Los Angeles noted a theft of cattle during the summer of 1788. Lightfoot (2005:157–158) discussed livestock thefts by Native Californians from the Russian colony of Fort Ross. The Spanish also forbade equipping Native Californians with horses and guns. That policy was both a product of supply—there were insufficient guns even for the soldiers and colonists in Alta California (Hackel 2005:339)—and a conscious decision by the Spanish to avoid perceived mistakes that they and other colonial powers had made in eastern North America and the Southwest. In those other regions, the colonizers created formidable native opponents to their colonial expansion by trading guns and horses to Native Americans (Lapham 2005).

Neophytes living at the missions, however, soon came to depend on domesticated plants and animals for their diet. Hackel (2005:89–90) went so far as to suggest, on the basis of unspecified archaeozoological reports, that "beef and mutton made up at least 80 percent of the meat consumed by Indians in some missions." Agricultural production by Mission San Gabriel and the Pueblo of Los Angeles included the cultivation of *Triticum* cf. *aestivum* (wheat), *Hordeum vulgare* (barley), *Zea mays* (corn), *Pisum sativum* (peas), and *Phaseolus vulgaris* (beans) and other Old World food crops. Wheat was the primary crop at all the missions. At Mission San Gabriel, both wheat and corn were important crops; wheat was grown in the fall, and corn was grown in the spring/summer (Gentilcore 1961). Starting in 1790, Mission San Gabriel produced the most wheat among the missions; the high productivity was attributed to good weather (lack of fog) and soils and to the availability of water for irrigation. According to Webb (1982:92), there were 12–15 grain ranches in the Mission San Gabriel agricultural system. The agricultural fields were worked by neophytes, and the wages of those laborers (starting in 1787) included one-third to one-half of the crops that they harvested (Hackel 1998). Native Californians, however, preferred to work at the pueblos and ranchos (rather than the missions), where they were not subject to the strict rules of the missions and were free to return to their villages at the end of the day (Hackel 1998:128).

Archaeological evidence has documented Native Californian use of domesticated plants and animals. For example, Allen (2010) reported that the carbonized remains from 1820s neophyte house pits adjacent to Mission Santa Clara included domesticated (44 percent), native (41 percent), and unidentifiable (15 percent) plants (see also Wohlgemuth 2005). Analysis of carbonized seeds from another neophyte residence near that same mission primarily yielded seeds of domesticated plants (83 percent); native-plant seeds accounted for less than 17 percent of the collection (Allen 1998). Wheat made up 53 percent of the carbonized seeds, and 12 percent was corn.

In terms of domesticated animals, the faunal remains from mission and neophyte contexts were remnants of animal food provided by the Spanish. Thus, the large numbers of chicken, cow, pig, and sheep/goat bones recovered from excavations at the neophyte dormitory at Mission San Antonio (Langenwalter and McKee 1985) were the remains of meals/rations that the mission fathers had given to neophytes. Bones from domesticated animals, principally cattle, made up 42 percent of the collection from that site. Similarly, Voss's (2008a) small sample of animal bones from contexts in colonial San Francisco (although a very different context from the missions) contained elements of chickens, cattle, and sheep/goats, and all these together constituted 51 percent of that collection. The percentages of domesticated animals for both of these sites fell far short of Hackel's (2005) assertion that domesticated meat made up 80 percent of the meat consumed by neophytes at missions. Nonetheless, the domesticated animals made up the dominant category of animals in both collections.

Evaluating the Evidence of the Dual Revolution

The evidence for ecological change and its eventual impact on Native Californian populations in Alta California is unassailable. Yet, that said, the pace of landscape change and its impact on native lifeways cannot be quantified. Good archaeological evidence has demonstrated that ecological change in the environs of missions and other Spanish settlements was indeed rapid (Allen 1998, 2010; Preston 1998). However, the pace of the impact on more-distant native settlements and the broader landscape has not been measured.

Seeds of Old World domesticated crops, such as barley, wheat, and *Cicer* sp. (chickpea), and of New World corn were recovered in low frequencies from the Mission period contexts at LAN-62 and LAN-211 in the PVAHP. The domesticated plants accounted for 0.4 percent of the carbonized seeds from Mission period contexts at the two sites, but there were interesting intersite differences. The seeds of domesticated crops were recovered in higher frequencies from the domestic contexts at LAN-211 (4 percent) than from the mortuary and mourning contexts at LAN-62 (0.2 percent). These results suggest that different social norms and rules guided which foods were offered in mortuary contexts and which foods were acceptable to eat daily. That important difference will be explored later in this chapter. The clear differences between the neophyte contexts at missions and the Gabrielino/Tongva habitation contexts in the Ballona indicate that although domesticated crops were an important part of subsistence for Native Californians in mission contexts, those crops were not a critical component of the diet in gentile contexts during the Mission period.

Faunal remains from the Mission period contexts in the Ballona also differed markedly from the collections derived directly from neophyte contexts associated with California missions, including Missions San Francisco, San Antonio, and Santa Clara (Garlinghouse and Curry 2010; Langenwalter and McKee 1985; Voss 2008a). First, the faunal collections from the neophyte contexts at the missions were substantially less diverse than those from the Ballona. The Mission San Antonio collection comprised a maximum of 39 species (Langenwalter and McKee 1985), whereas the sample from Mission San Francisco had 26 species (Voss 2008a), and the sample from Mission Santa Clara had only 21 species from neophyte contexts (Garlinghouse and Curry 2010). Cow bones dominated the faunal collection; cattle played a major role in the subsistence of the mission inhabitants. Sheep remains constituted a small proportion of the faunal collection. Deer were also hunted; the presence of their remains suggests some continuation of aboriginal hunting practices, but deer bones were not very numerous in the collection and, as determined from the biomass estimates, did not contribute substantially to subsistence. On the basis of biomass calculations, Garlinghouse and Curry (2010) stated that the dearth of nondomesticated species in the faunal collection at Mission Santa Clara indicated that wild species did not play a central role in the overall subsistence pattern; instead, wild species probably were supplemental and less critical to the diet. The pattern noted at Mission Santa Clara was similar at Mission San Buenaventura, where researchers estimated that beef accounted for 80–90 percent of the meat diet of neophytes (Romani and Toren 1975). The same large percentage of cow remains was found in neophyte-associated trash areas at Mission San Antonio (Langenwalter and McKee 1985). Similarly, at Missions Santa Cruz (Walth 1990) and San Juan Bautista (Farris 1999), cow remains dominated collections associated with neophyte residences.

In contrast, the Ballona collections from the Mission period were considerably more diverse than the collections from the neophyte contexts at the four missions; the Ballona collections comprised 140 vertebrate and invertebrate species. The diversity of the Ballona collections indicates that the population pursued a lifeway that was partly connected to the mission/pueblo/rancho system but was not bound to it. Neophytes living at the missions, the ranchos, or the pueblo may have had the opportunity to visit their natal villages occasionally, but that did not substantially impact the daily composition of their meals, because most of their time was spent at the mission, pueblo, or ranchos.

Seen from the perspective of the neophyte assemblages in general, the Ballona faunal collections contained few bones of domesticated animals. Even if the mission samples did not equal the proportion (80 percent) of introduced artiodactyls as suggested by Hackel (2005:89–90), the samples nonetheless demonstrated that a very substantial portion of meat consumed by the neophytes came from Old World domesticated animals. The ratio of introduced artiodactyls to all artiodactyls (introduced/[introduced + native]) for the Ballona was 0.30, whereas the ratios for Missions San Antonio and San Francisco were 0.99 and 0.98, respectively.

In addition to a lack of proximity between Mission San Gabriel and the Ballona settlements, there may also be a chronological factor to explain the dietary divergences between the mission and native villages. Hackel (2005:67–70, 74–80, 90) pointed out that although the Spanish agricultural system had a significant impact on each mission's successful implementation of the system in all areas of California, it took some time in each case. Once fully established and self-sufficient, the missions' and private ranchos' herds devastated the landscape and had the effect, intended or not, of driving more Native Californians to the missions, as native sources of food were wiped out by competition from the protected domesticates and the diseases that the animals brought to some of the native fauna. Thus, the very clear differences between the Ballona diet and the domesticate-dominated diet that Hackel (2005:89–90) reported and the differences between the Ballona diet and the diet evidenced by faunal remains from Mission San Antonio (Langenwalter and McKee 1985), San Francisco Presidio (Voss 2008a), and Mission Santa Clara (Garlinghouse and Curry 2010) may also reflect differences in time. The Ballona region did not appear on early mission maps, which were focused on inland native settlements (Geiger 1971), and apparently there was little interaction between the natives of the Ballona and the Spanish before 1790. Although the herds of the *pobladores* may have begun to graze in the Ballona area after 1790, the Gabrielino/Tongva flight to the missions began in 1803, a time that roughly coincided with the establishment of Rancho de los Quintos in the Ballona. Mission recruitment from the Ballona area was sharply reduced by 1810. This suggests that the Gabrielino/Tongva had left the area, probably because they could no longer hunt and gather native resources, which may have been rapidly curtailed. No native settlement was observed when the Machado and Talamante brothers took over the Ballona in 1819.

Clearly, the data from the Ballona sites indicate that the Native Californian diet changed during the Mission period, but it was not overwhelmed immediately by contact with Europeans and the plants and animals that the colonists brought with them. The dietary profile for the Protohistoric through Mission period probably reflects the fact that the Gabrielino/Tongva were able to maintain much of their traditional diet for several decades after the establishment of Mission San Gabriel, given that those living in the Ballona were not bound to the mission, which would have limited their mobility and their ability to fish, hunt, and collect shellfish. The question of how domesticated plants and animals were obtained by the native populations of the Ballona still remains. Perhaps the plants (crop grain) were obtained as payment for labor in the mission or the pueblo. An alternative is that natives from the Ballona who were living in the pueblo or the missions brought back some of those domesticated foods during their annual or semiannual returns. The Mission period faunal remains from the Ballona reflect the internal dynamics of these settlements, although they also were influenced by the establishment of the missions and the Pueblo of Los Angeles.

The location of the settlement in the Ballona, at a considerable distance from Mission San Gabriel, could also have helped the population to maintain their culture and, specifically, their diet. Hackel (2005) noted the eagerness with which mission neophytes visited their native villages for social contact and the opportunity to eat traditional foods, which underlines the continued importance of traditional diet in the transformation of the Native Californian population from hunter-gatherer-fishers to a people greatly dependent on mission-produced plant and animal foods. It is worthwhile to think about a link between the periodic visits of native neophytes or the gentiles working at the pueblo and ranchos to their home villages and the high diversity of species in the highly concentrated Ballona Mission period midden at LAN-211. Perhaps the midden, with some articulated faunal skeletal elements and a diverse collection of artifacts and subsistence data, could have been related to periodic feasts. In other words, feasts may have been held at the time of visitations, to celebrate the return of community members and to renew social bonds. In preparation for the events, collecting a large number and a wide variety of both native and domesticated plants and animals would have been necessary.

As discussed earlier, scholars (e.g., Anderson et al. 1997; Hackel 2005; Minnich 2008; Preston 1998) have argued that introduced domesticated animals and nonindigenous weedy plants quickly extirpated native grasses. The high densities of wild-grass seeds in the Protohistoric through Mission period deposits at LAN-62 and LAN-211 do not fit the model of marginalized and decreased native vegetation. If indeed native grasses were depleted, could the Gabrielino/Tongva have continued to make extensive offerings of wild-plant seeds, as evidenced in the mourning-ceremony contexts at LAN-62? Instead, one would predict that the offerings would have been more symbolic and less abundant, but that was not the case. In other words, although the relationship between colonialism and environmental impact has been discussed by many scholars, the intensive use of native plants observed during the Protohistoric through Mission period in the Ballona (see Chapter 14 in Volume 3 of this series) contradicts the expectations of a depleted native environment.

There are two major lines of evidence that contradict the assertions that introduced plants and animals had a significant effect on the availability of native foods in the Ballona (Figure 75). First, the dramatic changes in vegetation proposed for the Los Angeles Basin during the Mission period are not very plausible, given the high densities of carbonized seeds of wild grasses and other plants recovered from Mission period contexts (see Chapter 14 in Volume 3 of this series). Their recovery contradicts earlier assertions that grazing by introduced Old World domesticated animals during the Mission period quickly disrupted Native Californian gathering practices because of marginalized and decreased native vegetation (e.g., Hackel 2005). To the contrary, the recovery of high densities of seeds of native wild grasses and other plants in Mission period contexts at LAN-62 and LAN-211 suggests that native plants remained abundant throughout the Mission period occupation of those sites. Second, the increased exploitation of native artiodactyls (deer) observed in the Mission period contexts relative to earlier periods lends more evidence that wild animals and plants were not displaced in the Ballona area to the extent predicted by other scholars (Hackel 2005; Milliken 1995). The contexts in which native plant and animal remains were recovered are of particular interest. Most of the food remains recovered from the mourning-ceremony area at LAN-62 and the feasting area at LAN-211 were from locally available wild plants and animals. The remains of domesticated plants and animals were present in much lower frequencies in those contexts. The consumption of large quantities of wild plants and animals in ritual contexts suggests that there was actually a surplus of wild foods that extended beyond the basic needs of daily consumption by the Mission period residents of the Ballona.

It is undeniable that the southern California environment was severely impacted by the planned and accidental introduction of large numbers of Old World plants and animals and that those introduced species quickly replaced native species. But the timing of that environmental revolution and its impact on Gabrielino/Tongva populations should be reconsidered. Evidence from the Ballona suggests that the introduction of Old World plants and animals did not have a significant impact on the local Gabrielino/Tongva residents during much of the Mission period; their impact may have been restricted largely to the immediate environs of the missions and the pueblo.

The first identified report of cattle in the Ballona area dated to 1787 and revealed that Native Californians who lived near Santa Monica Bay had killed and eaten cattle. At that time, the Ballona area was considered common grazing land belonging to the pueblo. The cattle referred to in the 1787 report may have come from the herds of Juan José Domínguez, a retired soldier from the San Diego Presidio, who, in 1784, received the first documented grant of grazing lands in the Los Angeles area (Stoll et al. 2008). Domínguez's lands were

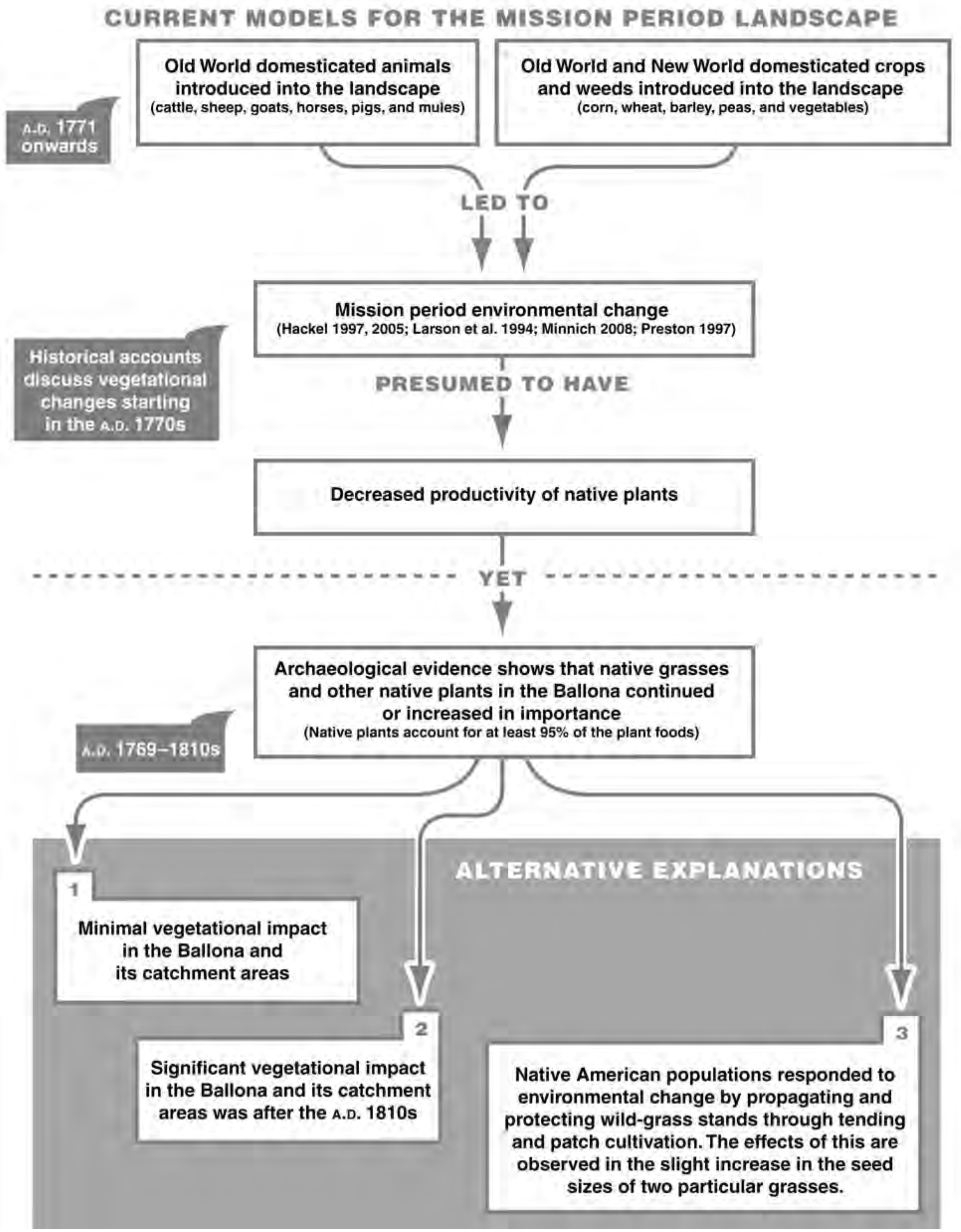

Figure 75. Reconstructions of Mission period adaptations in the Ballona.

located well south of the pueblo, on the lower part of the San Gabriel River, near the ocean, but apparently, his cattle ranged far northwest, into the Santa Monica Bay area. A connection between Domínguez and the Ballona area was also indicated by Francisco Xavier Pico, who had been caring for Domínguez's rancho at the time. According to the baptismal registers, Pico was the officiant at several baptisms, including the only baptism to take place in Guaspet, that of an infant, Joseph, in 1790 (see Chapter 8 in this volume). The historical evidence clearly reveals that cattle were in the Ballona area by the late 1780s; what is not clear is how extensive those early herds were and what impact they had on the Ballona. The archaeological evidence suggests that whatever impact grazing had on the Ballona, it did not significantly impact native subsistence and ceremonial practices. Despite the presence of cattle, the Gabrielino/Tongva residents of the Ballona continued to consume and make offerings of large quantities of native plants and animals into the first decade of 1800.

Around 1804, however, Pío Quinto Zúñiga was given the first grant of land in the Ballona (Mason 2004). Known as Rancho de los Quintos, it was located at the mouth of the Los Angeles River, which, at that time, emptied into Santa Monica Bay in the Ballona area. The Quinto Zúñiga family had several indirect but important connections to Guaspet, the Gabrielino/Tongva village in the Ballona area (see Chapters 7 and 8 in this volume), suggesting that members of the family lived in or spent time herding cattle in the Ballona. The establishment of Rancho de los Quintos and the more intensive interaction between the Quinto Zúñiga family and the natives of the Ballona suggest much more intensive ranching in the area than when it was common grazing land. When Pío Quinto Zúñiga died, the family lost control of their grant (by 1809), and the land in the Ballona area reverted to common grazing land. By that time, the damage to the environment already may have been sufficient to drive out the native population. The first baptisms from the Ballona were few and sporadic, but a wave of baptisms beginning in 1803 and continuing through 1805 suggests that a large proportion of the native population of the Ballona was resettling at Mission San Gabriel and the village of Yaanga, adjacent to the Pueblo of Los Angeles. The onset of that resettlement, within a year of the establishment of Rancho de los Quintos, was probably not coincidental and may reflect the fact that by that time, environmental degradation had reached a point at which the Ballona area could no longer support the native population.

We cannot deny that the native population of the Ballona was affected by the introduction of Old World plants and animals from the beginning of the Mission period, because they actively incorporated them into their diet. There is also evidence, however, that Native Californians responded to the changes in their environment by propagating and protecting wild-grass stands through tending and patch cultivation. The effects of this are observed in the slight increase in seed sizes of two particular grasses (see Chapter 14 in Volume 3 of this series). The macrobotanical data from Mission period contexts at Ballona sites support a model that suggests that native populations cultivated wild grasses and were, at least for a short time, successfully keeping traditional grasses as a diet staple even while native vegetation may have become depleted. José Longinos Martínez noted in 1792 that women harvested wild seeds by shaking the seeds from the plants into a basket with the use of a fan (Longinos Martínez 1938:43). The recovery of *Phalaris* sp. and *Hordeum pusillum* in high densities from Mission period contexts at LAN-62 and LAN-211 indicates strong preference for these particular plants by the native populations. *Hordeum pusillum* and *Phalaris* sp. accounted for 13 and 86 percent, respectively, of the carbonized seeds recovered from Mission period contexts at LAN-62 and LAN-211. These two grasses were ubiquitous in the Mission period deposits of both sites and had been specifically targeted and collected for food and rituals. *Phalaris* sp. was the most ubiquitous plant, with a ubiquity score of 98 percent, and *H. pusillum* had a ubiquity score of 82 percent. Therefore, there was a slight preference for *Phalaris* sp. over *H. pusillum* (for a detailed discussion, see Chapter 14 in Volume 3 of this series).

Although it is unclear whether these grasses were cultivated, which would involve sowing, tending, and harvesting, it is very likely that they were encouraged by Native Californians. Detecting initial morphological changes at the beginnings of cultivation are hard to discern in the archaeological record. However, an increase in seed size is widely recognized as one of the early indicators that the selective pressures on a wild-plant species have changed (an indicator of a step toward domestication). Reddy's (see Chapter 14 in Volume 3 of this series) analysis of seeds of both *Phalaris* sp. and *H. pusillum* indicated an increase in seed size from the Millingstone period through the Mission period. The change in seed sizes of these two grasses, in addition to their ubiquitous recovery, has important implications. Reddy (see Chapter 14 in Volume 3 of this series) argued that the changes in seed size are consistent with general expectations for initial grass cultivation and that those changes were the result of intentional human activities. Because the size of seeds increases over the course of plant domestication before there are changes in nonmetric attributes (e.g., the development of nonshattering seed stalks) (Fuller 2007), increasing seed size could be the earliest index of horticultural experiments conducted with potential domesticates.

Whether they tended the wild-grass stands through periodic weeding and cleaning of undergrowth or opportunistically "cultivated" wild grasses, it appears that the Ballona populations were involved in some form of low-level food production (Reddy n.d.) (Figure 76). The Gabrielino/Tongva may have periodically tended natural grass stands in the Ballona catchment area by cleaning out dead and/or undesired undergrowth, perhaps both within and beyond their daily foraging range. The stands could have been known stands that were targeted over several generations by the Ballona population. Anderson (1993:155) argued that Native Californians transformed areas where "desirable plants grew" into favored gathering areas through indigenous management

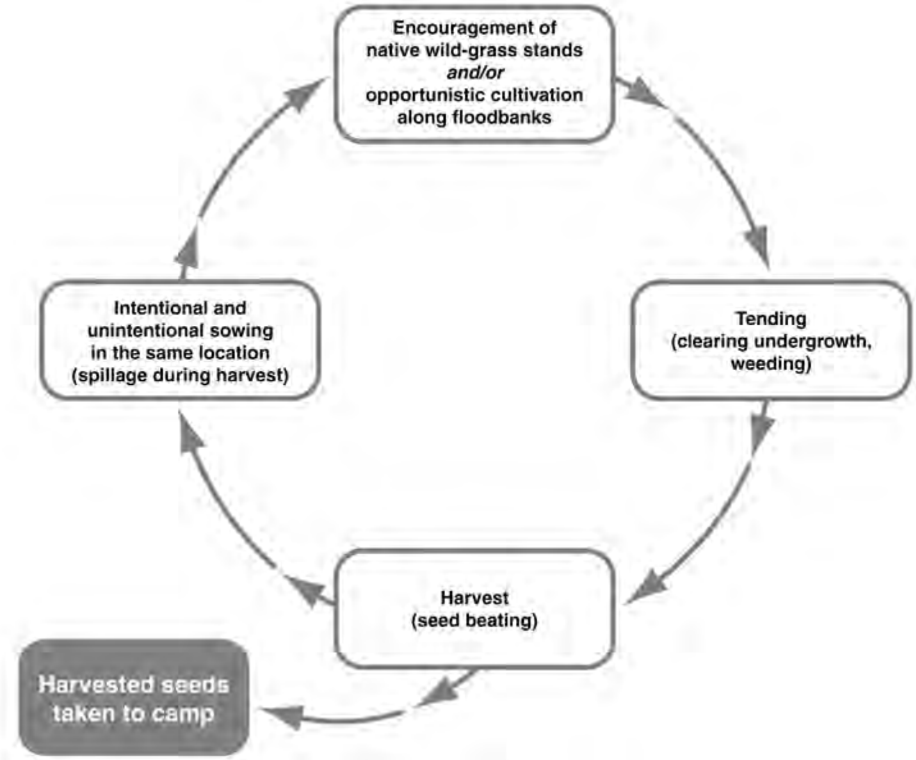

Figure 76. Hypothesized low-level food production in the Ballona during the Mission period.

activities that increased plant productivity. Those activities would have included burning (to encourage particular plants that are fire followers) and even tilling, and they would have fit logistically into daily foraging excursions. When the seeds were ready for collection, the harvesting method itself (beating seeds into collection baskets or uprooting the plants) would have resulted in unintentional sowing for the next season. For example, given the brittle rachis of wild grasses, a certain percentage were bound to have fallen to the ground and been left there for the next season, thus ensuring the continued propagation of the stand.

The Gabrielino/Tongva may also have cultivated wild grasses opportunistically along the banks of Centinela and Ballona Creeks (Reddy n.d.). Opportunistic cultivation along the banks of drainages, also referred to as décrue planting, would have involved planting around the edges of receding floodwaters (see Carney 2001; Clawson 1985; Reddy 2003). Ethnographic research and ethnohistorical accounts of such flood-recession cultivation from different parts of the world, including the southern United States, Africa, and south Asia, have documented the low labor investment and high returns of this practice. For example, Reddy (2003) has demonstrated that the crop produced from décrue cultivation not only requires minimal labor costs in tillage but also does not require weeding, because the flood deposits are naturally "sterile" in terms of weed seeds. In other words, once the desired plant seeds are broadcast into the flood deposits, there is little competition from unwanted seeds (weeds). Furthermore, Reddy (2003) has demonstrated that the harvested grains are relatively clean of undesirable seeds and that labor investment in cleaning the grain before food preparation is minimal. In the Ballona area, décrue cultivation of *Phalaris* sp. and *H. pusillum* would have been a simple but sophisticated response to the impact on natural vegetation and decrease in native grasses caused by the increased grazing of introduced animals. The increased seed size of both *Phalaris* sp. and *H. pusillum* resulted from the selective sowing of seeds rather than a natural process. However, the practice did not result in domestication, because it was a short-lived adaptation (for a few decades). Nonetheless, it could explain the presence of high quantities of wild-grass seeds in archaeological contexts at a time when many scholars believe that native vegetation was being depleted.

On a final note, most of the studies that argue that the establishment of the mission system degraded the native landscape across California have used data from ethnohistorical records (Hackel 2005; Larson et al. 1994; Milliken 1995) and neophyte contexts (Allen 2010; Preston 1998), either within missions or immediately adjacent to them. None of these studies included aboriginal settlements from the Mission period, like those in the Ballona, which were located at some distance from Spanish settlements. The argument here is not that there was an absence of environmental impact or vegetation depletion with the introduction of Old World crops and herds of cattle, sheep, and horses but that the data from the Ballona sites suggest that such impacts were neither immediate nor universal. Areas closest to the missions and pueblos were undoubtedly impacted first and on a greater scale than more-distant locations like the Ballona. Cattle probably were not introduced in large numbers for grazing in the Ballona area until the establishment of Rancho de los Quintos, and farming was not established until long after native settlements had been completely abandoned. Thus, we suspect that the aboriginal occupation of the Ballona area in the Mission period was not adversely affected by introduced Old World domesticates, primarily because of its location at some distance from both Mission San Gabriel and the Pueblo of Los Angeles, and that the area was not abandoned until ranchos were established in the area in the 1800s.

The Role of Domesticates in the Ballona Subsistence System during the Mission Period

The presence and use of domesticated plants and animals in the Ballona area during its Mission period occupation have been documented by the recovery of those remains from domestic and mortuary contexts at LAN-211 and LAN-62, respectively (see Chapters 10 and 14 in Volume 3 of this series). The new resources may have been obtained directly, as payment for labor at the Pueblo of Los Angeles and local ranchos, or indirectly, from villages closer to the pueblo or from relatives returning periodically from the pueblo. Ethnohistorical records indicate that Native Californians worked the fields of pueblos and ranchos in return for a share of the harvested crop, and historical records indicate an association between the Mission period residents of the Ballona and at least two different ranchos, as well as the pueblo (see Chapters 7 and 8 in this volume). Although domesticated plants were not part of the corpus of traditional plant foods, they were incorporated into native social settings, albeit depending on context. Introduced domesticated plants were most abundant in daily domestic settings (LAN-211); use in annual mourning ceremonies (LAN-62, FB 3) and in burials (LAN-62) was more constrained. Notably, there appears to have been a concerted effort to minimize agricultural products as direct offerings into burials. In contrast, domesticated animals such as cow, sheep, and goat were present in similar frequencies in both domestic and mortuary contexts, suggesting that there was no effort to distinguish between native wild-animal foods and domesticated animals (acquired from missions and ranchos) in mourning offerings and related funeral feasts (see discussion in Chapter 6 in this volume). Wild-plant seeds, however, were the preferred plants broadcast or offered directly onto the deceased during interment, whereas selected agricultural foods were included in ritual offerings made during annual mourning ceremonies. The fact that the aboriginal populations were including new foods in their ritual practices soon after those plant foods were incorporated into their diet indicates that they looked favorably on at least some of the new foods acquired from the missions and ranchos. Although the composition of the mortuary features at LAN-62 demonstrates the remarkable persistence of traditional ritual practices, the inclusion of introduced foods is noteworthy. New foods (both plants and animals) were readily consumed during feasts (as noted at LAN-211), but only some were incorporated into ceremonial activities centered on mortuary rituals. The wild foods offered during mortuary rituals may have acted as a medium to bind populations from a wider region, through powerful links between food and memory (Feeley-Harnik 1995a; see also Sutton 2001). Consumption and ritual offerings of traditional foods may have reinforced cultural traditions in a rapidly changing world (Reddy 2010). At the same time, limited incorporation of new foods into those ritual events confirmed the acceptance of new cultural items.

Summary and Conclusions

Long-term research efforts in the Ballona area have yielded important results and have provided valuable insight into the subsistence strategies of prehistoric and Historical period populations of this unique landscape. The research has made significant theoretical strides regarding four issues for the Ballona: definition of maritime vs. littoral adaptations over time, the presence and role of costly signaling during the Intermediate period, responses to the MCA, and Native Californian responses to the environmental changes during the Mission period.

Littoral adaptations characterized the subsistence for Ballona populations through time and were distinguished by a stronger focus on the terrestrial resources of the coast and the aquatic resources of coastal estuaries and open coastlines. Sea mammals and finfish, especially pelagic species, constituted a small part of the faunal assemblage, and technological hallmarks of the maritime adaptation, the *tomol* and the shell fishhook, were absent (or only present in low frequencies).

The increase in large-game hunting noted between 4000 and 2500 cal b.p. in central California has been attributed to social factors (costly signaling, or "show off" behavior) by Hildebrandt and McGuire (2002, 2003), although there has been lively debate regarding the merit of that interpretation (e.g., Broughton and Bayham 2003; Codding and Jones 2007). We contend that the ecological (Broughton and Bayham 2003) and social (Hildebrandt and McGuire 2003) models predict similar results, and it is difficult to imagine what evidence could be mustered that could support one model against the other. Evidence from the Ballona area cannot support either hypothesis; in addition, the Ballona data do not show the predicted changes in large-mammal hunting in relation to increasing population. Only a slight increase (2 percent) in the exploitation of large mammals was evident from the Millingstone period through the Intermediate period, when the human population of the Ballona area increased dramatically. Instead, the only major increase in the proportion of large game in faunal assemblages came during the Protohistoric through Mission period. We note that an increase in large mammals would be expected with the introduction of the bow and arrow in the Ballona, as evidenced by the recovery of large numbers of projectile points in deposits dating from 1000 b.p. onward. However, large game was heavily exploited only in the Protohistoric through Mission period, when the residents of the Ballona area began to hunt deer more often, or at least more successfully, than before.

In terms of the response to the MCA (A.D. 800–1350 [1050–650 cal b.p.]), the trends in the Ballona faunal data do not fit well with expectations based on patterns of faunal exploitation during the MCA noted in other areas of California, where exploitation of aquatic fauna increased significantly relative to the pre-MCA period. In the Ballona area, the MCA climatic change did not lead to a reduction in terrestrial fauna and a concomitant increase in the relative reliance on aquatic fauna by prehistoric populations. In addition, there was no significant difference in the exploitation of terrestrial mammals between the pre-MCA period and the MCA. Instead, exploitation of large and medium-sized mammals gradually increased over time, whereas the exploitation of small mammals decreased. Therefore, data from the Ballona do not support arguments by Kennett (2005), Glassow et al. (2007), and others that suggest that reduced populations of terrestrial game during the MCA forced human populations to turn to aquatic resources. Rather than focusing their subsistence practices more intensively on marine and other aquatic resources, it appears that the people of the Ballona responded to microenvironmental changes (related to siltation resulting from the MCA) by leaving the area, as evidenced by the lack of Late period occupation in the Ballona. The contrasting responses to the MCA by the Ballona populations (Gabrielino/Tongva) and the Chumash populations to the immediate north are very intriguing. According to arguments made by Arnold (1992a, 1992b) and others, the Chumash response involved intensification of their maritime economy to support their increasing population at a time of environmental stress, which ultimately resulted in a complex social organization with the emergence of chiefdoms. In contrast, as determined from the Ballona data, the Gabrielino/Tongva populations moved away from the coastal estuarine settings in the Santa Monica Bay area.

Although the Ballona area, much like the rest of the Los Angeles Basin, witnessed environmental changes with the arrival of the Spanish, those changes did not significantly affect the Native Californian subsistence systems. Research in the Ballona has revealed that initially, the aboriginal occupation of the Ballona during the Mission period was not adversely affected by introduced Old World domesticates, primarily because of its location at some distance from both Mission San Gabriel and the Pueblo of Los Angeles, and that the area was not abandoned until ranchos were established in the area in the 1800s. Furthermore, the Gabrielino/Tongva may also have cultivated wild grasses opportunistically along the banks of Centinela and Ballona Creeks by tending wild-grass stands through periodic weeding and cleaning of undergrowth (Reddy n.d.). In addition to the wild plants and animals that were readily exploited within the catchment area of the Ballona villages, some domesticated foods were obtained from the mission, the pueblo, and/or ranchos as payment for labor.

In addition to the major theoretical breakthroughs noted above, the research has also provided clearer insight into the long-term adaptations of the Ballona populations over an 8,000-year span. In sum, small, highly mobile foragers, possibly from the Mojave Desert, first settled in the Ballona area during the early Millingstone period. Alternatively, those groups could have come down the coast from the north. Gallegos (1991) argued that desert groups would have found coastal wetlands, such as the Ballona, similar to the wetlands of the Mojave Desert. The estuaries and vernal pools of the coast would have presented familiar resources and adaptive opportunities, and traditional technologies and subsistence practices could have been employed with little modification. For almost the entire 8,000 years of human occupation in the Ballona, subsistence involved a primarily littoral adaptation that focused on terrestrial and lagoon resources and used technologies that differed little from those employed by desert populations in their lacustrine adaptations. The earliest settlements were on the top of the bluffs and focused on the still-forming lagoon and the nearby coastal prairie. Diet focused on terrestrial plants and mammals and on clams from the lagoon. Fish played an insignificant part in the diet. Occupation during the later Millingstone and early Intermediate periods intensified, as evidenced by the greater number and larger size of sites throughout the Ballona area.

During a brief period of greatly increased precipitation around 2000 b.p., settlement expanded dramatically to take advantage of the increased resources around the freshwater lagoon and the surrounding coastal prairie. Numerous small, relatively permanent settlements were established on top of the bluffs, whereas specialized procurement sites were located along Centinela and Ballona Creeks. Although Intermediate period occupation was more intensive and widespread, subsistence patterns in the lowland sites appear to have remained virtually unchanged from the Millingstone period. In contrast, collections from the bluff-top sites indicate more-intense shellfish gathering focused almost entirely on the venus clam. In addition, collections from the bluff-top sites indicate a greater emphasis on procurement of pelagic fish and mammals than evident at any other time. Fishing appears to have been an especially important activity at the bluff-top habitation sites, where fish bone constituted more than 24 percent of the vertebrate collection. Many of the fish, however, could have been obtained from the lagoon with nets and spears; fishhooks were notable by their absence. Most of the remains, however, were from pelagic fish. It is not known how they were obtained in the absence of the *tomol* or the *ti'at* and the shell fishhook. Tule watercraft may have been available to the residents of the Ballona, or people may have obtained the nonlocal fish by exchange.

As environmental conditions deteriorated at the end of the Intermediate period and during the MCA, there appears to have been a return to a pattern of exploitation of the mudflats around the lagoon and the surrounding coastal plain by small, residentially mobile groups. Terrestrial resources, along with venus clams and oysters, provided the mainstays of the diet. Exploitation of fish, especially pelagic species, was greatly diminished. We can only speculate, but the adverse environmental conditions at the beginning of the Late period may have been exacerbated by a shift in the flow of the Los Angeles River away from the Ballona, leaving the wetlands without their most important source of freshwater.

A resurgence of settlement in the Ballona area near the end of the prehistoric period may have been associated with the return of the Los Angeles River to the Ballona, for when the Spanish arrived, they found it flowing into Santa Monica Bay through Ballona Creek. The Los Angeles River would have revitalized the wetlands, but the open embayment present during the Millingstone period had by this time evolved into a silt-laden estuary. The littoral resources that had characterized occupation in the Ballona for almost 8,000 years were probably greatly diminished, and that was reflected in the subsistence patterns. Despite these changes, terrestrial resources continued to dominate the diet, along with venus clams and scallops. Increased consumption of fish and abalone, however, suggests that the last native inhabitants of the Ballona turned increasingly to the exploitation of estuarine and inshore areas. Unexpectedly, the exploitation of large native artiodactyls also reached a peak at this time. The arrival of the Spanish with their vast herds of cattle, sheep, and horses and the weed species that they brought with them caused widespread changes to the environment and available resources. The deposition of large quantities of native-grass seeds and artiodactyl remains in ritual contexts during the Mission period in the Ballona, however, belies current theories regarding the rapidity and extent of the impact that introduced plants and animals had on the native landscape and its wild-plant and animal resources. Rather, the evidence suggests that the last native inhabitants of the Ballona area experienced food surpluses, as determined, in part, from evidence of both incipient cultivation and the incorporation of domesticated plants and animals into their diet and ritual activities.

For almost 8,000 years, the subsistence patterns of the residents of the Ballona can be best characterized as a littoral adaptation in which the resources of the Ballona Lagoon and wetlands and the vernal pools and grasslands of the surrounding prairie were exploited. There is little evidence that a maritime adaptation ever played a significant role, except perhaps during the Intermediate period. Throughout that long span of time, changes in resource use were largely determined by climatic fluctuations and the gradually evolving wetlands. The arrival of the Spanish, however, eventually had a significant impact on the long-established adaptation. The introduction of Old World domesticates into the Ballona area at the end of the eighteenth century brought about widespread changes, although they did not have the immediate deleterious impacts suggested by other investigators of the colonization of California. It appears that for much of the Mission period, the residents of the Ballona were sheltered from the worst effects of environmental degradation, and they remained outside the sphere of the padres at Mission San Gabriel. Nevertheless, the residents of the Ballona incorporated into their diets and ceremonial activities notable quantities of introduced plant and animal foods, obtained perhaps from interactions with the Domínguez ranch or the residents of the pueblo. In addition, at least initially, they buffered the impacts of introduced grazing animals and nonnative weeds through incipient cultivation of preferred native grasses. The establishment of Rancho de los Quintos within the Ballona area, however, may have spelled the end of native occupation and probably led quickly to large-scale migration to the missions and the pueblo and complete abandonment of the Ballona shortly thereafter. The loss of native resources to the herds of the new rancho may have been a significant factor in that abandonment.

Demography and Health in the Ballona

Joseph T. Hefner, John G. Douglass, and Patrick B. Stanton

Bone and teeth offer sensitive indicators of growth and development from childhood until death, documenting many aspects of behavior and lifestyle throughout the life of the individual. Because of this dynamic plasticity, the human skeleton offers a wealth of information about the health, diet, activities, ancestry, age, and sex of past people (Larsen 2002). Traditional, and erroneous, assertions of past scholars have portrayed native groups across North America as having lived virtually disease-free lives with little to no malnutrition prior to the arrival of colonial powers in the 1500s—a kind of "Garden of Eden" (see Denevan 1992; Larsen et al. 2001; Preston 1996, 1998). More-recent research by scholars studying different regions of colonial North America, however, has shown that disease, poor health, and, at times, malnutrition were common in aboriginal life prior to contact (Hull 2009; Lambert 1993; Larsen 1994; Larsen et al. 2001; Stojanowski 2005a; Ubelaker 2000; Walker et al. 1996, 2005). Endemic diseases, such as tuberculosis, hepatitis, and syphilis, as well as parasitic infestations, were widespread prior to contact (Hull 2009; Ubelaker 2000). Although there were a number of maladies and diseases prior to contact, there is no denying that the introduction of new diseases—whether directly or indirectly—by invading colonists had a deleterious effect on native populations (Hull 2009; Larsen et al. 2001; Walker et al. 1989, 1998; Walker and Johnson 1992, 1994; Walker and Thornton 2002). In addition, new colonial economies altered and destroyed traditional subsistence and trade patterns for native groups (Hackel 2005; Milliken 1995). Clearly, colonialism had a great impact on native groups across North America, including California.

This chapter focuses on the burial sample from the PVAHP to examine the composition and health of the Ballona population. The PVAHP data set contains burials dating to the Millingstone through Mission periods. Well over 95 percent of the burials were recovered from LAN-62, a large, complex site that contained a compact and dense aboriginal burial area with 374 burials almost entirely associated with the Late through Mission periods. As a result, this chapter will primarily discuss the burial area at LAN-62. These burials constitute a data set that is important to understanding the lives of past Ballona native residents and, more generally, the Gabrielino/Tongva, in part because of the paucity of bioarchaeological data for these past populations. In many past investigations, in which large burial areas were excavated, documentation of burials was poor, and the resulting analyses and conclusions have been difficult to compare to those of other burial populations. In this chapter, we compare the Ballona burial population to two well-known and documented contemporaneous burial populations—the Mission period burial area at Humaliwo (Malibu) (LAN-264) and the Late through Mission period burial area at Yaanga in downtown Los Angeles (LAN-1595). In addition, because of the rich ethnohistoric data related to the Mission period Ballona, we are also able to compare the demographics of the LAN-62 Mission period population to the neophyte population from the village of Guaspet, likely located in the Ballona. By comparing the Ballona burial population to these other well-documented burial and ethnohistorically documented populations, we will better understand the health and demography of this group.

This chapter is organized into several sections. First, we contextualize our study by detailing regional comparisons of other important and well-documented burial populations and describing the PVAHP burial population and the Ballona ethnohistoric population described in mission records. Second, we focus on the issues of demography, health, and interpersonal violence, as evidenced in the PVAHP burial population, through both internal analysis of PVAHP data and comparisons with contemporary Humaliwo and Yaanga burial populations. Finally, we conclude this chapter by presenting our overall conclusions and offering general statements about the PVAHP burial population.

Context of the Study

The historical and archaeological contexts of the burials within the PVAHP have been covered in detail in previous work (see Chapter 2 in Volume 4 of this series), and only a brief summary is provided here. It is important to note that, with a few exceptions, most summaries of sites with burials in southern California, whether prehistoric or dating to the Mission period, likely contain weaknesses and inadequacies in their discussions of the skeletal remains. With few exceptions, most of these studies, whether by avocational or professional archaeologists, lack detailed analyses of human remains and mortuary practices. Although some may have discussed the range of variability in burial patterns along the Southern California Bight, most have offered only passing details about the presence of burials within the site. There have been, however, notable exceptions to this general trend, and from this seemingly meager data set, patterns have emerged.

The earliest prehistoric burials recovered from within the greater Los Angeles Basin were found within relatively small burial areas or as isolated, single interments that contained very little in the way of burial goods (Douglass et al. 2005). There are two major exceptions to this generalization: (1) ORA-64 (in Irvine), a primarily Millingstone period site that contained approximately 700 burials (Macko 1998), and (2) ORA-83, which contained 178 burials with associated artifacts (Whitney-Desautels 1986, 1995, 2010). By the Intermediate period (3000–1000 cal b.p.), there was a shift in mortuary treatment to burying departed members in larger (although still relatively small), discrete burial areas and using cremation as a new burial practice (Cleland et al. 2007; Douglass et al. 2005). During the Intermediate period at both Landing Hill and West Bluffs (Cleland et al. 2007; Douglass et al. 2005), an additional new practice appeared; the cremated remains of multiple individuals were buried, along with purposefully broken ground stone tools and other items, in one location over time, a practice possibly related to a mourning ceremony (Hull et al. 2006; see also Cleland et al. 2007; Douglass et al. 2005). This communal activity was likely a memorialization of departed community members. This type of cairn, composed of purposefully broken ground stone in association with human remains, has also been found at other Intermediate period sites within the Los Angeles Basin, including the Little Sycamore site (VEN-1) (Wallace 1954), the Stone Bowl sites at Big Tujunga Wash (Walker 1952), the Cairn site in Chatsworth (LAN-21) (Walker 1952; see also Tartaglia 1980), and in Orange County at ORA-1055 (McLean 2008). Many researchers have suggested that the immigration of Takic groups from the desert into southern California during this period was the cause for this change in burial treatment (Kroeber 1925; Moratto 1984; Sutton 2009; True 1966).

Based on several sites, including LAN-62, Yaanga (LAN-1595) (Goldberg 1999), the ARCO site (LAN-2682) (Bonner 2000), and Encino Village (LAN-43) (Mason 1986), Gabrielino/Tongva burial patterns appear to have shifted from singular and small-group inhumations to larger, dedicated burial areas, beginning in the Late period (A.D. 950–1542) and continuing into the Mission period (A.D. 1771–1834). Certainly, large burial areas—such as ORA-64 (Macko 1998)—have been dated to earlier periods, but those are exceptions and have not been well documented nor well published. Although the Gabrielino/Tongva are considered a separate cultural group from the neighboring Chumash, the Gabrielino/Tongva burial patterns began to share attributes with those of Chumash by the Late period, including the burial of multiple individuals in a relatively small, confined, three-dimensional space and an increase in the number of burial goods.

Most studies of the burial populations in this region have suffered from the relative paucity of skeletal and mortuary data, even from the largest archaeological sites. Several Gabrielino/Tongva sites in the area—including Yaanga (discussed in detail below), LAN-62, the ARCO site, and Encino Village—constituted large and communal burial areas that exhibited the complexity of the Chumash style. Unfortunately, studies of the Encino Village and ARCO site burials have never been published, aside from summary articles that do not offer comparable data sets. In contrast, at the Humaliwo site (a well-documented Chumash site discussed in detail below), two separate but distinct burial areas—one associated with the Middle period and one associated with the Mission period—have been well documented and offer data for comparison with LAN-62 and Yaanga (Gamble 2008; Gamble and Russell 2002; Gamble et al. 1996; Gamble et al. 2001; Gibson 1975, 1987; Glassow 1965; King 1996; Walker et al. 1996). The complexity of Humaliwo and the similarity of Gabrielino/Tongva sites to Humaliwo suggest cultural similarities during the Mission period.

Regional Comparisons

The Mission period was a time of rapid cultural change in the Los Angeles Basin. Hispanic colonies created a difficult and stressful situation for Native Californians. During this period, the local populations undeniably suffered from malnutrition, infectious disease, and violence (Walker et al. 1989). Although generally present prior to Hispanic colonization, these stresses increased in aboriginal populations as a result of the influx of new diseases, competition with colonialists for native traditional resources and lands, and the introduction of new foods. In addition, Native Californians were recruited to local missions, ranchos, and the Pueblo of Los Angeles, where traditional activities were altered. These stresses, and their effects on the demographic structure, were direct consequences of the rapid cultural changes taking place and are identifiable in the bioarchaeological record. For example, analysis of skeletal and dental remains from Humaliwo led Walker et al. (1996) to argue that dramatic changes in diet, health, and behavior resulted from the new colonial political economy that was in place by the late 1700s. Demographic imbalances were the inevitable results for native villages in the region. Young adult males and their families, as well as single young women, were generally among the first wave of recruits to newly established missions (Walker and Johnson 1992, 1994). It has been suggested that the Ballona population structure inferred from mission records matched this pattern, but only to a degree (see below and Chapter 6 in Volume 4 of this series). Walker et al. (1996) found similar demographic patterns at

Humaliwo. Evidence of comparable demographic imbalances might, therefore, be expected in the burial record.

Although the ethnohistoric data suggest that there should be a reasonably close relationship between Chumash and Gabrielino/Tongva mortuary practices, archaeological comparisons of burial areas have been limited, largely because of a lack of data on Gabrielino/Tongva burials. In the Chumash region, burials generally have been better documented, studied, and reported (e.g., Gamble 2008; Martz 1984; Raab 1994; Walker et al. 1996) than those from sites farther south. Although ethnohistoric data concerning Gabrielino/Tongva burial practices are plentiful, few Mission period sites within traditional Gabrielino/Tongva territory have been examined archaeologically. The site of Yaanga provides an excellent example of Gabrielino/Tongva mortuary patterns dating to the Late through Mission periods, but unfortunately, the relatively small sample size from Yaanga precludes any broad inferences about the Gabrielino/Tongva. Larger burial populations were found at Encino Village and the ARCO site, but no published data are available from either site. It is in this context that the prehistoric and Historical period components of the LAN-62 burials (detailed below) present a unique opportunity to more fully understand the skeletal biology of the populations in the Los Angeles Basin. The LAN-62 burial population is the only large Gabrielino/Tongva collection to be examined and thoroughly published in modern times. LAN-62 contained a large amount of human burial data that can be compared to both another Gabrielino/Tongva site (Yaanga) and a Chumash site (Humaliwo [LAN-264]). Identifying prehistoric and Historical period components at LAN-62 permits intrasite and intersite comparisons by time period and could eventually lead to a much better understanding of the effects of European expansion and contact on Native Californians, especially during the Mission period.

The PVAHP Sample

The PVAHP collection represents one of the largest skeletal collections from the Gabrielino/Tongva traditional culture area. In total, 386 burial features were excavated from five prehistoric archaeological sites; 374 of these burial features were excavated from within the LAN-62 burial area, a discrete three-dimensional space in the southern portion of the site. This large sample provides detailed information regarding the paleodemography and health of the LAN-62 population. It should be noted that, because of the elapsed time for burial dating, the sample discussed in this chapter includes a smaller number of burials than the numbers discussed in Chapter 6 in this volume.

In order to establish chronological relationships (and, more specifically, temporal groups and clusters) between burials at LAN-62, a modified Harris Matrix known as a Feature Relationship Empirical Diagram (FRED) (see Chapter 4 in Volume 4 of this series) was applied to a wide range of variables recovered during excavations. FRED incorporated not only the stratigraphic relationships between burial events but also absolute and relative chronometric data for individual burials. Diagnostic artifacts associated with the Mission period were fairly common and easily identified, whereas prehistoric diagnostic artifacts associated with other time periods were rare or were indistinguishable from those used during the Mission period.

Of the 374 burial features and the hundreds of nonburial features at LAN-62, more than 70 burial features and nearly 25 nonburial features were identified in FRED as strictly Mission period features, based on a combination of feature-to-feature and feature-to-stratigraphy relationships, as well as association with Mission period artifacts. In contrast, approximately 50 nonburial features and only 4 burial features were identified in FRED as prehistoric, primarily based on feature-to-stratigraphy relationships. A single burial was identified as Protohistoric. The periods to which the rest of the burials date were unclear, although it is possible that many of them dated to the Mission period. Table 19 presents the age and sex distribution of the LAN-62 sample. Because the sexes and/or ages of burials could be determined for only a portion of the burial area, Table 19 presents data from a subsample.

The majority of the 374 burial features at LAN-62 contained fully flexed, primary inhumations oriented to the east and facing west. Placement on the left side was more common than the right. In addition to inhumations, 17 partial cremations and 7 complete cremations were recovered from LAN-62. The partial cremations were incompletely disarticulated concentrations of minimally burned bone that exhibited evidence that soft tissue had been present during the burning process. Elements of the lower limbs (pelvis and femora) were present and identifiable in a majority of these partial cremations. Interestingly, over half exhibited spiral fractures of the femoral shaft; these fractures likely occurred while the bone was relatively

Table 19. Age-Class Distributions of All LAN-62 Individuals, by Sex

Sex	Fetus	Infant	Child	Subadult	Young Adult	Middle Adult	Old Adult	Adult (Age Unspecified)	Total
Female	—	—	—	—	39	4	—	4	47
Male	—	—	—	—	15	9	—	4	28
Indeterminate	5	25	45	22	50	5	2	34	188
Total	5	25	45	22	104	18	2	42	263

fresh, or green. Both males and females were represented in the partial cremations. No individuals under 12 years of age were identified in partial cremations. Complete cremations included both juveniles and adults. Based on analysis of the alteration of the bone from burning, both partial and complete cremations appear to have been burned in a low-oxygen environment in which temperatures did not exceed 800°C. Mortuary treatment among the Mission period burials was relatively consistent. Most of the burial features were fully flexed, primary inhumations; cremations were rare for this period.

Mission Baptismal Records

For the study of LAN-62, the authors had access to baptismal records associated with Mission San Gabriel that were provided by the ECPP, a public database developed by the Huntington Library. Because some of the burials at LAN-62 dated to the Mission period and these individuals likely had interactions with Missions San Gabriel and San Fernando Rey, we hoped to be able to compare demographic data between the Mission period burials from LAN-62 and the general, overall demographic patterns observed in mission baptismal and death records. Only baptisms occurring between 1771 and 1815 and only those individuals with recorded ages and sex were used in this analysis. This bracket of dates corresponds to the beginning of the Mission period and the understood approximate end-use date of the burial area sometime during the mid-1810s (for details, see Chapter 6 in Volume 3 of this series). The result is a data set of nearly 2,300 males and 2,400 females. Various villages located within the jurisdiction of Mission San Gabriel are represented in the data set, including Guaspet, the Gabrielino/Tongva village likely located in the Ballona and likely associated with the LAN-62 burial area (see Chapters 7–9 in this volume; Stoll et al. 2009).

Data recovered from Historical period documents have inherent problems and can, like skeletal demographic data, bias results. Age-at-death data for many decedents were available from the estimated ages of individuals recorded at the time of baptism as well as the recorded death dates. Ages of those being baptized were estimated by church officials, because the actual age of new neophytes was likely not known. In some cases, these neophytes may have been baptized shortly before their death, which would have resulted in a short duration between baptism and death. However, an examination of the known-age adults revealed moderate "age heaping" at the decade and mid-decade nodes (e.g., 35, 40, and 45), especially in the middle-aged adults (Figure 77). This suggests that some adult ages were estimates rather than "known" ages, which is consistent with mission history, because most of the adult Native Californian inhabitants of the mission were born prior to induction into the colonial mission system, and their ages were estimated by mission padres. The ages of very young individuals, such as those aged a few days or months, were also commonly rounded up to the nearest year by mission officials. When the summary statistics for the mission-records sample were compared to the burial populations, we found that the age at death of the individuals in the mission records was generally older. The mean age for males and females was 7–9 years older than that of the estimated ages for the males and females in the LAN-62 sample. In addition, the maximum age of the mission group was approximately 20 years more, although this distinction is likely the result of inaccuracies in the aging of older individuals. Such skewing toward younger ages might be

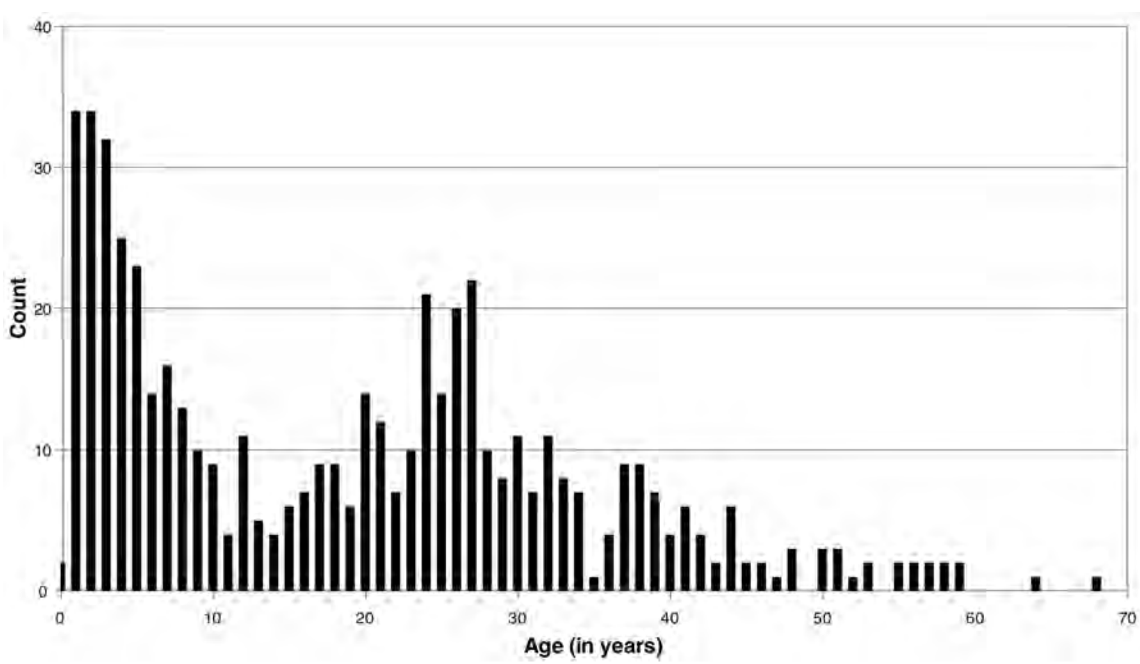

Figure 77. Graph illustrating ages at death for baptized neophytes recruited to Mission San Gabriel between 1771 and 1815 (ECPP).

associated with the inherent methodological biases associated with paleodemography.

In addition to studying the baptismal and death records at Missions San Fernando Rey and San Gabriel for the years 1771–1815 (San Fernando Rey records started in 1797, the year it was founded), we also studied a subset of these records, focusing specifically on the native village of Guaspet, likely located in the Ballona and likely related to the burial area at LAN-62. Anne Stoll, John Douglass, and Steven Hackel (see Chapters 8 and 9 in this volume) have identified individuals from Guaspet that were included in the data collected. In total, 55 individuals were identified as having an origin of Guaspet and sufficient data available to estimate ages at death.

The Humaliwo Site (LAN-264)

The Chumash site of Humaliwo is located on the northern edge of Santa Monica Bay, within the boundaries of what is now Malibu State Park, in the town of Malibu, which continues the Chumash name. The site appears to have had several thousand years of occupation that terminated during the Mission period (Bickford 1982; Gamble 2008; Gamble et al. 1996; Gamble et al 2001; Gibson 1975, 1987; Glassow 1965; King 1996; Martz 1984). Soon after, José Bartolomé Tapia was granted the Topanga Malibu Sequit land grant, which included the native village of Humaliwo. This site, which contained both a prehistoric and a Mission period component, is best understood from the 1970s excavation of two burial areas, one dating to the Middle period and the other dating to the Mission period (ending at this site in 1804), by the archaeological field school at UCLA (Bickford 1982; Gamble 2008; Gamble et al. 1996; Gamble et al. 2001; Gibson 1975, 1987; Glassow 1965; King 1996; Martz 1984; Walker et al. 1996).

The study of the skeletal remains from these two burial areas centered on identifying the impact of European contact on Native Californians (Gamble et al. 2001; Walker et al. 1996). The data set from the Humaliwo site provides a unique opportunity for comparison with the PVAHP remains, because both sites had prehistoric and Mission period burials. For such comparisons, the temporal designations of Walker et al. (1996) were used. The two skeletal collections recovered from LAN-264 and accessioned by UCLA's Fowler Museum include Accession No. 572 (Mission period) and Accession No. 573 (Middle period, defined as 600 B.C.–A.D. 1150 [Walker et al. 1996], roughly contemporaneous to the Ballona Intermediate period). Temporality for these two sites was established using artifactual indicators (Bickford 1982; Gamble et al. 1996; Gamble et al. 2001; Gibson 1975, 1987; King 1996). The two burial areas were also distinct spatially, situated horizontally apart from one another, in different areas of the site (Bickford 1982; Walker et al. 1996). The Historical period burial area dated to European contact (Walker et al. 1996:2) and corresponds well with the Mission period remains from LAN-62, although it is likely that the occupants of Humaliwo ended use of their Mission period burial area approximately 10 years earlier than the end-use date of LAN-62.

The local Chumash populations faced situations similar to the Gabrielino/Tongva during the colonial era. They were each actively recruited to join local mission settlements, which involved abandoning native villages and moving entire families to the mission settlement. Among the consequences of this move, according to Walker et al. (1996), were demographic imbalances. Walker et al. (1996) and Walker and Johnson (1992, 1994) have suggested that young adults (particularly young women) and their families were most likely the first to move to the mission. The effects of this differential preference inevitably shifted the demographic structure within the mission and also that of those who remained in native villages. The individuals at Humaliwo and LAN-62 experienced stressful conditions and were similarly affected by changing demographic shifts after European contact and the building of relationships with the mission. Similar demographic profiles might be expected. Table 20 presents the age distribution of the Humaliwo sample.

The Yaanga Site (LAN-1595)

The site of Yaanga was occupied during the Late through Mission periods (Goldberg 1999). Unlike the rural sites of LAN-62 and Humaliwo, Yaanga was located along the Los Angeles River, and the Pueblo of Los Angeles was founded adjacent to the site. Marriage ties between villages are clearly documented in mission records. At sites like Guaspet and Humaliwo, intermarriage generally occurred with those in neighboring communities, although there were exceptions. In contrast, at Yaanga, the records of baptisms performed for native people (in danger of death) document marriage ties and origins of neophytes much farther removed than neighboring villages. This suggests that Yaanga may have been a residential site for native peoples farther afield who were attracted to economic relationships with residents of the pueblo (Douglass 2009). Given the restrictions placed on native help residing in the pueblo, it is possible that some of these Native Californians

Table 20. Age-Class Distributions of All Humaliwo Individuals

	Infant	Child	Adolescent	Young Adult	Middle Adult	Old Adult	Total
Number	47	70	41	55	17	14	244
Percent	19.26	28.69	16.80	22.54	6.97	5.74	100

Note: Sex data were not provided by Walker et al. (1996) according to these age classes.

Table 21. Age-Class Distributions of All Yaanga Individuals, by Burial Treatment

Treatment	Infants (0–2 years)	Children (2–13 years)	Adolescents (13–20 years)	Young Adults (20–35 years)	Middle Adults (35–50 years)	Old Adults (50+ years)	Adult (All Epiphyses Fused)	Indeterminate	Total
Primary inhumation	2	2	—	1	3	4	2	—	14
Cremation	—	2	—	—	—	—	1	2	5
Total	2	4	—	1	3	4	3	2	19

Note: Sex data were not provided by Walker et al. (1996) according to these age classes.

resided at Yaanga because it was too far to return nightly to their own communities.

Researchers used multiple lines of evidence, including radiometric assays, geomorphology, stratigraphy, artifacts, and obsidian hydration, to date the site (Goldberg 1999). Two major periods of use are associated with Yaanga, ranging from approximately 1000 to 130 b.p. Nineteen individuals were recovered from LAN-1595 (Table 21). Although limited, this sample is excellent for comparison to the PVAHP sample, because it contains much-needed information regarding the general health and demography of the Gabrielino/Tongva.

PVAHP Demography, Health, and Interpersonal Violence

The LAN-62 burial sample offers a rare opportunity to compare archaeologically derived data to historical records, as well as to other skeletal samples from contemporaneous populations, including known Gabrielino/Tongva and Chumash populations. Skeletal data and historical records are far from ideal, and numerous problems exist with both. However, by understanding the LAN-62 sample, we can better understand life in the Ballona before and after Hispanic contact. The historical records add to this picture and provide further insight into Gabrielino/Tongva society. The following comparisons highlight the similarities and distinguish the differences between the Gabrielino/Tongva and Chumash Historical period skeletal series in an effort to address the question: Who were the people of the Ballona?

Paleodemography of the Ballona People

To understand the paleodemography of the Ballona, we used hazard analysis. Hazard analysis is, quite simply, an analysis of the risks faced by individuals in a population and the effects of the risks on the mortality and survivorship of an individual. One nearly ubiquitous element in many skeletal studies is the life table (also called a mortality table or actuarial table), which shows, for each age, the probability that a person will die within 1 year. However, in recent years, life tables have lost favor in paleodemography studies because of shortcomings and inadequacies, including that (1) distributions of purported ages at death are based on less-than-ideal age estimates and are therefore error prone; (2) not all skeletal populations are stationary (zero growth), but life-table analysis assumes this to be the case; (3) fixed-age intervals assume that all skeletal ages are known within the same margin of error; and (4) the often-small sample sizes encountered in bioarchaeological settings cannot support the large number of parameter estimates necessary for life-table construction. These factors have led many researchers to all but abandon paleodemography analysis (Wood et al. 2002).

In 1992, Konigsberg and Frankenberg suggested the use of maximum-likelihood methods for the estimation of age structures in anthropological demography, circumventing the issues with life-table analysis outlined above. In fact, they predicted that the use of hazard analyses would “incorporate the uncertainty in estimation that follows from using age indicators rather than known ages” (Konigsberg and Frankenberg 1992:242). The method these researchers used represented the first step in a series of major advances in how biological anthropologists estimate mortality statistics from skeletal samples. These hazard models estimate the likelihood of observing a death at any age across the skeletal sample by estimating an age-at-death distribution from parameters drawn from the entire skeletal series, not just from individuals within an age cohort, as is the case with life-table analysis. This approach allows us to correct for some of the confounding effects of population growth (or decline) and, perhaps most importantly, to compare mortality patterns between groups in order to reveal overall patterns of survivorship and mortality in a more effective and efficient manner by testing the similarities of population parameters. Several parametric methods have been proposed to estimate these population-specific factors. For this analysis, we chose to estimate the parameters of age-specific mortality using the statistical methods outlined by Frankenberg and Konigsberg (2006). Although an in-depth explanation of the computations used to derive these parameters is beyond the scope of this work, suffice it to say that these estimates constitute the lowest number of mathematically derived parameters used to explain the "curve" of mortality for a given group.

Comparing the calculated mortality and survivorship curves of two groups allows us to draw inferences about the hazards the groups faced and the degree of similarity between them. The general age-specific mortality pattern of most populations is characterized by excess mortality among the young, with a gradual decline at about 10–15 years and then an exponential increase in mortality at later ages (Frankenberg and Konigsberg 2006). Deviations (or variations) from this general pattern can tell us a great deal about how similar or dissimilar two populations are, at least according to the hazards faced and the likelihood of death along that curve.

Finally, an added benefit of hazard analysis is that the derived population-specific parameters can be compared in a statistically meaningful environment, effectively removing any unintended subjectivity introduced during analysis. These comparisons provide researchers with a powerful tool to make other comparisons, draw inferences, and reach conclusions. In the past, attempts to compare demographic profiles and population-specific mortality and survivorship have not always been fruitful, particularly because the earlier methods of making such comparisons were prone to biases introduced during age-at-death assignment and to other methodological issues. Hazard analysis and the new mortality models presented by Frankenberg and Konigsberg (2006) avoid these issues, signaling a new era in paleodemography studies.

Age and sex information for the skeletal samples were taken from published sources (Goldberg 1999; Walker et al. 1996). Similar data were distilled from the mission records, which provided a wealth of information for each decedent, typically identifying the sex, age at baptism, and age at death. Once each sample was finalized, comparisons were made between the demographic profiles of each site to the mission records. Each profile was based on derived vital statistics and estimated survivorship and hazard functions. Survivorship plots were used to visualize these comparisons. To construct each hazard model, general age ranges (e.g., 2–4 years, 25–30 years, and 55–60 years) were used for all age-at-death distribution models, with the exception of information from the mission burial records; specific ages assigned by the Missions San Gabriel and San Fernando Rey were bracketed by 1–6 months for subadults and by 1 year for adults. Adults of unknown age in the skeletal samples were assigned to the age range of 15–100 years.

A four-parameter Siler model (Frankenberg and Konigsberg 2006) was used for all comparisons. The only exception to this was the adult-only comparison of the LAN-62 Mission period sample to the mission records for individuals from Guaspet. For that comparison, a two-parameter Gompertz model replaced the Siler model. The individual parameters for each hazard model were estimated using *mle*, a "simple computer programming language for building and estimating parameters of likelihood models" (Holman 2010). These parameters were then used to generate survivorship and mortality profiles. Significant differences between groups were assessed using the log-likelihood statistic, the chi-square test of similarity, and a likelihood ratio test. When significant differences between modeled functions were found, the comparisons were more closely scrutinized in order to identify and explain the possible sources of the observed differences. Altogether, nine comparisons were made; many were exploratory and are discussed only as supporting evidence for other models. For an in-depth discussion of how the various hazard models were calculated and analyzed, the reader is encouraged to refer to Frankenberg and Konigsberg (2006) and Herrmann and Konigsberg (2002). Appendix 5.1 lists the comparative populations and the respective parameters used to construct the demographic profile and to calculate survivorship and mortality.

All samples from Humaliwo, Yaanga, and the Missions San Gabriel and San Fernando Rey were pooled for an initial metacomparison. A series of hazard models was then used to assess similarities and differences between those samples and the pooled LAN-62 sample. The demographic profile of the Humaliwo pooled sample was similar to that of LAN-62 (Figure 78), which is not altogether surprising, because both profiles were derived from skeletal data with very similar age-at-death distributions. The high percentages of infant and young children in the burial samples from both sites indicated high infant mortality. Walker et al. (1996:33) noted this overabundance of infants and children in the Humaliwo sample and suggested that "the apparent excess of infants is an artifact of taphonomic factors." They used a corrected mortality profile that accounted for fragmentation to correct the bias introduced by overcounting. Even with such biases, survivorship and mortality at Humaliwo and LAN-62 were not significantly different. Comparison of the numbers of newborns in the Mission period sample from Humaliwo to the Mission San Fernando Rey baptismal records, however, suggested an unusual lack of infants in the baptismal population, possibly suggesting that they had died prior to the recruitment of Humaliwo families and individuals to the Mission San Fernando Rey (Douglass and Stanton 2010). The limited number of individuals and poor condition of the skeletal material from Yaanga did not permit a one-to-one comparison to the LAN-62 sample. Age and sex could not be determined for most of the Yaanga sample, which is unfortunate, because comparison to the LAN-62 sample could have provided a much-needed measure of the typicality of the LAN-62 sample as a Gabrielino/Tongva population.

Another method for evaluating the LAN-62 sample's age-at-death distribution was a comparison of the skeletal data to historical records—in this case, Mission San Fernando Rey and Mission San Gabriel baptismal and death records collected from the ECPP database. There were discordances between the LAN-62 sample and these mission records (Figure 79), clear indicators that the skeletal sample was not modeling the original living population throughout all ages as well as had been hoped. The high percentage of infants and low representation of mid-aged juveniles (3–10 years) in the LAN-62 skeletal sample resulted in extreme values

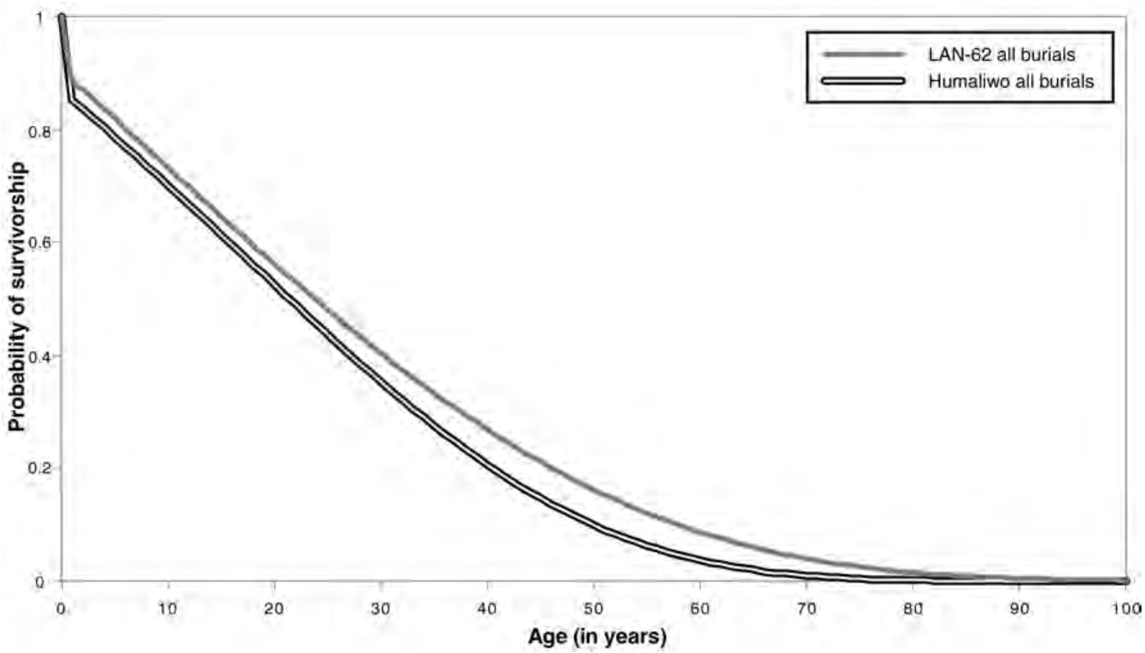

Figure 78. Graph illustrating the demographic profiles of LAN-62 (all burials) and Humaliwo (all burials).

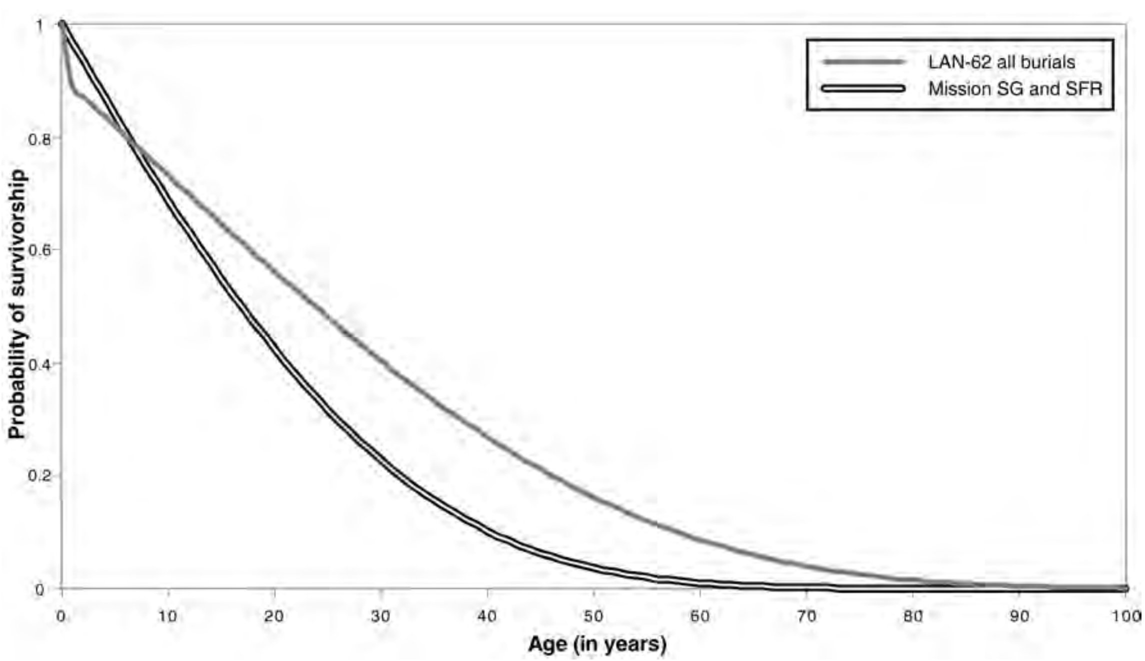

Figure 79. Age-at-death comparisons of neophytes recruited to Missions San Gabriel (SG) and San Fernando Rey (SFR) and with all LAN-62 burials.

for the infant-mortality parameters, with an inflated mortality for infants and children in the LAN-62 sample. That trend continues until about the tenth decade, when survivorship in the skeletal series overtakes that of the mission sample (i.e., a more ideal survivorship). A combination of factors explains these differences. Specifically, the pattern of adult mortality in the mission records is extremely accurate, because it contains such a large number of known individuals and permits the complete exclusion of adults of unknown age; inclusion of this group tends to flatten the adult age-at-death distribution. Compare this to the age-at-death estimates from skeletal data that are biased toward younger individuals (i.e., older adults are underaged) and that include adults of unknown age in the analysis (because sample sizes are already small).

One important aspect of the LAN-62 data set is the temporal distinction of a "historical" sample, those burials that likely date to the Mission period. Comparison of the demographic profile of the Mission period sample from LAN-62 to the mission records, both the complete records and the Guaspet-only records, proved helpful in providing insight. The age-at-death distributions in all three samples were markedly different, particularly for infants and very young children. We assessed how great an influence the subadults had on each sample by removing all individuals below 15 years of age. Two separate Gompertz models were fitted to the reduced samples. The marked difference in age-at-death distributions were unaffected in the comparison of the LAN-62 Mission period sample to the complete mission records; however, for the Guaspet sample, the marked difference disappeared: the age-at-death distributions were not statistically different from those of the LAN-62 Mission period sample (χ^2 = 2.5946; *df* = 5; *p* = .7622) (Figure 80). The correspondence between the two samples was remarkable and suggests that the hazards faced by the people of Guaspet, based on mission records, were very similar to the hazards faced by people at LAN-62. Given that Guaspet is thought to have been located in the Ballona and likely had connections to LAN-62, this is an interesting connection. Differences in the two samples only appear around the fourth or fifth decade of life and are parsimoniously thought to represent skeletal-aging bias introduced during analysis rather than differences in survivorship or mortality. Although we will likely never know the exact location of Guaspet, the similarity of the hazard models based on mission records from Guaspet and the burial area at LAN-62 suggests that mortality hazards and survivorship were very similar in the two communities.

Health Factors That Influence Demography

A range of personal, social, economic, and environmental factors determines the health status of a population. Many of these factors leave no imprint on bone, and skeletal biologists are often unable to make inferences regarding their influence. Some diseases, however, do leave evidence on the skeleton, allowing researchers to make inferences about the general health of a population that can guide demographic analyses. We may never understand or be able to conceptualize the full extent of

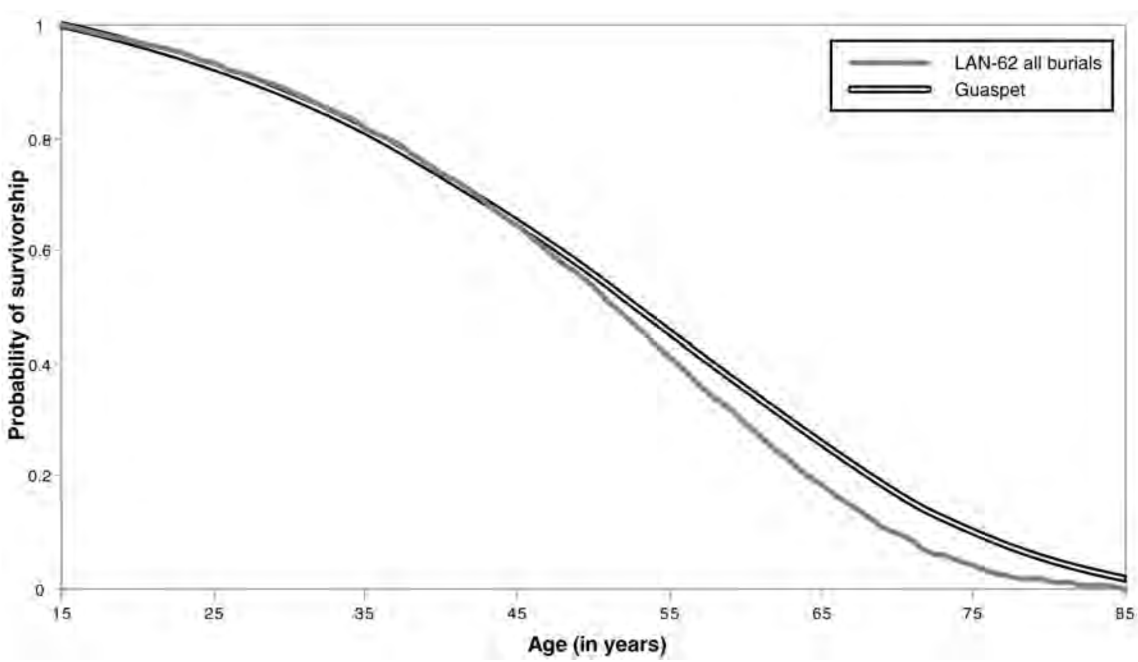

Figure 80. Age-at-death comparisons of neophytes recruited to Mission San Gabriel from the village of Guaspet with LAN-62 burials identified in FRED as dating to the Mission period.

the effects of Hispanic expansion on Native Californians, but we can use some of the measures discussed below as a proxy with which to measure some of the impact. Ideally, skeletal lesions would correspond to the health of an individual, and summing up the frequency of lesions would provide insight. Unfortunately, this is not the case. The healthiest individuals may show multiple pathological lesions because their immune systems were robust enough to fight off infection, whereas an individual with no evidence of skeletal pathology may have suffered from a weakened immune system and thus succumbed to an illness prior to any skeletal involvement. These factors should always be considered when assessing a population's general health from the skeletons left behind.

Reconstructions of the diet and health of indigenous populations in California often focus on the prehistoric diet, the shift from terrestrial hunting and gathering to marine exploitation, and the effects of European expansion. In the following section, these factors are explored to some degree, but the main focus is on the Historical period and the effects of missionization on the people of the Ballona.

Diet and Dental Health

The results of the dental analysis for the individuals recovered from LAN-62 were presented in Chapter 8 in Volume 4 of this series. These results are summarized below to provide context and to establish the relationship of LAN-62 to other California groups. Caries rates in the LAN-62 sample fell between the caries rates of groups reliant on terrestrial foods and those reliant on marine resources, suggesting a diet of both oceanic and terrestrial proteins. The caries rates at LAN-62 also suggested that carbohydrates were regularly consumed. Males and females from LAN-62 were similarly affected by caries; this is in contrast to evidence from other California sites that has suggested dietary differences between sexes, based on differences in caries rates (Lambert and Walker 1991; Walker 1980; Walker and Erlandson 1986). Malnutrition does not appear to have been a problem for the people of the Ballona. The rate of enamel hypoplasia among individuals from LAN-62 was relatively low and did not suggest prolonged periods of metabolic disturbances (i.e., malnutrition). Of course, serious illnesses and epidemics may have affected these individuals, and evidence of these hardships might not have been documented on the skeletal remains. Dental attrition (wear) among the adult individuals from LAN-62 was similar to that of other indigenous California populations, ranging from extreme to moderate. The rate of dental attrition was consistent with the consumption of fibrous plant materials, which can eventually obliterate the tooth surfaces. Older individuals exhibited more-extreme attrition than younger individuals. Such severe dental attrition permits the introduction of bacteria into the pulp chamber and can lead to abscesses. Abscesses were common in the Ballona, affecting nearly half of the individuals with enough bone tissue to evaluate for the presence of abscesses.

Mission Period Burials in the Ballona and Greater Los Angeles Basin

We analyzed the dentition of a sample of the LAN-62 burial population. Fortunately, the size of the Mission period sample (n = 25; teeth = 460) was large enough for comparison to the prehistoric and Historical period samples identified at Humaliwo; the small size of the prehistoric LAN-62 sample precluded their use in comparisons. The following comparisons used only LAN-62 adult individuals identified in burials dating to the Mission period in FRED (herein referred to as the LAN-62 Mission period sample). In that sample, females (n = 16) outnumbered males (n = 9) nearly two to one; however, no effort was made to equalize the two samples. Individuals ranged in age from approximately 15 to 50+ years. At the time this analysis was undertaken in 2010, final dating of burials to particular time periods was not complete. As a result, the final number of burials dating to the Mission period that are discussed in Chapter 6 in this volume is much higher than the sample used for this analysis. That said, the sample used here, as discussed below, offers important insight.

Table 22 presents the frequency of enamel hypoplasia for the Humaliwo prehistoric and Mission period samples and the LAN-62 Mission period sample. Hypoplasia rates for the LAN-62 Mission period sample were lower than those of the others: a single female presented two enamel hypoplasias. Males in each of the Humaliwo samples presented a much higher rate of enamel hypoplasia, whereas no males in the LAN-62 Mission period sample had such lesions. The exact cause for the low rate of enamel hypoplasias within the LAN-62 Mission period sample is unclear. Possibilities include sampling error and the relatively small sample size for males. An alternative hypothesis is that both males and females from the LAN-62 Mission period sample had access to more reliable or nutritious resources and did not suffer from malnutrition and metabolic disturbances to the degree that their neighbors did in Humaliwo. Further evidence supporting this hypothesis may be found in other dental pathologies.

Table 23 presents the frequencies of three other dental pathologies associated with diet and nutrition: abscesses, caries, and antemortem tooth loss. Unlike the low incidence of enamel hypoplasias, the rate of caries for the LAN-62 Mission period sample (7.39 percent) was nearly five times higher than that of either the prehistoric (1.56 percent) or the Mission period (1.68 percent) sample from Humaliwo. The incidence of abscesses for the LAN-62 Mission period sample (1.09 percent) was lowest, followed by the Mission period Humaliwo sample (6.05 percent) and the prehistoric Humaliwo sample (9.38 percent). The rate of antemortem tooth loss for the LAN-62 Mission period sample (2.17 percent) also was lower than those of the Humaliwo prehistoric (8.55 percent) and Mission period (2.86 percent) samples.

Table 22. Frequencies of Individuals with One or More Hypoplasias and Frequencies of Teeth with Hypoplasia, by Site and Sex

Site	Sex	Individuals			Teeth		
		Hypoplasia	n	%	Hypoplasia	n	%
Humaliwo (prehistoric)							
	female	5	23	21.74	18	259	6.95
	male	14	26	53.85	36	336	10.71
Subtotal		19	49	38.78	54	595	9.08
Humaliwo (Mission period)							
	female	7	26	26.92	27	453	5.96
	male	14	28	50.00	38	506	7.51
Subtotal		21	54	38.89	65	959	6.78
LAN-62 (Mission period)							
	female	1	16	6.25	2	289	0.69
	male	—	9	—	—	171	—
Subtotal		1	25	4.00	2	460	0.43

Note: χ^2 = 11.884, *df* = 2, *p* = .003.

Table 23. Frequencies of Dental Pathologies, by Site and Sex

Site	Sex	Total Teeth[a]	Abscessed-Tooth Positions		Teeth with Carious Lesions		Teeth Lost Antemortem	
			n	%	n	%	n	%
Humaliwo (Mission period)								
	male	336	18	5.36	6	1.79	10	2.98
	female	259	18	6.95	4	1.54	7	2.70
Subtotal		595	36	6.05	10	1.68	17	2.86
Humaliwo (prehistoric)								
	male	506	33	6.52	11	2.17	45	8.89
	female	453	57	12.58	4	0.88	37	8.17
Subtotal		959	90	9.38	15	1.56	82	8.55
LAN-62 (Mission period)								
	male	171	—	—	12	7.02	1	0.58
	female	289	5	1.73	22	7.61	9	3.11
Subtotal		460	5	1.09	34	7.39	10	2.17

[a] Number of teeth examined.

What best explains the high incidence of caries but relatively low rates of abscesses and antemortem tooth loss for the LAN-62 Mission period sample? Comparison of the entire LAN-62 sample to the Humaliwo and Yaanga samples demonstrated that the higher incidence of caries for the LAN-62 Mission period sample (Figure 81) was not an artifact of sampling error. The association is statistically significant (Fisher's exact test, *p* < .0001). A closer look at the individuals with caries in the LAN-62 Mission period sample made it clear that a relatively small number of females from the LAN-62 Mission period sample had large numbers of caries; indeed, the females in the Mission period sample were approximately six times more likely to develop caries than their male counterparts. Unfortunately, a closer examination of the Humaliwo sample by sex was not possible.

The caries rate in the Yaanga sample was most similar to that of the LAN-62 (pooled) sample. Interestingly, the difference between the incidence of caries at Yaanga and that of the LAN-62 Mission period sample was not significant at the 0.05 level (*p* = .0774), suggesting that they were not from different populations on this measure. The lack of statistical differentiation between the two populations may be partly the result of the difference in sample sizes: the Yaanga sample was smaller than that of LAN-62. Regardless, the LAN-62 Mission period individuals, particularly females, apparently suffered more from carious lesions than either prehistoric or

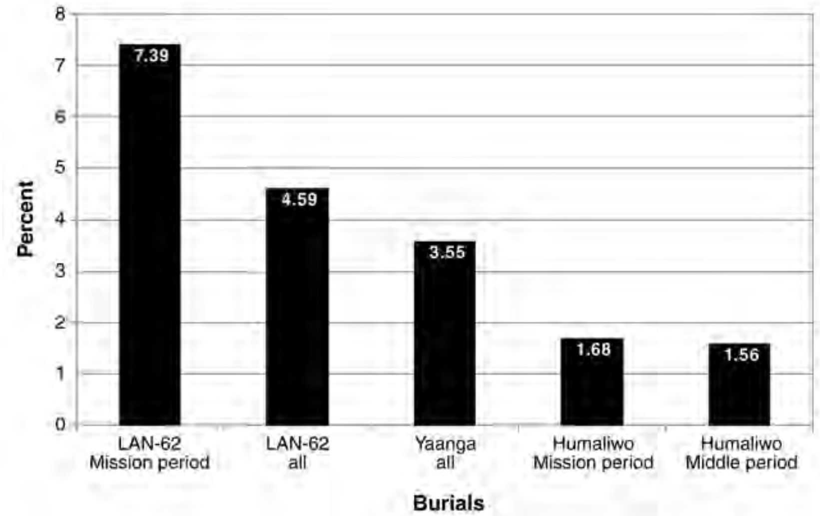

Figure 81. Graph illustrating percentages of teeth with carious lesions from five burial samples: (1) LAN-62 Mission period burials as identified in FRED, (2) all LAN-62 burials, (3) all Yaanga burials from the Late and Mission periods, (4) Humaliwo Mission period burials, and (5) Humaliwo Middle period burials.

Mission period individuals from Humaliwo but at a relatively similar rate to that of Yaanga burials adjacent to the Pueblo of Los Angeles.

Why were the caries rates of the two Gabrielino/Tongva burial populations much higher than those of the burial populations at Humaliwo? The answer likely lies in differences in the historical trajectories of the three communities during the Mission period. Although Humaliwo, a rural site along the northern edge of Santa Monica Bay, was recruited by Missions Santa Bárbara, San Buenaventura, and San Fernando Rey during the latter portion of the eighteenth and very early nineteenth centuries, historical records suggest that the native residents of Humaliwo became incorporated into both the mission and the Hispanic economic systems. For example, by 1801, when José Bartolomé Tapia was granted the Topanga Malibu Sequit land grant, it is likely that residents of Humaliwo worked as ranch hands for Tapia and at other local ranchos, including Rancho Talepop/Rancho Las Virgenes (Douglass and Stanton 2010). Baptismal documents (Douglass and Stanton 2010), as well as data collected from the Mission burial area at Humaliwo (Bickford 1982; Gamble 2008; Gamble et al. 1996; Gamble et al. 2001; Gibson 1975, 1987; King 1996; Martz 1984), suggest that Humaliwo's existence was short-lived after Tapia received his land grant in 1801; it appears that, by 1804, use of the burial area had stopped, and a large number of residents of Humaliwo, led by its chief Saplay, were baptized at Mission San Fernando Rey, never to live again in their native village (Douglass and Stanton 2010).

Yaanga, in comparison, was a native village on the banks of the Los Angeles River, adjacent to the Pueblo of Los Angeles. Baptismal records from Mission San Gabriel and the Los Angeles Plaza church (Douglass 2009) suggest that Yaanga hosted a relatively large number of Gabrielino/Tongva and other Native Californians from other villages. Soon after the establishment of the pueblo, native workers were not allowed to reside in the houses of Hispanic people; rather, they were required to live in their home villages or to find other accommodations, such as in Yaanga (Hackel 2005; Mason 2004). Despite this restriction, it is likely that the residents of Yaanga were much more integrated into the Hispanic economy than were residents of Humaliwo because (1) there were a large number of economic opportunities for Yaanga residents to work in the houses and fields of the Hispanic residents of the pueblo; (2) Yaanga's location was close to the pueblo, and (3) the economic relationship between Hispanic and native people of Yaanga lasted for decades, whereas the relationship between Humaliwo and the neighboring ranchos was relatively short-lived.

Finally, there is the case of Guaspet, located somewhere in the Ballona and likely related to the burial area at LAN-62. Baptismal records suggest that recruitment at Guaspet (primarily to Mission San Gabriel) began ca. 1790, with a spike in recruitment between 1803 and 1805. This large increase in recruitment at Guaspet coincided with the establishment of Rancho de los Quintos in the early 1800s by the Quinto Zúñiga family (Mason 2004; Stoll et al. 2009). The exact date of its establishment is not known, but according to Mason (2004), it was around the time of the establishment of the Rancho Topanga Malibu Sequit in 1804. Rancho de los Quintos likely was in operation until approximately 1808 or 1809, when the land grant was terminated because of lack of upkeep (Mason 2004; Stoll et al. 2009), whereas other ranchos in the area continued. The burial area at LAN-62 appears to have been used until

Table 24. Weighted Percentages of Elements Affected by Periostitis

Element	Humaliwo (Prehistoric)	Humaliwo (Mission period)	LAN-62 (Mission period)
Femur	22.75	3.08	0.22
Tibia	21.74	53.33	0.92
Fibula	21.48		1.24
Radius	9.30		0.83
Humerus	3.90		0.63

the mid-1810s, based primarily on temporally diagnostic glass and shell beads. The burial area included a number of items of Hispanic origin that strongly suggested that some Native Californians buried at LAN-62 had worked on local ranchos as farmhands and cowboys.

All told, then, the historical trajectories and lengths of sustained contact between Native Californians and Hispanics were likely different for the three populations. In the case of Humaliwo, the village was likely depopulated or even outright abandoned a mere 3 years after the granting of Rancho Topanga Malibu Sequit to Tapia. In the cases of Yaanga and Guaspet, there was much more sustained contact over a much longer period of time. Based on macrobotanical evidence from LAN-62 and LAN-211 (see Volume 3 of this series), it is clear that introduced foods, including corn and grains (wheat and barley), were an important part of the diet of the native residents of the Ballona. It is likely that these starchy introduced foods were also incorporated into the diets of the residents of Humaliwo and Yaanga. Hackel (2005), for example, has recently argued that Native Californians working in the fields of pueblo residents, who produced corn along with other introduced crops, received between one-third and one-half of the crop as payment for their labor in the fields. As discussed above, although the cause of dental caries is not entirely clear, there is a clear connection between caries and the consumption of carbohydrates, especially domesticated plants such as corn (Larsen 1997, 2002; Larsen et al. 1991). This relationship—between corn and caries—has been identified in other parts of colonial North America, such as Spanish Florida (Larsen et al. 2001). There, for example, comparisons of the time of first contact and the late Mission period have illustrated a pronounced increase in caries, which Larsen et al. (2001:83) have argued reflects the adoption and increased use of corn. As a result, it is reasonable to argue that the significantly higher frequencies of dental caries in the Yaanga and LAN-62 burial populations likely were the consequence of more-prolonged incorporation of starchy foods introduced into the aboriginal diet in these areas than occurred at Humaliwo.

General Health and Disease

Invaluable data on disease, behavior, and social interaction were gleaned through an examination of skeletal pathology, fractures, and other trauma found at LAN-62 (see Chapter 9 in Volume 4 of this series). The results are summarized below.

Malnutrition and Infection

Very little evidence of malnutrition (e.g., porotic hyperostosis or cribra orbitalia) and infectious disease (e.g., osteomyelitis and periostitis) was observed for the LAN-62 burials (Table 24), suggesting a comparatively healthy way of life in the Ballona. Of course, the slow response of the skeleton to malnutrition and other diseases could also explain the absence of these skeletal indicators. The skeleton of an individual who had succumbed to a virulent illness before there had been any major skeletal response looks just like that of an individual unaffected by virulent illness. Such difficulties notwithstanding, comparisons showed that the rates of malnutrition and infectious disease among the LAN-62 sample were lower than those of the Humaliwo burial populations (both Mission period and prehistoric), in which evidence of infectious disease (e.g., periostitis) and metabolic disturbances and malnutrition (e.g., cribra orbitalia) were fairly common. Walker et al. (1996) demonstrated that cribra orbitalia and periostitis were both more common in the prehistoric sample than in the Mission period sample, despite sampling and preservation issues. The researchers at Humaliwo identified significant differences in the distributions of periostitis between the two periods. In samples from the prehistoric period, periostitis was widely distributed throughout the body, whereas this condition was found almost exclusively in the tibias of individuals from the Mission period.

Tibial periostitis has been linked to systemic infections like syphilis and also to overexertion and moving on uneven surfaces (De Labareyre and Demarais 2000). In Spanish Florida, Larsen et al. (2001:93–94) documented a significant rise in periosteal reactions between the early and late Mission periods, which they argued was the result of a declining quality of life in mission settings that led to increased infections in the native populations. The same pattern, if seen in southern California Mission period populations, would likely have a similar explanation. At LAN-62, however, periostitis was rare, affecting on average a little less than 1 percent of the population. Preservation issues are always the primary concern when interpreting any skeletal material, particularly when assessing bony pathology. Because of a loss in the structural integrity of affected elements, pathological bone is more susceptible to erosion, bioturbation, root intrusion, and other taphonomic factors that damage or destroy bone. The preservation of skeletal material at LAN-62 seemed to be better than at Humaliwo, and we made inferences about these differences in preservation when we observed that nearly five times as many long bones were recovered from LAN-62 (see Chapter 9 in Volume 4 of this series). One would expect that, as the sample size increased, the likelihood of erroneous data from sampling error would decrease. For that reason, it seems parsimonious to suggest that the relative lack of periostitis at LAN-62 was the result of better health (or at least less infectious disease) among the Gabrielino/Tongva. Unfortunately, no data were available for comparison of LAN-62 to Yaanga, where the incidence of infectious disease was either remarkably low (nearing zero) or, more likely, was unobservable because of the destructive nature of the cremation process. Regardless, the low incidence of infectious disease and malnutrition at LAN-62 is an important insight into the health of the Ballona aboriginal populations.

There is one other explanation for these low frequencies. Recall that the skeleton does not always have time to react to disease, particularly during epidemics, which generally cause rapid death. Epidemics were quite common during the period in which LAN-62 was occupied, in no small part because of Hispanic colonization and subsequent changes in the demographic patterns in the area, shifts in economic strategies, the subsequent contamination of water supplies, etc. Larsen et al. (2001:93) made similar arguments in regard to Spanish Florida. Although acute infections rarely are expressed in osteological remains because of the rapidity of death, it is clear that they were present in Spanish Florida and had acute effects on the quality of life for these native groups. We used mission records in an effort to understand the impact of epidemics on the Ballona (see Chapter 9 in Volume 4 of this series; see also Douglass and Stanton 2010). Although skeletal evidence of infectious disease was relatively rare, mission records tell another story. Virulent infections and deadly noninfectious ailments were quite common in the area.

The mission records provided a good example of how quickly disease can kill members of communities. Douglass (2009) recently studied rural baptismal records from Missions San Fernando Rey and San Gabriel and, through these records, identified two possible epidemics in rural areas (outside the Pueblo of Los Angeles and the missions). The first example took place on August 23, 1784, at two neighboring Gabrielino/Tongva villages, Jutucubit/Santa Ana and Jaysobit/Jaisobit, located near Rancho Santa Ana on the Santa Ana River. In total, from both villages, 29 native people were baptized by Juan Antonio García Riobó, a priest from Mission San Gabriel. Baptismal records noted that all of these individuals were in danger of death, which suggests an outbreak of disease. Indeed, by the end of 1790, 6 of the individuals from those villages had passed, and 3 were cremated together at Jutucubit on October 15, 1790. The majority (approximately 75 percent) of those baptized from these two villages survived their illness and lived for decades after baptism (for more discussion of this example, see Chapter 9 in this volume of this series).

A second example is Cabuepet/Cabuenga, located along the Los Angeles River, northwest of the Pueblo of Los Angeles. There, 26 baptisms were performed at the village over the course of 1 week in late December 1800 and early January 1801; all were noted as being in danger of death. The first two of these 26 baptisms were performed on December 26, 1800, by Mariano Verdugo, who had title to Rancho Cahuenga (on which the native village of Cabuepet sat) (Mason 2004:29, 36). Both of the baptized individuals died the following day, according to mission records. Within 1 week, an additional 24 Gabrielino/Tongva were baptized at Cabuepet by Priest Francisco Xavier Uría from Mission San Fernando Rey. Within 3 months, 10 of the 26 residents of Cabuepet had died. Given the explanation for these baptisms, that the individuals were in danger of death, it is likely that disease had spread through the native village. Perhaps, after Mariano Verdugo baptized the first 2 individuals, he sent notice of illness spreading through the area to the Mission San Fernando Rey. Ethnohistoric documents have provided evidence to support this hypothesis; one stated that, in January 1801, there were contagious fevers in the Pueblo of Los Angeles, and the Native Californians in the area “hardly have time to complain they are sick before they die” (Mason 2004:36).

These two examples support the conclusion that a large number of individuals may have succumbed to illness prior to skeletal involvement, making it difficult to identify illnesses through bioarchaeological analysis. Although not conclusive, these findings make it difficult to interpret the low frequency of skeletal evidence of illness in the LAN-62 sample, because it is clear that there were diseases during the Mission period to which native peoples quickly succumbed.

Trauma and Interpersonal Violence

In addition to signs of disease, skeletal trauma and interpersonal violence can also be used to measure the health of a population. Skeletal trauma was relatively rare at LAN-62. The distribution of the traumatic lesions that were observed suggested that, though rare, instances of trauma were distributed in a fairly predictable manner.

Males exhibited more antemortem fractures of the arms and legs than did females, whereas females suffered fractures of the hand more often than did males. These differences were likely the result of sexual division of labor and differential hazards. Men of the Ballona also suffered more head trauma than women; however, women overall were more likely to suffer trauma to any region of the body, suggesting that the daily hazards they faced were more detrimental than those faced by males. Nevertheless, for those cases in which an individual could be assigned a sex, trauma to the face was exclusive to men. Trauma to other areas of the head may highlight some societal differences between men and women of the Ballona. We have suggested that the exclusivity of facial trauma among the men, as well as the nearly universal position of that trauma on the left side of the face, implied close combat or dueling circumstances (see Chapter 9 in Volume 4 of this series; Walker 1989:320). The Gabrielino/Tongva war club—a heavy, wooden club often covered with knobby studs—was regularly used in close-combat situations. The characteristics of the wounds on the bone and the force necessary to impart the observed fracture patterns were not inconsistent with the Gabrielino/Tongva war club, which suggests warfare and dueling. Compare this to the pattern of trauma on the hands and wrists found exclusively on women in the LAN-62 sample. These traumas were more consistent with injuries sustained during daily activities.

Evidence of interpersonal violence also was found in the mission records and clearly demonstrated that homicide and other forms of interpersonal violence were significant causes of death (Douglass and Stanton 2010). That very little evidence of these injuries was seen in the skeletal remains from LAN-62 shows how difficult it is to categorize trauma and to document all instances of violence. The traumatic injuries identified among the Gabrielino/Tongva at Yaanga and the Chumash at Humaliwo have provided some insight into the general level of violence in the region, at least as far as it can be interpreted from skeletal remains. Trauma was tentatively identified on one individual at Yaanga (Goldberg 1999:134). It is remarkable that the authors were even able to identify that lesion, considering the poor preservation across the site. At Humaliwo, Walker et al. (1996) identified patterns similar to those of injuries identified at LAN-62, with some differences. Cranial injuries were more common among males at both sites, but unlike at LAN-62—where females suffered more hand injuries—it was the men at Humaliwo who had more injuries to the hands. The overall pattern of fractures, bony spurs, and arthritis identified at Humaliwo was consistent with strenuous activity, interpersonal violence, and sexual division of labor (Walker et al. 1996:39). The similarities in skeletal pathologies at Humaliwo and LAN-62 during the two time periods are intriguing and may have resulted from similar activity levels, warfare practices, and societal structures.

Summary and Conclusions

Interpreting differences in the demographic structure, disease, and violence between the PVAHP sample and other contemporaneous skeletal series is complicated by several factors. Comparing demographic profiles is often biased by the nature of skeletal age-at-death assessment methods and overcounting (and undercounting) of infants, which leads to unrealistic mortality and survivorship values. Using mission records avoided these prejudices, but they suffered from inherent problems within the data set that are generally considered unavoidable. Despite intricacies in interpretation that account for these biases, the demographic profile of the LAN-62 sample was consistent with those of other contemporaneous skeletal series from California. The age-at-death distributions fell into a general pattern, with higher-than-normal infant mortality but a generally well-distributed survivorship for later age groups. Perhaps the most unique finding among demographic profiles was the similarity between the adults in the LAN-62 Mission period sample and the adults from the village of Guaspet. The similarities of these demographic profiles and age-at-death distributions provide very good evidence that the two groups faced similar hazards. In other words, the quality of life represented by the LAN-62 Mission period series was nearly identical to that represented by the Guaspet series, and the two groups may have belonged to the same population. Given that we know Guaspet was somewhere in the Ballona and most likely was somehow related to the burial area at LAN-62, these results are not surprising and are very important. Although no single line of evidence definitively points to a connection between Guaspet and LAN-62, the nearly identical demographic profiles of the two population samples—one known through ethnohistoric records and the other through human remains—offers evidence of their interconnectedness.

Although there were sampling issues that hampered some overarching interpretations between the LAN-62 and Yaanga burial populations, there are important conclusions that can be drawn from such comparisons. The most compelling evidence of a shared cultural and perhaps biological history is the abundance of caries at both sites. The frequencies of these dietary indicators were much higher than the rates at Humaliwo, particular for the LAN-62 Mission period sample, which had the highest incidence of caries. The excess of caries did not appear to be the result of sampling error, because the pooled samples retained the relative frequencies between sites, as well as their relations to one another. As discussed earlier in this chapter, the increased number of caries in the LAN-62 and Yaanga populations may reflect the time depth of the sites. At LAN-62, for example, the burial area continued to be used for perhaps 15 years after the establishment of the first rancho in the Ballona, and native residents likely worked at nearby ranchos in the area that had access to imported foods. In contrast, it appears that the Mission period burial area at Humaliwo ceased to be used just a few years after the establishment of Rancho Topanga Malibu Sequit. Yaanga was located on the edge of the Pueblo of Los Angeles, and many of its residents likely labored in pueblo fields in return for a portion of the resulting crop. As a result, native residents of the Ballona and Yaanga may have had much greater access to introduced foods with higher sugar/carbohydrate levels, such as corn. These data and resultant interpretations are important, in part because they offer both independent evidence of the likely relationship between the Gabrielino/Tongva and colonists and insight into the resultant effects on various aspects of native health.

In general, the people of the Ballona appear to have had a reasonably high quality of life. Evidence of infection and malnutrition was lowest among the three native groups in our comparison. In fact, very little evidence for either infection or malnutrition was noted in the LAN-62 sample. Although they had much poorer dental health, that is only one aspect of overall health. Of course, as has been pointed out by others studying native populations during the colonial era (e.g., see Lambert 1993; Larsen 1994; Larsen et al. 2001; Walker et al. 1996, 2005), there may have been other factors involved in health that cannot be seen in the skeletal record. For example, skeletal analysis may only offer insight into relatively long-term health rather than causes of death that were immediate and did not leave tell-tale signs on the skeleton. Ethnohistoric records document that disease epidemics and dysentery were major causes of death among native populations, and these likely would not show up in burial analyses. That said, the analysis presented here does provide an important viewpoint on the overall health of Ballona residents during the Mission period, in comparison to those at Yaanga and Humaliwo.

Thus, we have presented important insight into the overall health of the Gabrielino/Tongva of the Ballona, in comparison to other contemporaneous burial populations in the greater Los Angeles Basin area and to burial populations in other parts of North America that underwent colonialism, specifically Spanish Florida. Overall, although there were likely changes in diet for the Ballona population, which may have led to the increase in dental caries and to relatively poor dental health in general, the population trends suggest relatively good health, and there was little evidence of interpersonal violence, malnutrition, or long-term infectious diseases. Considering that the native population lived in a fast-changing social, political, economic, and environmental context during the Mission period, this may be a bit surprising. It is likely that early on during the Mission period, the residents of the Ballona were not as affected by newly arrived colonists as were those closer to the Pueblo of Los Angeles. However, as the Mission period progressed, it is likely that more and more native residents of the Ballona were drawn into the colonial economy, which surely had effects on their overall health and demography.

Mortuary, Mourning, and Feasting Practices in the Ballona

Seetha N. Reddy, John G. Douglass, Richard Ciolek-Torello, Donn R. Grenda, and Patrick Stanton

Up to this point, most of this volume has focused on issues such as chronology, settlement, and subsistence—essentially, when people lived at the Ballona, how they were distributed on the landscape and how they made a living over time. In this chapter, we turn our attention to issues related to the social, political, and religious dimensions as seen through activities related to the dead. Mortuary, mourning, and feasting practices all relate to the preparation and identity of, and feelings toward, the dead. The study of mortuary practices addresses the organization of burial grounds and the preparation of individuals: types of burials, how individuals were placed in graves and in the burial ground, and the number and types of grave offerings. The ages, sexes, and health of individuals are important considerations in addressing these issues. By contrast, mourning and feasting behaviors are not necessarily directly associated with individual burials and are usually spatially segregated from them. Funeral feasts and mourning ceremonies are ritual practices that commemorate the dead (Bean 1975; Benedict 1924; Boscana 1846; Hackel 2005; Strong 1929). As such, they reinforce the social memory of an individual and a community and serve to renew and support community networks and to forge group memberships (George 1996; Jing 1996; Kan 1989; Schiller 1997; Weiner 1976).

Considerable evidence regarding mortuary, mourning, and feasting practices has been recovered at the five sites within the PVAHP project area (LAN-54, LAN-62, LAN-193, LAN-211, and LAN-2768) as well as other sites in the Ballona (LAN-47, LAN-61, LAN-63, LAN-64, and LAN-206A). Most of the evidence relating to these three activities dates to the Protohistoric and Mission periods (A.D. 1542–1834), a time span that is closely associated with Gabrielino/Tongva occupation of the region. However, evidence of Intermediate period mortuary practices and mourning ceremonies was also recovered from several sites. Together, the lines of evidence provide a unique insight into Gabrielino/Tongva mortuary-related practices at the time of European contact and into how those activities evolved over time. The Mission period was a time of unprecedented cultural change in southern California because of the cultural entanglement between native and European colonial groups (Silliman 2005:62). This evidence also provides a unique opportunity to compare Gabrielino/Tongva burial practices with those of their better-documented neighbors, the Chumash.

This chapter begins with a discussion of theory related to burial, mourning, and feasting activities, followed by a review of mortuary studies in coastal southern California. Then, we delve into the Ballona mortuary contexts, followed by mourning and feasting contexts. These discussions focus on the three realms of sociocultural behavior: sociopolitical, socioeconomic, and socioreligious behaviors. Finally, we summarize the findings of our Ballona mortuary studies and identify their implications for understanding the structure of Gabrielino society and how it was affected by European contact.

Mortuary Practices

Scholars have traditionally analyzed mortuary contexts to understand the social, religious, and political relationships among community members—in particular, to search for clues concerning the presence of elites and leaders and to determine whether societies were egalitarian or stratified (e.g., Brown 1971; Goldstein 2010; King 2010). Social organization has been considered the "primary determinant of variation in mortuary practices and burial form" (Carr 1995:106). Burial data from archaeological contexts have been used to understand social structure, as noted in several seminal studies (Binford 1971; Saxe 1970, 1971). Social ranking, as used here, is defined as differential prestige among individuals in a society that is based on descent/lineage/clan. In a ranked society (as defined by Fried [1967]), social ranking is distinct from leadership, which may be achieved. The scale of ranking has often been determined on the basis of a prehistoric society's mortuary practices (Carr 2005a; Gamble et al. 2001; Goldstein 2010; King 2010; Martz 1984).

Traditionally, archaeological studies of mortuary behavior have employed a simplistic assumption that variation in grave goods and in the preparation of bodies is directly related to the social status of the deceased. In many mortuary studies, analysts have simply assumed that graves with elaborate burial preparations or with more grave offerings were those of higher-status individuals, whereas graves with fewer goods have generally been considered to reflect the burial of lower-status individuals. Such variation in burial preparation has often been interpreted to represent a hierarchically organized or ranked society. Most researchers, however, recognize that social differentiation is present in almost all human societies and that variation in mortuary preparation may simply reflect the economic and social role that an individual played in society—a role that he or she *achieved*, in an egalitarian society—rather than a social rank *ascribed* at birth, in a hierarchically organized society. In a more sophisticated approach, researchers assume that the treatment of children reflects the social positions and wealth of their parents rather than an achieved status. Thus, elaborate preparation of children's graves is traditionally interpreted as a reflection of ascribed status and the presence of an inegalitarian society.

For example, Gamble et al. (2001) used mortuary data to argue for a ranked society with hereditary elite among the southern Ventureño Chumash beginning during the Middle period (Intermediate period in the PVAHP chronology). In their analysis of the Malibu burial area (LAN-264), they observed that a small proportion (9 percent) of the burial population (during both the Middle and the early Historical periods) contained most (69 percent) of the shell beads and other grave goods, whereas almost half of the burial population had few to no shell beads or other grave goods (Gamble et al. 2001:206). In addition, they noted that the individuals with the highest numbers of grave goods were buried in the central portions of the burial area, whereas burials with few or no grave goods were located on the periphery. Shell beads were used as indicators of wealth (following King's [1990] assertion that shell beads were the Chumash standard medium of exchange). Gamble et al. (2001) also suggested that the spatially clustered area was reserved for particular individuals (of higher status) and that the depth of a burial was directly correlated to the number of grave goods. One discontinuous pattern between the Middle and the early Historical periods is the presence of stone effigies as burial offerings in early burials and their absence from later ones. Gamble et al. (2001) attributed this to changes in the function of effigies rather than to a shift in religious power or a power shift from religious to secular authority. They concluded that major social distinctions are reflected in mortuary practices and that large disparities in wealth existed among the Historical period Chumash. Significant to their argument, the richly endowed burials included both males and females and both children and adults, indicating that wealth and status were ascribed at birth and were not achieved. The burial ground was densely packed within a restricted area, indicating that it was a well-defined area for burial of the dead (and perhaps bounded, as described in ethnohistorical accounts) and that the spatial arrangement was well known to the living. The richly endowed burials were clustered within this well-defined area, whereas burials peripheral to this area contained few offerings. Gamble et al. (2001) also argued that a similar pattern extended to the Middle period burial ground at Malibu, indicating that this social hierarchy had ancient roots.

Similarly, Goldstein (2010) addressed sociopolitical inequality at the site of Aztalan during the Late Woodland and Middle Mississippian periods (A.D. 800–1200) in Wisconsin by looking at the distribution of burials across the landscape. Three different methods of disposal of the dead were identified: (1) primary interments in a spatially distinct area, (2) a combination of primary and secondary interments in a specific structure (charnel house), and (3) secondary disposal (bone scattering) in a particular area of the site. Goldstein (2010:108) suggested that this variation in burial and disposal of the dead by the Aztalan occupants could be related to social ranking and status.

Archaeological interpretations of grave goods and preparation of the body as merely reflections of status and roles, however, are countered by anthropological observations that death rituals embellish, conceal, and misrepresent social relationships among the living. Funerals and related rituals are often political events orchestrated by members of the society, events during which inheritance, property, and power are transferred and negotiated. Some scholars contend that mortuary ceremonies (including related ceremonies) were public occasions when shared social meaning and memory were constructed, and these mortuary practices provided venues to reinforce social order and to promote group and communitywide cohesion and identity (Carr 2005a). Archaeologists have argued that lavish ritual performances are staged in particular to establish or reassert political stability (Brown 1971; Chapman et al. 1981; Huntington and Metcalf 1979). Differences in burial practices could also reflect cultural differences in multiethnic communities, membership in particular social groups, or whether individuals have negotiated rites of passage and have been accepted as full members of a social group before death (Whittlesey 1978).

More-recent mortuary studies have moved away from traditional approaches that focused on material culture and, instead, have attempted to address cultural identity and social relationships (Gillespie 2001; McGuire 1988; Pearson 1982). Archaeologists now look at the roles of individual and group identities in larger social contexts as well as how social memories of the living and the dead are intertwined within the context of mortuary ceremonies and preparations (Chapman 2003; Chesson 2001; Gillespie 2001; Pearson 1993). Mortuary practices provide avenues for archaeologists to examine how individual and group identities were crafted into social memories, because the practices represent a complex interplay of emotions, material culture, and social memories of both the deceased and the living. This interplay among identities, emotions, and maneuvering of social structures is created through the use of material culture (grave goods, preparation of skeletal remains, and funerary and related structures). These new approaches to mortuary studies include the caveat that social structure can be inferred only in the context of specific cultural traditions and that, hence, cross-cultural generalizations are not meaningful or appropriate (Shanks and Tilley 1982).

Postprocessual theorists have used the ethnographic record to argue that there are more exceptions to than rules for mortuary behavior (Chesson 2001; Gillespie 2001; Metcalf and Huntington 1991) and that attitudes toward death often are based on individualized cultural meaning, ideas, and beliefs. In other words, even if social-ranking and status differences were present, they were not necessarily always expressed in burial practices, including the presence of particular grave goods (Hodder 1986; Little et al. 1992; Okely 1979; Rakita et al. 2005). As a result, the material culture included in mortuary contexts could have different meanings to different groups and subgroups in a population. For example, the burial of children with numerous grave goods may not necessarily indicate ascribed status; rather, some have argued that social and demographic factors could be at play (Brown 1981; Byrd and Rosenthal forthcoming; Chesson 2001; Gamble et al. 2001). Along these lines, Gamble et al. (2001) have speculated that a child buried with numerous grave goods may not necessarily be strong evidence for ascribed status and hereditary elites, because the grave goods could be a reflection of emotive aspects of mourning and loss and/or the projected social identity of the adults related to the child (Green 1999). Hayden (1995), Brown (1995), and Pader (1982) also have questioned the assumption that preparation of a child's burial necessarily represents the child's social status or ascribed rank; instead, it could reflect the parents' status. Byrd and Monahan (1995) demonstrated that among the Natufian hunter-gatherers in the Near East, the oldest members of the community lacked grave goods, and the children and young adults had most of the grave goods. They argued that this pattern was indicative of social membership that was tied to age-grade associations rather than to sociopolitical ranking or status. Gillespie (2001) and Pearson (1982) suggested that mortuary rituals could have been indicative of the survivors' social standing and their relationships with the deceased, rather than just the social standing of the dead. For example, Joyce (1999) has discussed how different items placed with the dead reflect the many social identities of an individual throughout his or her life. In this context, grave offerings reflect the interlinked relationships among the deceased individual, the kin group, and the community as a whole. Thus, mortuary offerings may be religious, ethnic, or artistic and, therefore, unrelated to social standing.

Byrd and Rosenthal (forthcoming) noted that the cross-cultural ethnographic record is rife with examples of political complexity not accurately expressed in burial practices, and political ranking may be exaggerated, disguised, or denied in death rituals. For example, O'Shea (1996) studied how identity was expressed through material culture by the dead and the living and concluded that these different identities signify a complex structure of relations of power and authority within prehistoric communities. Cannon (1989) presented cross-cultural data to argue that a group's mortuary ritual and behavior are not associated with social and economic organization. Social ranking may be expressed through intangible media, and higher status could be correlated to simplicity in mortuary behavior (Cannon 1989).

Scholars have also argued that there are egalitarian ideologies that have masked social ranking and, therefore, have restricted individual displays of wealth. Evidence for such ideologies has been noted, for example, in Neolithic Europe (Hodder 1990; McGuire 1988; Trinkaus 1995). Trinkaus (1995) suggested that mortuary patterning is evidence of internal social differentiation in prestate societies and distinguished between overt ranking and masked ranking. Overt ranking refers to social rank with archaeological mortuary and ritual indicators, and masked ranking refers to significant social inequalities that gave rise to potentially destructive internal tensions (Trinkaus 1995:57). These inequalities would have been masked in ritual and mortuary practices, and the archaeological correlates would indicate an egalitarian society. In these instances, then, mortuary data would be misleading because they would indicate a lack of social differentiation. The absence of mortuary evidence for rank, however, is an indication of neither masking behavior nor a lack of social ranking. Trinkaus (1995) tested this model through analysis of lithic production and exchange in Neolithic France. His lithic analysis revealed little centralized control of the production and distribution of lithics. As a result, he argued that little social ranking would exist in a noncentralized economic system. His subsequent mortuary data did not indicate social differentiation, confirming the model. Trinkaus (1995) concluded that multifaceted arguments are more informative on social ranking than are mortuary data alone.

King (2010:54) further cautioned that mortuary behavior is about the living as much as about the dead. During rituals associated with burial activities, social relationships, ideology, and tradition are negotiated, recreated, and redefined. Therefore, associations of material with the burials need not necessarily reflect the social status and rank of the dead; they may be symbols of the survivors' efforts to negotiate social and political realms of the group. Burials at Etowah in Georgia represented groups of people who had similar symbols and were members of socially equivalent groups (such as corporate kin groups, clans, or woman groups) who were interred in sacred spaces reserved for their particular groups—based not on rank but on relationship by clan, sex, or kinship.

Studies of death and mortuary rituals in recent years have also incorporated a heightened awareness of the issues of social memory and the creation and negotiation of identities (Bloch 1982; Bloch and Parry 1982; George 1996; Kan 1989; Metcalf and Huntington 1991; Schiller 1997; Weiner 1976). Some scholars have found the correlation between social order and richness of grave goods simplistic because it does not take into account important aspects of society, including religious beliefs and worldviews (Carr 1995:110–111; Morris 1991:147). Other scholars, such as Pearson (1982) and Huntington and Metcalf (1979), have argued that variability in burial goods does not provide insight into social rank. These approaches to mortuary studies emphasize how different cultures treated death at the individual and group levels. Topics as diverse as individual identity and agency, the concept of personhood, social death vs. biological death, and social memory are some of the themes investigated in these approaches (Gillespie 2001). These agency-centered approaches argue that cross-cultural generalizations cannot identify the individual and that, as a result, specific and historical cultural traditions must be evaluated.

Archaeologists have also come to understand that there is a complex interplay of ritual, material culture, and social memories of both the living mourners and the deceased in mortuary practices, as evidenced by the material remains of mortuary ritual, such as grave goods, skeletal remains, and funerary structures (e.g., Cannon 1989; Carr 1995; Chesson 1999, 2001; Dillehay 1995; Gillespie 2001; Hull 2011; Kuijt 1996; McCafferty and McCafferty 1994; O'Shea 1996; Pearson 1999). Mortuary ritual provides an arena in which the dead are mourned; social memories are created and (re) asserted; social bonds are renewed, forged, or broken; and individuals make claims for individual identities and group memberships (Chesson 2001; George 1996; Jing 1996; Kan 1989; Schiller 1997; Weiner 1976). Individual and group identities and social memories of both the living and the dead are asserted, challenged, and often renegotiated within the context of mortuary ceremonies (Brown 1995; Cannon 1989; Chesson 1999; Dillehay 1995; Gillespie 2001; Hodder 1984; Joyce 2001; McCafferty and McCafferty 1994; Meskell 2001; O'Shea 1996; Pearson 1999). The bonds of social cohesion and cultural alliances demonstrated during mortuary practices are powerful, because social memories are awakened and constructed in a ritual context.

The often public or communal nature of mortuary ceremonies enforces and reaffirms group and individual identities while evoking social memories that transcend kin groups and communities (George 1996; Gillespie 2001; Kuijt 1996; Metcalf and Huntington 1991; Schiller 1997; Weiner 1976). As Gillespie (2001) argued, these public ceremonies also help create a "personhood" for individuals through reassertion of individual place within the larger society. For example, Weiner's (1976) analysis of mortuary rituals among the Trobriand Islanders explored the nature of these ceremonies in asserting individual and community identities in public contexts. Metcalf and Huntington (1991:149) argued that the public nature of the mortuary ceremonies brings along with it an integrative process for the community that is more powerful than if it were in a private arena, because these ceremonies not only foster social memories of the past and present for the group but also address key facets of the future of the group.

Traditional theoretical approaches to mortuary analysis have been tailored toward an understanding of sociopolitical and socioeconomic differentiation within a population through the examination of how the dead were treated. Alternative perspectives on these approaches—principally, agency-centered approaches—have argued that such a correlation is misconstrued and that a more insightful study would look for cultural identities of the individual(s) and the community. If social ranking is to be interpreted, a burial population generally must include individuals representative of the entire society, traits associated with social ranking, mortuary traits that indicate ascribed status vs. achieved status, and relative frequencies of persons in distinct rank levels (higher ranks have fewer people) (Carr 2005a).

Regardless of the approach, there are limitations to the use of mortuary assemblages to examine economic and sociopolitical organization. That said, mortuary analysis, overall, when used with caution, offers a rich avenue for examining and understanding the economic and sociopolitical organization of past societies. The preceding discussion also demonstrates that the relationship between social status and mortuary practices is not a simple correlation and that status is not the only social phenomenon that may be explored through mortuary data. From the traditional approaches that have received so much criticism, it is clear that the complexity of social behavior has been poorly addressed and that multiple social roles and positions have been conflated. In this study of mortuary practices in the Ballona, we follow Martz (1984) and take a more nuanced approach that distinguishes socioeconomic status (wealth) from sociopolitical status (rank) and socioreligious roles. We accomplish this by not just examining the overall quantities of grave goods but also looking more closely at the types and variety of grave goods and their religious, political, and economic meanings.

Mourning Ceremonies

Mourning ceremonies and associated ritual link the past and the future of the community, often in public venues, where individuals, social groups, and social relationships are assessed and reinforced. Mourning ceremonies are often venues in which there is a complex interplay of emotion and material culture as well as the social memories of the mourners and the deceased. These social memories are crystallized through ritual ceremony with offerings and formalized social interplay during an integrative process for the community (Cannon 1989; Carr 1995; Chesson 2001; Dillehay 1995; Gillespie 2001; Kuijt 1996; McCafferty and McCafferty 1994; O'Shea 1996; Pearson 1999). During mourning ceremonies, the lives of the deceased and the past life of the community are commemorated by invoking visions of the future while tying social memories of the past to the immediate future of the community in mourning (George 1996). George (1996:200) described commemoration as a ritual action that touches the past, future, and present simultaneously: "[A]lthough we may associate commemoration with recollection and looking backward, it is also prospective—it offers a structure of anticipation. Memory—as a form of sociality and as a form of something remembered—is kept in motion." Material culture is used in these contexts to illustrate the intense and complex interplay among social identity, emotions, assessment of social relationships, and creation of social memory (Bloch 1982; Bloch and Parry 1982; George 1996; Kan 1989; Metcalf and Huntington 1991; Schiller 1997; Weiner 1976).

Ethnohistorical and ethnographic evidence of mourning ceremonialism (with associated feasting) exists in southern California (Bean 1975; Benedict 1924; Blackburn 1975; Boscana 1846; Strong 1929). The example that is perhaps most often discussed is that of Chumash funeral feasts or fiestas (Gamble 2008; Gamble et al. 2001; Hollimon 2001). Community-level mourning ceremonialism served to integrate Chumash communities over geographical space and through time by means of the periodic mourning ceremony. During these events, foodstuffs and money were redistributed. In addition, political, religious, and economic power was reinforced in the hands of a few elites (Blackburn 1976:229, 233, 235–238; see also Kroeber 1925:859–860).

Another example of ceremonial mourning is from the Gabrielino/Tongva in the Los Angeles Basin (Boscana 1978; Kroeber 1925; Merriam 1962). The Gabrielino/Tongva had an elaborate sacred ceremony dedicated to the memory of the dead; it lasted 8 days, involved four rites, and typically was given by persons of wealth and prominence (Merriam 1962). The time elapsed between death and the ceremony could have been any span between 1 and 4 years, depending on how long it would take to accumulate the food, clothing, baskets, and other items used in the ceremony. The person giving the feast (a master of ceremonies) invited people from neighboring tribes and bands. A central feature of the mourning locale was the *ko-too'-mut*, a pine-tree pole polished with pumice stone, which was painted and adorned with baskets. Mourners tossed offerings of food, clothing, beads, and baskets against the pole while singing mournful chants to the dead. The four rites of the Gabrielino/Tongva mourning ceremony consisted of clothes washing, clothes burning, burning images of the dead, and the distribution of property of the dead (Boscana 1933; McCawley 1996; Reid 1968). During the image-burning rite, many offerings and gifts were tossed into a pit along with the image. The last day of the celebration was reserved for the burning of additional offerings to the dead. The invited guests were fed for the 8 days, and this mourning-related feasting was sponsored by the master of ceremonies. At the conclusion of the ceremony, the group split up and returned to their respective villages with renewed communal ties and stronger social relationships.

Hull (2011:35) has succinctly summarized information on communal mourning in California gleaned from ethnographic and ethnohistorical records. She noted that although regional variants and expected diachronic changes in practices existed, three basic practices were common in all such ceremonies. First, some personal items of the deceased were retained after the burial to be included in the annual mourning ritual. These items may have been previously exposed to fire during the funeral rites. Second, these retained items along with other items were "destroyed" during the mourning-ritual ceremony, either by fire or by other means (e.g., physically breaking them). Finally, these items (which were ritually "killed") were buried within a defined sacred space during the mourning ceremony. This defined space could vary from a small area (11 m^2) to a larger space (200 m^2) and often was physically demarcated with plant materials. The "killed" items that were buried during the mourning ceremonies are the archaeological correlates of these activities. The range of items and types of "destruction" could vary considerably between what was reported in ethnohistorical documents and what is ultimately recovered in the archaeological record, because changes in practices over time are to be expected, particularly during the Mission period, which was a time of considerable social, economic, and religious upheaval.

Feasting Activities

Feasting activities have long been recognized as important indicators of social integration and organization in small-scale societies (Bender 1985; Ford 1972; Rappaport 1979). Feasting has been discussed as playing a central role in solidifying social relationships and alliances, in competing for power, or in reinforcing existing power hierarchies (Dietler 1996; Dietler and Hayden 2001; Durrenberger 2008; Hayden 1996, 2001, 2009). In egalitarian societies, feasting may be exclusively for celebratory reasons, to take advantage of local windfalls, or for the creation of social bonds (Hayden 1996, 2001). Among intermediate-level societies (such as big-man societies and chiefdoms), the feasting is often competitive and plays a critical role in establishing, maintaining, and building elite power, both within the community and in the region. Hayden (1996) characterized feasting events generally as competitive feasts and categorized subtypes of feasts according to their purported goals, other than satiating the appetites of a number of people. His subtypes consist of those aimed at control over labor, economic gain, and display of status (diacritical feasts). Dietler (1996) shared many of Hayden's characterizations of the purpose of feasts. Dietler (1996) had an additional category: entrepreneurial feasts (those through which the host aims to achieve a measure of symbolic capital by his generosity), which normally take place in societies lacking formalized and hereditary power roles. In addition, he discussed patron-role feasts, in which individuals who enjoy institutionalized positions of power host feasts that reinforce their higher status but also obligate them to be generous. Hayden (1996) and Dietler (1996) argued that feasts do much more than feed many people; in addition, they are forces for social change or reinforcement, creating or maintaining important social relationships (Hayden 2001:30) and therefore constituting "a prime arena for the reciprocal conversion of . . . 'symbolic capital' and economic capital" (Dietler and Hayden 2001:73).

On the other hand, Potter (1997) saw feasts as neither necessarily requiring a focus on obtaining large amounts of meat (artiodactyl hunting) nor even being socially integrative mechanisms. This view stands in contrast to those of other scholars, such as Dean (2001), who have postulated that large quantities of high-utility body parts from artiodactyls and high ratios of large game to small game are needed to host feasts. Dean (2001) proposed that big-game hunting during the late Pueblo periods in Arizona also functioned as a prime mover to increase the social prestige and reproductive success of successful hunters. The hypothesis presented by Dean (2001) is focused on the Pueblo IV period, an era of increased population aggregation and, therefore, competition for status and mates. For Dean (2001:281), feasts were integrative events for the community and at the same time offered the chance for the events' benefactors (those who had supplied the most meat for it) to advance their own societal positions. In contrast, Potter (1997:358–359) argued that ethnographic and archaeological data suggest that small mammals (lagomorphs: rabbits [*Sylvilagus*] and hares [*Lepus*]) formed the mainstay of feasts and that artiodactyls were hunted only occasionally and their meat was not shared communally. In addition, faunal evidence shows unequal distribution, among households, of the bones of ritually important animals and bones important for the manufacture of bone tools. Therefore, feasts may have been just as divisive as integrative for the community (Dean 2001). In the test cases within Dolores Anasazi pueblos, the meat from large or ritually important animals was not shared but, rather, was consumed and cached by those who procured it (Potter 1997). Such actions promoted hunters' status via success alone, rather than success in the context of sharing. Therefore, although feasting may well have served a variety of communal functions, whether integrative or divisive, concluding that feasting occurred solely or mainly on the basis of the presence of large game animals may well be misleading.

In another example from the U.S. Southwest, Grimstead and Bayham (2010) found an abundance of small game (lagomorphs) in what they argued was a feasting context, except in one room at the site, which was full of artiodactyl bones. Thus, an area expected to contain evidence of elite feasting in fact contained mainly lagomorph bones and low taxonomic diversity, suggesting that the nature of feasting was different from what typically has been understood (Dean 2001). In other words, the large number of faunal remains per cubic meter in conjunction with low richness values and a faunal collection made up nearly entirely of rabbits and hares seemed to indicate a type of feasting performed by nonelites (Grimstead and Bayham 2010:842). Therefore, this case fits the idea of nonelite feasting proposed by Hayden (1995): that elites organized feasts for an entire community, thereby encouraging the population to undertake public-works projects and other activities from which not all benefited equally. This study also clearly illustrates that feasting hypotheses must be defined for a local environment and cannot be broadly applied. That is, for example, feasting expectations derived from a study of Cahokia cannot be applied wholesale to the desert U.S. Southwest (Grimstead and Bayham 2010:859) or to the West Coast. Particularly important is the authors' observation that artiodactyls in prehistoric times may have carried considerable cachet because of their sparseness across the southwestern desert landscape. Thus, successful large-game hunters could have engaged in costly signaling (see below) and large-game-based feasting to boost their status and reproductive success.

Spielmann (2002) has focused on the relationships between feasting and other realms of societal rituals in Polynesia and demonstrated that ritual is, itself, a mode by which economies operate and are driven to production or greater consumption. The food and drink consumed in a feast must be gathered together from somewhere by some means; they are not simply surplus stored away until needed. Therefore, planning a ceremony including a feast must involve a long prior period of planning—that is, economic production oriented toward the support of a ritual. In this argument, however, not just the immediate production of foodstuffs is affected by the needs of societal ceremonies. Rather, Spielmann (2002:197, 200) extended the argument and suggested that the production of all items more and less tangentially connected to feasting—pots, baskets, ornaments, and other craft goods—may be affected by ritual feasting.

The arguments surrounding the political and social benefits of competition have also been explored in regard to the small-scale societies of southern and central California, which, before European contact, were less differentiated socially and were economically generalized when compared to the better-known cultural groups of the northwestern coast. Hildebrandt and McGuire (2002:232), for example, sought to explain archaeological evidence, from prehistoric California, for a rise in large-game procurement, in terms of what they called costly signaling: (male) hunters displayed their fitness as mates for women, as leaders in their village, and as good partners for alliances by their success in hunting. The authors presumed that in prehistoric California, as in many hunter-gatherer societies, males shared large-game kills with members of the extended family and others with whom they sometimes shared certain other obligations, rather than limiting this sharing to the immediate family unit. These and other researchers have argued that such sharing, when beyond the necessities of reciprocal obligations, was undertaken to enhance the status—and thus the appearance of reproductive success and other contributors to Darwinian fitness—of the hunter (Hildebrandt and McGuire 2002:234–235). Thus, "show-off" hunting—that is, hunting large game—has benefits for those who do it well, even though it has costs, such as the risk of gaining nothing when nonprestigious game is ignored and the expenditure of effort in developing the complex tool kit for such exploits. Hildebrandt and McGuire's model for mid- to late Holocene California, which is a general theory seeking to explain the rise of big-game hunting, can be extended naturally from the acquisition to the consumption side and can be evaluated as a type of feasting model. Hayden (2009:36–37) argued that the theoretical underpinnings of Hildebrandt and McGuire's (2002) approach were problematic; he suggested that at the same time, feasting is a form of signaling in that it creates the conditions for certain (limited, in his view) types of social promotion.

One avenue for gleaning evidence for social cohesion and cultural alliance in mortuary behavior is through feasting, which is associated with mourning and death and offers unique insights into the cultural perceptions of the relationships among food, material culture, and ideology. Feasting in the above discussion was centered on its function as a socioeconomic endeavor in mortuary contexts. Here, we discuss feasts for the dead as part of mourning ceremonies, which cultivate social memories of the past and present and address key facets of the future. Funeral feasts associated with mortuary and mourning ceremonies commemorate the dead, reinforce social memory of the individual and community, renew and support community networks, and forge group memberships (George 1996; Jing 1996; Kan 1989; Schiller 1997; Weiner 1976).

In the Ballona, two differing forces (socioeconomic power play vs. social cohesion) could have been at work within the context of mortuary-related behavior, because these are the contexts in which feasting appears to have taken place in the Ballona. Feasting and ritual associated with mortuary and mourning practices have long been seen as functioning to enhance social cohesion (George 1996; Hayden 2009; Jing 1996; Kan 1989; Schiller 1997; Weiner 1976). Carr (2005b) has discussed feasts for the dead as one explanation behind the Scioto Hopewell ritual gatherings in Ohio. Although the particular historical circumstances underlying the protohistoric and historical-period Huron Feast of the Dead were different from those associated with the Hopewellian gatherings, Carr (2005b) proposed similar social cohesion and socioeconomic factors in play in these contexts. The Huron Feast of the Dead was a ritual ceremony and feast held every 8–12 years. It involved disinterring all persons of the particular village (and associated satellite villages) who had died since the last Feast of the Dead and reburying them in a large ossuary (Carr 2005b; Trigger 1969). During these feasts, kinship ties were renewed, reinforced, and created, and clans displayed their wealth. The ceremonial and ritual feasting events associated with mortuary practices helped enforce sociopolitical ties (villages whose dead were buried together were obliged to live in peace and support each other) while demonstrating the socioeconomic power of the hosts through displays of wealth.

Hayden (2009) has recently explored the cross-cultural role of feasting in funerary rites. On the basis of his results, Hayden (2009) stated that funerals function well for the ulterior sociopolitical motives that he assigned to feasting, because emotions run high, and generosity that might in other contexts be seen as suspicious is accepted as the proper behavior toward deceased kin. Hayden (2009) argued that lavish funeral feasts are an avenue to publicize the socioeconomic success of the deceased's family and kin groups, and such advertisement is important to confirm and solidify alliances for political and economic interaction. Funeral feasts are used to display information about the social, economic, and political standing of the family and kin groups (Hayden 2009:41). Because such events are costly and labor intensive, Hayden (2009) suggested, they would be more common for important members of the community in transegalitarian and complex societies. He argued that funerals are ideal venues to display sociopolitical and economic power, because these events typically bring together larger groups, and they are contexts in which emotions can be manipulated to form and reinforce alliances (Hayden 2009:39). Therefore, funeral feasts are an important nexus of social, economic, and political realignments (Hastorf 2009).

Previous Mortuary Studies in Southern California

Mortuary studies in southern California typically have addressed two main research issues: (1) evidence of the Takic expansion (Gamble and Russell 2002; Sutton 2009) and (2) evidence of social organization and ranking (Arnold 2001b; Gamble 2008; Gamble and Russell 2002; Gamble et al. 1996; Gamble et al. 2001; King 1990; King 1969, 1982; Martz 1984). Some of the earliest studies of mortuary behavior in southern California are those of Wallace (1955) and Warren (1968), who provided syntheses of burial practices that characterize different periods. Wallace (1955) argued that early Millingstone period burials were either primary or secondary, whereas Intermediate period burials included cremations and greater diversity in burial practices. He suggested that by the Late period, flexed burials were common in the northern portion of southern California, whereas cremations were more common in the southern portion of the state. Warren (1968) also suggested that burial practices changed from period to period. He argued that cremations were related to the intrusion of Takic groups on the coast (what elsewhere has been called the Shoshonean expansion), from the desert. Moratto (1984:161–162) delineated "Shoshonean" or Takic elements in the archaeological record, including pottery, triangular arrow points, and cremations. Several decades after Warren's (1968) work, Gamble and Russell (2002:118) followed this argument and noted that cremations were characteristic of Takic groups, including the Gabrielino/Tongva (but see Sutton 2009 [Takic expansion]).

Following the initial suggestions of Warren (1968) and Moratto (1984), scholars have continued to correlate early evidence of cremation on the coast to movement of Takic groups to the coast (Cleland et al. 2007; Gamble 2008; Gamble and Russell 2002). Along these general lines, Gamble and Russell (2002:123) studied 13 prehistoric archaeological sites from the Gabrielino/Tongva region and argued that there was evidence of both cremations and inhumations at sites during the late Holocene but no evidence of cremations from the middle Holocene. The earliest cremations among the Gabrielino/Tongva, they argued, date to 600–200 b.c. and are from the Encino Village site (LAN-43). In the Gabrielino/Tongva area, inhumations appear to have been placed either individually or in relatively small groups, whereas among the Chumash to the north, larger burial areas appear to have been more common (Gamble and Russell 2002:123). In their report, they documented 6 large burial areas in the Chumash area that have been excavated extensively; within the Gabrielino/Tongva area, evidence of similar large burial areas (excluding current PVAHP findings) is much scanter. Most recently, Sutton (2009) has argued that at ca. 3500 cal b.p., the Takic (proto–Gabrielino/Cupan branch) initially entered the Los Angeles Basin, as determined from the linguistic data, the appearance of distinct biological populations, and some changes in artifact types and in mortuary practices. These Takic groups replaced the existing late Millingstone and early Intermediate period groups along the coast.

Cremation was practiced during the Intermediate period and was not strictly a Takic marker, given that flexed burials under cairns disappeared from the coast, although the practice continued in the inland areas (Cleland et al. 2007; Douglass et al. 2005; Hull et al. 2006). Intermediate period sites containing human remains associated with cairns have been documented by Walker (1952) at several sites in the greater Los Angeles area and have recently been reassessed by Hull (2012) and her colleagues (Hull et al. 2006; Hull et al. 2013). These cairns consisted of large, localized, dense concentrations of complete and fractured milling tools and vessels, often accompanied by large, unmodified cobbles and rare, fragmentary human remains representing only a portion of each body (Hull 2011, 2012). Sutton (2009) argued that cremations should not be viewed as markers of the Takic entry into southern California, because cremation is generally rare in the Takic homeland. Sutton asserted that the appearance of cremation and large mortuary features ca. 2500 cal b.p. suggests that although some specific Takic groups adopted this new mortuary custom, inhumation remained the prevalent practice through time. Large mourning features with cremated human bone appeared ca. 2600 cal b.p. (during the early Intermediate period) on the Ballona bluff tops (Douglass et al. 2005). McCawley (1996) noted that although the Gabrielino/Tongva practiced both interment and cremation, interment may have been the standard practice on the Channel Islands and the mainland coast, perhaps because of a scarcity of suitable fuel for funeral pyres or because of cultural affinity. The practice of cremation by the Gabrielino/Tongva was also reported by Harrington (1942:37, 45, items 1456 and 1465 [cited by McCawley (1996)]), who observed that the "coast Gabrielino/Tongva both buried and burned the dead as far south as [the] mouth of [the] Santa Ana River" (see also Hudson 1969; Koerper and Fouste 1977; Kroeber 1925:556–557, 633; McKusick and Warren 1959:135, 173 [cited by McCawley (1996)]; Reinman and Townsend 1960:28).

Several scholars (Arnold 1987, 1993, 1995, 2001b; Gamble 2008; Gamble and Russell 2002; Gamble et al. 1996; Gamble et al. 2001) have identified evidence for status differentiation and emerging social complexity in mainland and island Chumash mortuary data. For example, using mortuary and other data, Arnold (2001b) has argued for the emergence of chiefdoms during the Transitional period (a.d. 1150–1300—the early part of the Late period in this report). According to Arnold (2001a:295), factors stimulating political elaboration among the Island Chumash were "changes in the organization and manipulation of labor associated with technological innovation, specialized production, and control over intensified middle-distance exchange early in the second millennium." Gamble et al. (2001:208) disagreed with Arnold (1992a, 1992b, 2001b) and stated that ranked societies characteristic of the Historical period Chumash chiefdoms appeared during the Middle period (A.D. 600–1150)—much earlier than argued by Arnold (1992a, 1992b, 2001b). In perhaps the most detailed study, Martz (1984) has carefully examined evidence from a chronological sequence of five Chumash burial grounds in the Santa Monica Mountains area to test a series of hypotheses regarding the development of the Chumash chiefdoms and whether they resulted from European contact or had roots in ancient Chumash society.

Research findings at selected sites in coastal southern California are discussed below (see Chapter 2, Volume 4 of this series, for a more complete review) (Figures 82 and 83; Table 25). Although many prehistoric and early Historical period burial grounds have been excavated in the Gabrielino/Tongva and Chumash regions, only a few have been studied in depth, and almost all of these have been in the Chumash region.

LAN-197 (Trancas Canyon)

The Trancas Canyon site, LAN-197, was located on a knoll on the west bank of Trancas Creek, overlooking the coast 15 km west of Malibu Beach. This site was first excavated in 1968 by the UCLA Archaeological Survey and the Malibu Archaeological Society as a salvage operation (Thomas and Beaton 1968:163). Although the artifact assemblage from the site suggested an occupation ranging from 3000 b.c. to A.D. 500, a radiocarbon date obtained from an abalone (*Haliotis*) shell associated with a burial indicated that the burial area was in use from approximately 310 to 430 b.c. (Martz 1984:110) (a span of time that we place in the early to middle Intermediate period).

At a minimum, 106 inhumations and no cremations were identified at this site (although an estimated 10 percent of the burials from this site were lost as a result of disturbance) (Martz 1984:111; Thomas and Beaton 1968:165). These burials were relatively diffuse in an area approximately 22.5 (east–west) by 12 m (north–south); the density decreased away from the center of the burial area (Thomas and Beaton 1968:Map 1). Almost all (approximately 97 percent) of the inhumations recovered from the site were interred in an extended position; considerably fewer burials were interred in semiflexed or fully flexed positions, and there were very few reburials (Thomas and Beaton 1968:Table A). Seventy percent of the burials were interred supine, 24 percent were interred prone, and a scant 6 percent were interred on their right sides; none was positioned on the left side (Thomas and

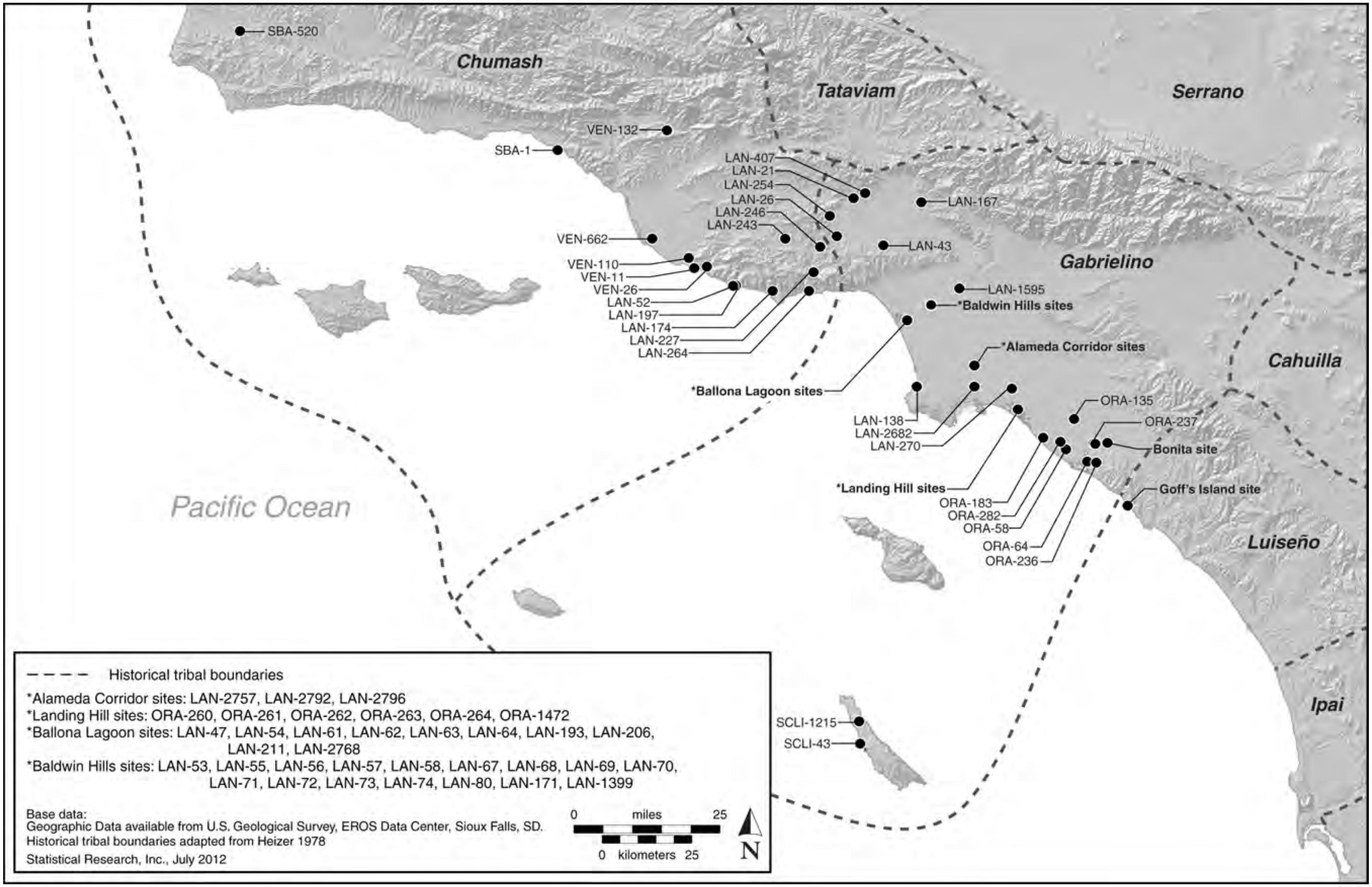

Figure 82. Map showing the locations of major coastal southern California sites with human burials.

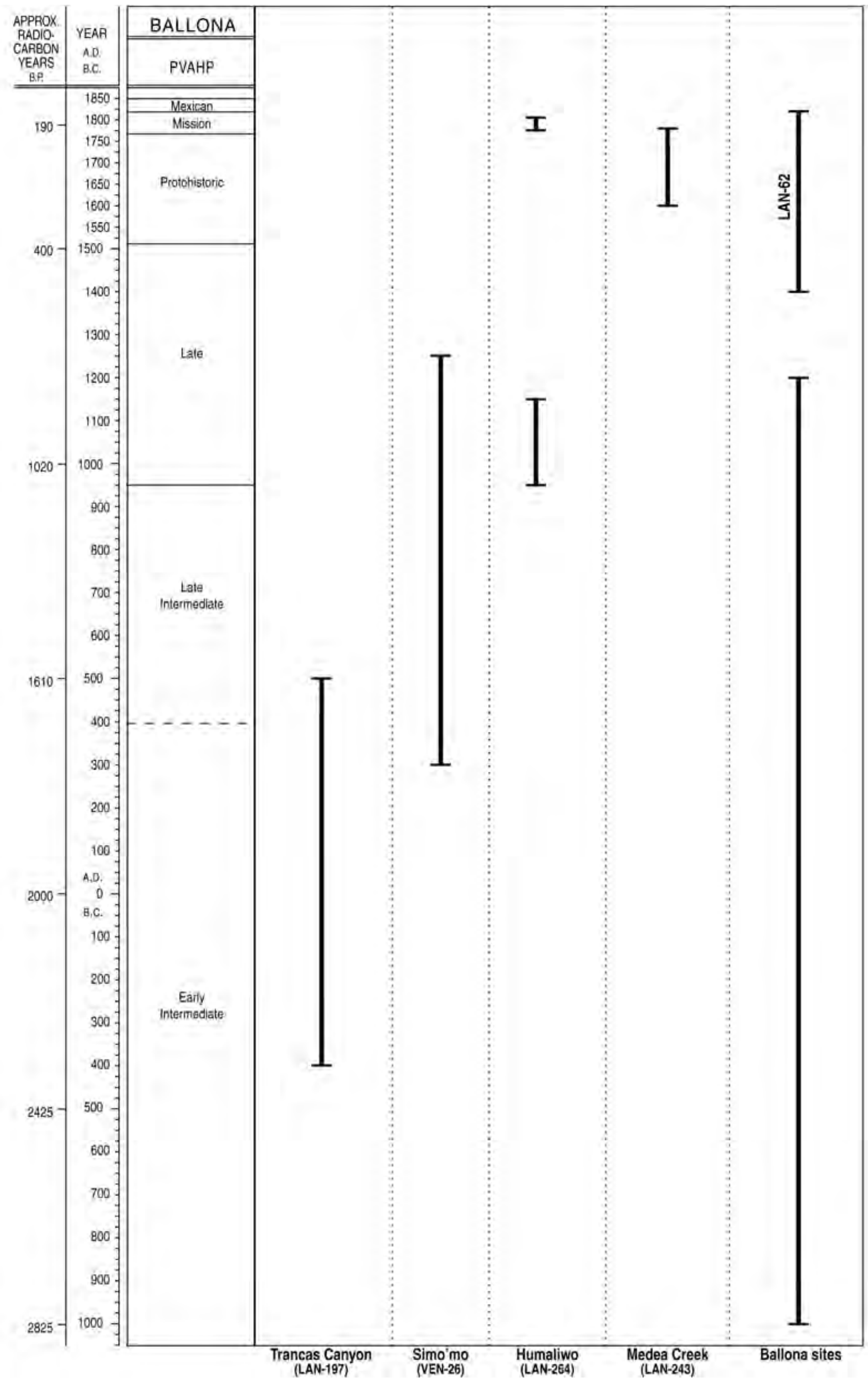

Figure 83. Temporal placements of some of the major coastal southern California sites with human burials.

Table 25. Major Sites with Burials in the Coastal Southern California Area

Site Number[a]	Site Name	Inhumations	Cremations	Age of Burials
LAN-26	Sheldon Reservoir	53	14	Late period
LAN-43	Encino Village	21	13	late Intermediate/early Late period
LAN-52	Arroyo Sequit	140	—	late Intermediate to Mission period
LAN-167	Big Tujunga	15	—	Intermediate period
LAN-171	Haverty	8	—	Millingstone period?
LAN-174	Zuma Creek	6	—	Millingstone period
LAN-197	Trancas Canyon	106	—	Intermediate period
LAN-227	Century Ranch	22	—	Late through Mission period
LAN-243	Medea Creek	389	8	Late through Mission period
LAN-246	Mulholland	23	—	Late period
LAN-264	Malibu/Humaliwo	112	2	Intermediate period
LAN-264	Malibu/Humaliwo	136	—	Mission period
LAN-1595	Yaanga	14	5[b]	Late through Mission period
SBA-1	Rincon Point	43	—	Millingstone period
SBA-520	Mission La Purísima	34	—	Mission period
VEN-26	Simo'mo	152	—	late Intermediate period
VEN-110	Calleguas Creek	96	—	late Intermediate period
VEN-662	Port Hueneme	7	—	Late period
LAN-270	Los Altos	20	1	Late period
LAN-2682	ARCO	20	—	Protohistoric through Mission period
LAN-2682	ARCO	7	—	Late period
LAN-2757	Alameda Corridor	2	—	Late period
LAN-2792	Alameda Corridor	10	—	Late period
LAN-2796	Alameda Corridor	1	—	Late period
ORA-58	Banning Estate	44	3	Millingstone period
ORA-64		approximately 500	—	Millingstone period
ORA-135	Griset	19	—	Late period
ORA-260, ORA-261, ORA-262, ORA-263, ORA-264, ORA-1472	Landing Hill	9	—	Millingstone period
ORA-260, ORA-261, ORA-262, ORA-263, ORA-264, ORA-1472	Landing Hill	10	1	Intermediate period
ORA-260, ORA-261, ORA-262, ORA-263, ORA-264, ORA-1472	Landing Hill	2	—	Late period
ORA-260, ORA-261, ORA-262, ORA-263, ORA-264, ORA-1472	Landing Hill	12	—	unknown
ORA-260, ORA-261, ORA-262, ORA-263, ORA-264, ORA-1472	Landing Hill	4	—	off-site, unknown

Note: Table includes only sites with good chronological context and well-documented human remains.
[a] The complete site numbers for those shown with a LAN- prefix in this column begin with CA-.
[b] Two of the five cremations at LAN-1595 were noted as "possible" only.

Beaton 1968:Table B). Eighty-seven percent of the burials were oriented at approximately 200° (roughly due south) and toward the ocean (Thomas and Beaton 1968:167).

Because of poor preservation and the absence of a physical anthropologist during excavations, only 21 burials could be identified as to sex: 8 females and 13 males (Martz 1984:124). Of 92 individuals who could be identified as to age, 62 were identified as adult, 6 as "adolescent," 15 as child, and 9 as infant (Martz 1984:125). Martz (1984:111) noted that fewer infants were represented than would be expected in a population from that period. According to Martz (1984:132), there also was a tendency to locate adult burials toward the western portion of the site and child and adolescent burials toward the eastern portion of the site.

Slightly more than 60 percent of the burials lacked any mortuary accompaniments or artifact associations (Thomas and Beaton 1968:170), and only 160 artifacts, in total, were associated with the 106 burials combined. Noteworthy burials included an older adult male buried with a pipe and an adolescent buried with a bone tube and an abalone shell over the face. Martz (1984:117) considered the pipe and the bone tube ritual artifacts. Shell beads were found in only 1 burial, that of a child of 7 or 8 years whose offerings included abalone shells over the knees, a string of purple dwarf olive (*Olivella biplicata*) shell beads, and red ocher (Martz 1984:117). Cairns constructed of rock and broken artifacts were associated with the burials of 9 adults and 1 adolescent (Martz 1984:137).

Martz (1984:114) selected the site for her study of changes in the social dimensions of Chumash mortuary populations because it appeared "to represent the pre-Chumash or pre-maritime adaptation" in the regional sequence. Martz (1984:111) observed that salient features of the burial population included extended burials, a general lack of burial accompaniments, an absence of the pattern of reburial, crowding, and multiple burials characteristic of Chumash burial grounds in the Late and Mission periods. On the basis of a detailed analysis of the mortuary preparation and grave offerings, Martz (1984:143) concluded that a small group of individuals with preparation indicative of higher sociopolitical standing or prestige could be identified despite the paucity of grave goods. She also concluded that individuals with artifacts indicative of socioreligious roles could be distinguished. Finally, only one individual, the aforementioned child, exhibited evidence of wealth, leading to the conclusion that wealth was not utilized as a means of demonstrating social distinctions. Overall, Martz (1984:144) concluded that the Trancas Canyon population was stratified to a low degree, in that there was an attempt to distinguish certain individuals by the presence of artifacts and preparation indicative of prestige, ritual role, and wealth. Although ornaments and other artifacts associated with wealth were available to that society, they were not used to distinguish adults at death. Furthermore, although indicators of wealth were associated only with a single child, status distinctions emphasized personal achievements rather than ascription.

VEN-26 (Simo'mo)

VEN-26 (Simo'mo) was located west of the Santa Monica Mountains near Point Mugu. At the time of its occupation, this site would have been located along the edge of Mugu Lagoon, which is now located approximately 3 km away because of flood-control construction. The site was first excavated in 1932 by the Los Angeles County Museum of Natural History, with work supervised by Richard Van Valkenburgh. The UCLA field class also conducted work at the site in 1955, and UCLA and San Fernando Valley College worked at the site in 1958 and 1959.

As determined from the typology of shell beads, ornaments, and fishhooks, the burial ground was in use during the late Intermediate period, between a.d. 300 and 700 (Martz 1984:154; Raab 1994:42). Radiocarbon dates obtained from shell, however, place occupation between the third and thirteenth centuries a.d. (Martz 1984:154). Ethnographic accounts regard Simo'mo as "the largest and most important village in the region," but that may have been before European contact, as no Historical period artifacts have been found at the site, and it appears to have been abandoned ca. a.d. 1250 (Martz 1984:154, 155).

This site included a burial area and a dense shell midden (Martz 1984:146, 156). At least 152 individuals, 6 features, and 653 associated artifacts (strings of beads were counted as a single artifact) were recovered or identified at this site (Martz 1984:150). No cremations were noted at this site (Martz 1984:212). Two of the features appear to have represented the proto–mourning ceremony (Martz 1984:150). One consisted of a large collection of large cobbles, sandstone slabs, "broken beach cobbles," and artifacts that included fragments of mortars, knives, charmstones, fishhooks, beads, and ornaments (Martz 1984:149). The second was described as an offertory area and included a collection of burned, broken, and undamaged artifacts; ash; and charcoal (Martz 1984:149; Raab 1994:24–25). Among the artifacts recovered from this feature were drills, awls, ground stone implements, beads, fishhooks, an arrow, a swordfish (*Xiphias gladius*) bill, whistles, basketry, canoe planking, and ornaments (Martz 1984:150).

A third feature was a fired, clay-lined burial pit containing an individual who had been placed in the pit, covered with a wooden mortar, and burned (Martz 1984:149; Raab 1994:24–25). The pit was covered with a "layer of whalebone" and "capped with a layer of stone," and the rim of the pit was partially covered with a sandstone slab (Martz 1984:149). The practice of lining a burial pit in this manner has been associated with burials in the Inezeño territory (Martz 1984:149). Included in this burial pit were artifacts, most of which were not burned, including charmstones, whistles, fishhooks, spear points, slate saws, and beads (Martz 1984:149). One of the whistles was made from a human femur and had been placed in the right hand of the buried individual. The proximal portion of a human femur that had been cut and burned was also recovered from the burial pit and may have been the source material for the whistle (Martz 1984:149).

The fourth feature identified at Simo'mo was a house floor. Seven reburials, 8 primary burials, and 20 skulls were interred in the floor (Martz 1984:150). The burial area also included 2 fetuses that had been "placed in a bed of charcoal and shell" (L. King 1982:56).

According to Martz, the Simo'mo burial area exhibited the classic practices associated with Chumash burial areas, including overcrowding and later burials intruding on earlier burials (Orr 1943, as cited by Martz 1984:157). The age structure of the burial area consisted of 114 individuals identified as adults, 8 adolescents, 16 children, and 14 infants (Martz 1984:197). Of the identified individuals, 23 were associated with ritual artifacts; all were adults (Martz 1984:169). Of the identified burials, 71 percent were primary interments. Of the burials that could be examined in detail, the most common orientation (44 percent) was to the northwest; 40 percent of the burials were facedown, and 56 percent were buried in the ventral position (Martz 1984:166). Most of the individuals were buried in a westerly orientation with the individuals facing toward Point Conception, which was considered the "gateway to the west and the land of the dead" (Blackburn 1975:97, 98, as cited by Martz 1984:207).

Most (82 percent) of the individuals in the burial area were in bent or semiflexed positions; most of the remainder were in tightly flexed positions; only 2 individuals were in extended positions (Martz 1984:166). Examinations of preparation of the body showed that red ocher was painted on 25 (14 percent) of the individuals, and approximately 51 percent of the burials were recovered with associated artifacts (Martz 1984:167–168). As was true for the Trancas Canyon burial area, children and infants seemed to be underrepresented, and of those who were interred within the burial area, 43 percent were buried with adults (Martz 1984:196–197). The southern portion of the burial area contained most (77 percent) of the individuals. Martz (1984:223) suggested that the northern portion of the burial area was reserved for more-"elite" members of the group, as evidenced by "body or grave treatment indicating prestige" in 57 percent of the northern burials. A similar spatial distribution of "elite" burials was noted at the nearby Calleguas Creek site (Raab 1994:40–41). Overall, Raab (1994:40–41) (see below) suggested that the Simo'mo and Calleguas Creek burial areas showed "unmistakable similarities," including burial orientation, body flexure, ocher painting of burials, and segregation by rank.

Macrobotanical remains from the burial area included seeds, charred wood, and canoe planking. No ceramics were noted; however, there is reference to basketry recovered from one of the features. Ground stone artifacts recovered included fragments of mortars and "ground stone implements" (Martz 1984:150). Flaked stone artifacts included drills and knives, "spear points," and an "arrow" (Martz 1984:149, 150). Other lithics of note included charmstones, ornaments, and slate saws. Worked shell recovered included shell beads, and worked-bone artifacts included awls, whistles, and fishhooks. Artifacts of note included canoe planking, two canoes, seven artifacts with bead inlay, and the previously mentioned swordfish bill and whistle made of human bone (Martz 1984:212, 213). Faunal remains recovered included mammal and bird as well as fish and shellfish remains.

In her analysis of the Simo'mo burial population, Martz (1984:220–221) concluded that the population, like that at Trancas Canyon (which was used 1,000 years earlier), was differentially ranked to a low degree. Unlike that of the older burial ground, however, the Simo'mo population exhibited higher proportions of the three status groups that Martz distinguished, suggesting a higher degree of social complexity (Martz 1984:224). Notably, no children or infants were associated with ritual roles, a pattern that is consistent with a society in which ritual roles were achieved by initiation (Martz 1984:222). Overall, Martz observed considerable overlap among the three groups: 35 percent of the ritual group and 35 percent of the prestige group also had wealth, and 78 percent of the people with ritual roles were buried with preparation indicative of higher prestige. The large proportion of this group with indicators of prestige is consistent with ethnographic accounts of Chumash sociopolitical structure in which ritual practitioners had important political roles and is indicative of a society in which political leaders derived their authority through religious sanctions (Martz 1984:222). However, statistically significant differences were also found among the three status groups in terms of location within the burial ground, the presence of utilitarian artifacts, and other characteristics (Martz 1984:221), suggesting that distinction among prestige, wealth, and ritual roles was important.

LAN-264 (Malibu/ Humaliwo)

The Humaliwo, or Malibu, site, LAN-264, is located on the east bank of Malibu Creek, bordering Malibu Lagoon, along the northern boundary of Santa Monica Bay. It contained a prehistoric and Historical period burial area as well as a domestic area (Gamble 2008; Gamble et al. 1996; Gamble et al. 2001; Martz 1984:226). Although the site was located within a few kilometers of the southwestern cultural boundary between the Chumash and the Takic Gabrielino/Tongva, it was considered a major Chumash village, according to ethnographic and historical accounts (Martz 1984:226). King and Johnson (1999) have argued that the site may have been a regional capital for both Chumash and Gabrielino/Tongva villages in the area. As partial evidence of this, the chief (known as a *capitán* by the Spanish) of the site was originally from Santa Catalina Island, a Gabrielino/Tongva area. Malibu had two completely separate burial areas: one dating to the Middle period (discussed in this chapter as dating to the Intermediate period, per the Los Angeles Basin chronology) and one dating to the Mission period.

As determined from radiocarbon dating, LAN-264 was occupied from 5000 b.c. to A.D. 1820 (Gamble et al. 1996; Gamble et al. 2001; Martz 1984:228). Furthermore, obsidian-hydration results yielded dates between A.D. 740 and 1000 (late Intermediate period) for the prehistoric burial area and a.d. 564–718 (Intermediate period) for the domestic area (Meighan 1978:159, 161, as cited by Martz 1984:228). Radiocarbon dates obtained for the prehistoric burial area provided a time of use during the ninth century A.D. In the framework of the Los Angeles Basin chronology, these data suggest that the prehistoric burial area was used primarily in the late Intermediate period. Historical period artifacts and shell-bead types indicated that the Historical period burial area was in use during the Mission period between 1785 and 1820, although baptismal and burial records indicated that the burial area was used very little after 1805 (Bickford 1982:63, 69; Gibson 1975:110–118; King 1974:90–91; L. King 1982:323; Martz 1984:228).

Intermediate Period Burial Area at LAN-264 (Malibu/Humaliwo)

The Intermediate period burial area at Humaliwo came into use after the burial area at Simo'mo was abandoned and was used for 200–300 years; it was abandoned 500 years before contact with the Spanish (Martz 1984:230, 290). Approximately 114 burials and 514 associated artifacts were recovered from the Intermediate period burial area, although Martz (1984:229) noted that "0–100 beads of a single type and chipping waste of a single material were counted as one artifact." Of the burials recovered, 89 percent were primary interments, and 2 were cremations. Both cremations were secondary, burned elsewhere and then buried within the burial area (Martz 1984:239). As was true for Simo'mo and Medea Creek (see below), where burials were more commonly oriented toward the western quadrant, most (83 percent) of the burials in the Intermediate period burial area at Humaliwo were oriented toward the west (Martz 1984:239). Furthermore, most burials were in a tightly flexed position, and 75 percent of individuals identified as children were in a semiflexed position; there were no extended burials (Martz 1984:239, 276). Martz (1984) did not suggest a particular reason for the difference between adults and children in regard to flexure.

Age could be determined for 109 of the individuals. Sixty-two individuals were identified as adults, of which sex could be determined for 37. Of these, 54 percent were identified as male and 46 percent as female; the remaining population was identified as 5 "adolescent," 26 child, and 16 infant (Martz 1984:240, 269). Two burial features contained both a male and a female in double burials (Martz 1984:277). The Intermediate period burial area at Humaliwo had a much higher proportion of children than did Trancas Canyon and Simo'mo (Martz 1984:298). Martz (1984:297) provided three possible explanations for this pattern: (1) better preservation and improved excavation techniques, (2) higher mortality rate in the subadult group, and (3) comparable mortality rate but different cultural practices in regard to burying subadults vs. adults.

Evidence of trauma was identified in two burials, an adult male and a child. The adult male suffered a wound to the upper spine caused by a spear or knife, and the child showed evidence of a possible fracture to the skull (Martz 1984:287). Red ocher was associated with five burials, although only one of these five was suggested to have been painted with ocher, a practice that appears to have been more common at Trancas Canyon and Simo'mo (Martz 1984:240). Martz (1984:240), however, suspected that the sparseness in the number of burials with ocher may be due to poor recording and documentation by students of the field school rather than to the absence of this practice.

Martz (1984:291) noted that, overall, the Intermediate period burial area at Humaliwo had fewer and less varied artifacts and grave features, with less elaboration, both artistic and technological, than did Simo'mo. According to Martz (1984:290), the assemblage from the Intermediate burial area indicated that the occupants had a focus on "marine resources and trade with other ecological zones, including Catalina." Stone materials included steatite from Santa Catalina Island and obsidian from Coso and Casa Diablo (Gamble et al. 1996:12; Leonard 1971:126; Martz 1984:292; Meighan 1978:159, as cited by Martz 1984:290–291). King (1996:14) noted that schist material from the Sierra Pelona formation, serpentine from the Franciscan formation, burned shale from the Oak Ridge formation, and fluorite that probably was collected from Santa Catalina Island were also recovered. Macrobotanical remains included *Sequoia* (redwood) that could have been used for canoe construction (Gamble et al. 1996:13).

Features identified within the Intermediate period burial area included rock cairns (some of which incorporated broken mortar fragments) that were placed over parts of the body (Martz 1984:240, 248). Artifacts were associated with 68 percent of the burials in the Intermediate period burial area (Martz 1984:241). These artifacts included, but were not limited to, debitage, including obsidian; at least 12 cores; 3 abalone pendants; "money bead necklaces"; stone effigies; "very large" harpoon barbs; ear spools; and labrets (Gamble et al. 1995:17; King 1996:16; Martz 1984:292; Walker et al. 1996:111–122). The ear spools and labrets were indicative of trade with the Colorado River and central California regions (Gamble et al. 1995:17). At a minimum, 62 effigies were identified, mostly in association with female burials (Gamble et al. 1996:11, 12, 13; Gamble et al. 2001). Most of the effigies represented fish or probable fish; a whale (Cetacea) effigy and 2 pelican (*Pelecanus*) stone effigies were also found (Gamble et al. 1996:11). The effigies were made from a variety of materials, including siltstone, steatite (including talc schist and chlorite schist), and sandstone; 43 were painted with red ocher (Gamble et al. 1996:12). Faunal bone and shells were also recovered from the Intermediate period burial area (Walker et al. 1996:111–122).

King's (1996:3) analysis of beads from the Intermediate period burial area indicated the presence of stone and bone beads, shell beads of purple dwarf olive and mussel (*Mytilus*), and ornaments of giant keyhole limpet (*Megathura crenulata*) and abalone. Olivella (*Olivella*) wall beads were the most common shell-bead type; mussel disk beads were the second-most-common type. Dama dwarf olive (*Olivella dama*) beads with the spire and base ground off and having a barrel-shaped profile were also recovered and may have been indicative of increased trade (King 1996:12). King (1996:14) noted that most of the stone beads recovered from the Intermediate period burials were made from talc schists, chlorite, or burned shale, all of which are softer than the shell material; beads made of steatite, a green translucent fluorite, and serpentine, a harder material, were also recovered. Some of the green fluorite beads were recovered with shell-bead inserts (King 1996:14). At least one burned bird-bone tube was recovered with Burial 18 (King 1996:14). Two ring ornaments of volcano keyhole limpet (*Fissurella volcano*) were recovered with Burial 48 (King 1996:16).

Martz (1984:295–296) observed important similarities and differences between the Intermediate period burial ground at Humaliwo and the slightly older burial ground at Simo'mo. On the one hand, the prehistoric population at Malibu was ranked to a low degree, as at Simo'mo, and that social differentiation was also based primarily on membership in a status group composed of ritual, prestige, and wealth identities. The proportions of individuals in this high-status group were also similar at both sites. On the other hand, at Humaliwo,

> there seems to be less to distinguish these individuals from the rest of the society . . . ritual identities are not as well defined . . . children are included, there was no attempt to segregate these burials from the rest of the population, . . . and the artifacts indicating ritual affiliation demonstrate less variety and artistic elaboration [Martz 1984:295].

Furthermore, the strong relationship between evidence of religious roles and indicators of high prestige and political affiliation that is so evident at Simo'mo is lacking at Humaliwo. Instead of the strong relationship between ritual roles and prestige evident at Simo'mo, as Martz (1984:296) argued, wealth was more prominent than prestige at Humaliwo; however, only 35 percent of the ritual group and 40 percent of the prestige group exhibited evidence of wealth—numbers hardly different from those that she identified for Simo'mo (see above).

Mission Period Burial Area at LAN-264 (Malibu/Humaliwo)

The Mission period burial area at Humaliwo was at the northeastern end of the site, about 58 m to the north of the Intermediate period burial area. This burial area measured approximately 10 by 10 m, roughly the same size as the burial area at LAN-62. Martz (1984:398, 409) noted that 82 percent of the burials were disturbed in some manner. The site showed no evidence of a Historical period occupation area, however. Martz (1984:394) suggested that the lack of a Historical period component may be the result of destruction of portions of the site by highway and building construction. Mission records indicated that the first neophytes from Humaliwo were baptized in 1785 (Douglass and Stanton 2010; Martz 1984:398). Although Martz (1984:398) has argued that church customs would have prohibited neophytes from being buried within the burial area of the village and that these individuals would have been buried in consecrated ground at the missions, this is not necessarily correct. Mission padres clearly preferred to have neophytes buried in the mission cemetery, but this was not always the practice, especially if the neophyte passed away at a *ranchería* at a considerable distance from the mission. As mission records document, the numerous neophytes who died away from the mission were buried in native contexts (Douglass and Stanton 2010). As John Johnson (personal communication 2014) has noted, at Missions Santa Bárbara and La Purísima, the missionaries sometimes mentioned in the burial register that neophyte graves at native *rancherías* were marked by a Christian cross. The last baptisms from Humaliwo were in 1816, after which the burial area may have been abandoned because of a lack of natives still residing in the area (Martz 1984:398).

Within the Mission period burial area, 59 nonburial features and approximately 136 burials were identified. More than 15,000 glass beads, 51 other objects identified as being of European origin, 255 artifacts identified as being of "native manufacture," and more than 30,000 shell beads were recovered from these features and burials (Gamble 2008; Gamble et al. 1996; Gamble et al. 2001; Martz 1984:396). Nonburial features included artifact caches, asphaltum impressions, and rock features, some of which incorporated whalebone (Martz 1984:394). Overall preservation of human remains was poor, more so than within the nearby Intermediate period burial area. Of the approximately 136 burials, 69 percent were considered primary inhumations and the remainder secondary inhumations or reinterments; no cremations or evidence of violent trauma was found (Martz 1984:398, 452). Orientation of burials was difficult to determine because of poor preservation and disturbances. For those that could be observed, however, 83 percent were buried on their sides, 84 percent were in a tightly flexed position (there were no extended burials), and 55 percent were oriented to the west. These patterns were much like those in the other Chumash burial areas investigated by Martz (1984:409).

The overall age structure of the burial population was 100 individuals (74 percent) identified as adults, 5 "adolescents," 20 children, and 11 infants (Martz 1984:436). Of those for whom sex could be determined, 68 percent were identified as male and 32 percent as female. Of those for whom identification was problematic, 71 percent were considered probable male and 29 percent probable female (Martz 1984:410–411; Suchey et al. 1972:50, as cited by

Martz 1984:410–411). Overall, males outnumbered females by more than 2 to 1 (Martz 1984:470). Bickford (1982:43) attributed this pattern to assimilation of a greater proportion of women and the easier adaptation of women to the mission system. Women's roles in the mission system were very similar to their roles in the village. For men, however, the transition to mission life and the shift from hunting and fishing to agriculture and animal husbandry would have been much more difficult. In addition, men's roles in leadership and ceremonial functions would have been greatly diminished in the mission setting. Walker et al. (1996:16; see also Gamble et al. 2001) disagreed with these conclusions, stating that their analysis of the remains from the same Mission period burial area found no significant difference in the number of males to females (36 males and 34 females identified from the burials).

Artifacts of note included canoe parts, "killed" artifacts, caches, thousands of glass and shell beads, and whalebone and stone markers (Martz 1984:410). Artifacts that Martz (1984:412) noted as having a ritual significance included a whistle, quartz crystals, and a painted stone, all of which were associated with adult burials, of which only one was a female. Gamble et al. (2001) also noted that effigies played important roles in ritual.

Worked-shell artifacts from the Mission period burial area included more than 30,000 shell beads, including shell-bead necklaces, some of which had been tinted with red ocher (Martz 1984:410). Bead types included purple dwarf olive rough disk, red abalone (*Haliotis rufescens*) disk, Pismo clam (*Tivela stultorum*) cylinder and tube, California mussel (*Mytilus californianus*) cylinder, mussel tube, columella tube, giant rock scallop (*Crassadoma gigantea*) tube, black serpentine stone, and glass cane (King 1996:22, 23, 25). Purple dwarf olive rough disk and red abalone disk beads were the most common types of shell beads (King 1996:23). Some large columella beads were manufactured from Kellet's whelk (*Kelletia kelletii*) shells; 6 tube beads of Kellet's whelk columella were recovered from two Mission period burials (King 1996:30). The clam cylinder and clam tube beads were made from Pismo clam shells (King 1996:33). At least 7 tube beads made of rodent (Rodentia) long bones were recovered from a single burial, Burial 95 (King 1996:35). King (1996:35, 36) grouped the numerous glass beads into three categories—cane, wire wound, and pressed—of which cane were the most common, as they were the most economical to produce.

Other artifacts recovered from the Mission period burial area included, but were not limited to, glass trade beads, debitage of obsidian and chert, small bifaces, red stones, cores, large cobbles, and red ocher (Walker et al. 1996:99–110). Asphaltum, including plugs and caulking for canoes, was also noted (Gamble et al. 1996:13). Some of the asphaltum had red ocher on it (Gamble et al. 1996:13). Large and small pieces of canoes were associated with at least three burials, all of which also had a significant number of beads (Gamble et al. 1996:14). One of these burials was of particular note: Burial 56, a male of approximately 19 years of age, was referred to as "canoe man," as he was buried with a large portion of a plank canoe, caulking, canoe plugs, and pieces of *Sequoia* (Gamble et al. 1996:14). Gamble et al. (2001) argued that individuals buried with canoe parts were part of an elite social group (the Brotherhood of the *Tomol* [Gamble 2008:235–236]) that controlled canoes and the goods transported between the mainland and the northern Channel Islands. This control over goods and canoes allowed canoe makers and owners to achieve economic gain and to amass wealth. Other scholars, including Linda King (1982:203–205) and John Johnson (2000:316), made the point that ownership of canoes and control over cross-channel trade sowed the seeds for accumulation of wealth and hierarchical differentiation for Chumash chiefs in coastal towns.

Several important trends were associated with the Mission period Humaliwo burial area. Martz (1984:428) noted that (as was true for Trancas Canyon, Simo'mo, and Medea Creek [see below]), the data indicated that subadults were underrepresented. Ritual associations were less evident than they were at Medea Creek (Martz 1984:457). The proportion of children with wealth-associated artifacts in the Historical period portion of the burial area at Humaliwo was substantially higher (71 percent) than the proportion of such children at Medea Creek (18 percent) (Martz 1984:Table 86). Martz (1984:461) suggested that this evidence indicates an emphasis on wealth and a "consolidation of the political elite" observed at Medea Creek. Martz (1984:461) identified a trend of increase over time in burials with artifacts that indicate higher political status and wealth: 1 percent of the burials at Trancas Canyon had indications of "political identities with wealth," 19 percent at Medea Creek, 35 percent at Simo'mo, 40 percent at the Intermediate period burial area at Humaliwo, and 68 percent at the Mission period burial area at Humaliwo.

Overall, then, the Malibu site burial areas—both prehistoric and Mission period—offer unique opportunities to understand mortuary patterns among the Chumash. According to Gamble et al. (2001:206), the patterns in the Mission period burial ground suggest that Chumash society was "a well-entrenched, ascribed social hierarchy in which beads and other burial offerings were used to symbolically reinforce social boundaries." They argued that their analysis of the distribution of beads and other goods in the Mission period burial area confirmed ethnohistorical and ethnographic accounts of the large disparities that existed among different groups within Chumash society. Their analysis of burial patterns suggested that there were kin-based patterns of interment in which children and adults with large quantities of grave goods were buried adjacent to one another, perhaps indicating family or kin-based burial plots within the larger burial area. Gamble et al. (2001:207) suggested that "the distribution of these artifacts reflects the social divisions within a hierarchical society with a hereditary elite" that had existed for at least a millennium.

By contrast, Martz (1984:485) emphasized that the accumulation of wealth among certain individuals present in the Mission period burial area may actually have been, in part, the result of Spanish colonization. That is, she argued, there was a "significant increase in status recognition for individuals who were able to acquire wealth" during the late Mission period through interactions with colonists, which allowed greater opportunities to accumulate wealth. Martz (1984:464) also maintained, however, that wealth did not become the primary basis for status, but the importance of wealth in social ranking appears to have become greater than that of ritual affiliation and equal to that of prestige (political status). Overall, Martz (1984:465) observed a dramatic increase in the proportions of individuals with wealth, but the new emphasis on wealth was not accompanied by a significant decrease in traditional status roles. The proportion of people with prestige also increased relative to that in the earlier burial grounds that Martz examined, although the proportion of people with ritual roles showed a continual decline. Two distinct status groups emerged in the Mission period burial ground: a group with prestige and a group with wealth but no apparent ritual or political affiliation (Martz 1984:466). She associated the latter group with occupational specialists who worked for and traded with the Spanish (Martz 1984:467). Martz (1984:465) hypothesized that these trends reflected a secularization of society brought about by European contact and the influx of new sources of wealth, such as glass beads and other European goods, but concluded that "the lack of evidence indicating a significant decline in traditional roles suggests that other factors were involved." This conclusion, however, does not follow from her evidence for the significant reduction in ritual roles and the role that the Spanish played in infusing wealth into Chumash society.

In a later study, using ethnographic analogy and mortuary symbolism along with other data, Gamble et al. (2001) argued that the Chumash at Humaliwo were a ranked society with a hereditary elite as of the Middle period (approximately the Intermediate period in the PVAHP chronology). Gamble et al. (2001) identified five primary correlates for wealth in their analysis. First, Gamble et al. (1996) and Gamble et al. (2001:192) argued (following Blackburn [1975] and Longinos Martínez [1961]) that large quantities of grave goods and, in particular, shell beads were forms of wealth. Furthermore, they argued that high-status beads were reserved for individuals who had important social and religious roles. They also equated the intensive labor involved in production of the shell beads to the intrinsic value of these items. Gamble (2008) asserted that disposal of shell beads in burials was one way to keep their value high. Some have argued that the destruction of beads (that is, their burial) may have countered inflation caused by mass production of shell disk beads with the introduction of iron needles. Second, the depth of the burial below surface was another indication of greater wealth and higher status. On the basis of data from Humaliwo, Gamble et al. (2001:196) have argued that more labor was invested in excavating a deeper burial pit; therefore, those buried in deeper pits may have had a higher economic status. Unfortunately, the Ballona data cannot shed any light on this correlation, because of the high depositional disturbance during Mission period interments and the fact that the upper surface of the burial area was mechanically removed during the early twentieth century. Third, burials of individuals of higher status had not only a greater number of offerings but also items resulting from greater labor investment, such as plank canoes. Fourth, the burials with the higher frequencies of grave goods, high-status beads, and special items were spatially clustered within the burial ground. Children and infants with large amounts of grave goods generally were found in this portion of the burial area as well, suggesting that burials had kin-based patterns. Finally, they found a correlation between pathological conditions and burial wealth and identified individuals in the population who had more work-related stress than others. For example, Gamble et al. (2001:205) argued that correlations between skeletal indexes of growth disruption, such as enamel hypoplasia, and the richness of burial offerings were significant. In the Middle period burial area, people without grave goods had a significantly higher prevalence of hypoplastic teeth. In the Mission period burial area, although burials lacking beads also had higher levels of hypoplasia, Gamble et al. (2001) reported that the difference was not significant, perhaps because of small sample size. In addition, burials in the Mission period burial area had few skeletal indexes of workload, and the Middle period burials had a much higher frequency. This finding indicates that the activities performed by people in the two periods were different. The Humaliwo mortuary data suggested a typical social pyramid with a wide base composed of the common people and an apex composed of the "elite," which were in the minority (Gamble 2008; Gamble et al. 2001). Overall, Gamble et al. (2001) argued that these patterns suggested a deeply entrenched, hierarchical society with ascribed status.

LAN-243 (Medea Creek)

The Medea Creek site, LAN-243, was an inland Chumash burial area located approximately 300 m north of an associated village (L. King 1982:1, 44). This site is located in the Santa Monica Mountains along the west bank of Medea Creek, a tributary of Malibu Creek, and approximately 19 km inland from the Malibu site, LAN-264 (L. King 1982:37–38; Martz 1984:301). According to L. King (1982:197), this burial area served the local region as well as the nearby village and probably was under the influence of the larger settlement at Malibu (Martz 1984:381). L. King (1982:35) indicated that the site was used continuously as a burial area from approximately A.D. 1450 (near the end of the Late period) through the early Mission period; use ceased between A.D. 1785 and 1800.

The burial area consisted of an estimated 397 primary and secondary interments clustered in an oval area that measured 20.1 m east–west by 9.5 m north–south (L. King 1982:36). Within this concentration were numerous clusters of burials that, according to L. King (1982:52), might indicate family plots. Furthermore, L. King (1982:64) felt that the burial area associated with this site conformed to descriptions of Historical period burial areas on the Channel Islands. The well-defined boundary of the burial area indicated some form of fence or enclosure, and preserved *Sequoia* in the burial area was suggestive of pole markers, whereas whalebone planks painted red were found in some surface features and might have been used as grave markers (L. King 1982:64).

Burials consisted of primary interments, reburials, and cremations and were generally poorly preserved, in part because of the disturbance from the interment of later burials (Martz 1984:309). Martz indicated that 68 percent of the burial-area population were primary interments; 29 percent were secondary burials, with 10 percent of the reburials appearing to have been "defleshed" before burial; at least 3 percent, or 13 burials, showed evidence of burning, with 8 burials appearing to have been cremated and redeposited and 3 having trauma evidence in the form of burning and mutilation (L. King 1982:147; Martz 1984:309). Most of the cremated individuals were only partially cremated (Martz 1984:375). L. King (1982:53–54) indicated that "most reburials were found in areas of dense use and were probably originally from primary burials which had been cut through and then redeposited around and/or over a primary burial." Some reburials, however, were found on sterile sediment or in locations with no apparent source of disturbance (L. King 1982:53–54).

In regard to burned human bone, artifacts, and botanical materials, C. King (1982:55) identified four potential behaviors: (1) cremations, (2) partial charring of articulated burials or grave pits (preinterment grave-pit burning), (3) burning of the cut-up bodies of victims of violence, and (4) generalized burning of wood, seeds, and artifacts, perhaps originally on the surface of the burial area or in the grave. One adult burial, Burial 380, had been "slightly charred in such a way that a net that was wrapped around the waist and between the legs was carbonized and very well preserved" (C. King 1982:55). Burned botanical material and the occasional thermally affected artifact associated with several burials and throughout the matrix potentially indicated that ceremonial fires, both in the burial pit and on the surface, were common in this burial area (C. King 1982:57).

In an analysis of status of the individuals recovered from the burial area at Medea Creek, L. King made several astute observations. First, though notable differences between males and females regarding the type of mortuary accompaniments was lacking, marked inequalities in wealth items between juveniles and adults were evident (L. King 1982:66–67). The few artifacts of shamanistic/ceremonial importance were recovered with male individuals, whereas basket impressions in asphaltum were common in female burials (L. King 1982:70). Furthermore, although the burials at Medea Creek did follow a pattern in which "wealthier" individuals were buried deeper than "less wealthy" individuals, L. King (1982:93, 96) observed that the average depth of burial was greater for wealthy subadults than for wealthy adults and was greater for males than for females. Also, the differentiation of grave goods appeared to be greater among subadults than among adults. In regard to orientation and placement, children were more frequently placed on their right sides than were adults, and infants were curled in containers, with less display of orientation (L. King 1982:96). L. King (1982:94) suggested that the latter observation had more to do with "the mechanics of fitting an infant into a basket, bowl, or mortar, which was buried without orientation," whereas "a larger body was wrapped in a mat and could be oriented." On occasion, these containers contained disarticulated adult remains, such as the articulated hand in Feature 14 (L. King 1982:59).

About half of the interred individuals (55 percent) were oriented to the west; no single head-facing direction dominated (Martz 1984:309, 320). Males were more consistently oriented to the south (L. King 1982:73). Of the burials identified, 78 percent were buried on their sides, 78 percent were tightly flexed, and only one individual was in an extended position (Martz 1984:320). When comparing the Trancas Canyon, Simo'mo, prehistoric Malibu, and Medea Creek sites, one finds a progression in the positions of the burials: the earliest, at Trancas Canyon, were identified primarily in extended positions, those at Simo'mo semiflexed, and those at prehistoric Malibu and Medea Creek tightly flexed. Also, 61 percent of the Trancas Canyon burials were placed in a dorsal position, 89 percent of the Simo'mo burials in a ventral position, 78 percent of the Medea Creek burials in a ventral position, and 51 percent of the prehistoric Malibu burials in a ventral position (Martz 1984:389).

The age structure of the burial population was 231 individuals (63 percent) who could be identified as adults, 36 "adolescents," 70 children, and 30 infants (Martz 1984:255). Of the adults who could be identified, 57 percent were considered male and 43 percent female; however, Martz (1984:321) did not provide actual numbers of individuals for the burials that were used in the analysis for determination of sex. As was true at Simo'mo, Trancas Canyon, and the prehistoric Malibu burial area, subadults were underrepresented. This underrepresentation could be attributed to poor preservation of the more-delicate skeletal elements but was more likely to have been a result of cultural practice in which burial areas were reserved for those with ascribed status or those who had been initiated into the society. This initiation would not have taken place until the individual was of appropriate age; thus, uninitiated subadults would have been buried elsewhere (Martz 1984). Of the infants present in the burial area, 50 percent were buried with an adult (Martz 1984:354).

L. King (1982:79) also found that the western portion of LAN-243 contained most of the children identified at the site. Two possible reasons for this pattern were suggested: (1) a kinship group that used the eastern end of the burial area did not bury many of its small children in primary context or (2) infants and small children were buried preferentially to the west (L. King 1982:83).

Evidence from Medea Creek has been used by several investigators to argue that Chumash society was ranked with distinct classes, as suggested by some ethnohistorical reports (Gamble 2008; Gamble et al. 2001; L. King 1982; Martz 1984). L. King (1982:99) maintained that "the pattern of distribution of grave goods suggests status differentiation, but that wealth correlates with neither adult status nor maleness" and that "the Medea Creek population represents a nonegalitarian society wherein status was expressed to a greater degree within the subadult population than within the population over 22 years of age." L. King suggested that adult status may have been conveyed more through commemorative mortuary activities. Although no potential mourning-ceremony features were identified, such features might have been located at the surface and might have been dispersed through subsequent disturbances. L. King (1982:190) argued further that because some burials of children had higher-status artifacts, status probably was inherited among this group of people. Finally, L. King (1982:188) concluded that although this society appeared to be differentially ranked, the lack of a separate burial area for higher-status individuals indicated that the society was not highly stratified.

The Medea Creek subadults were recovered with more artifacts associated with wealth and prestige than those from such sites as Simo'mo and Malibu, where subadults were buried with few, if any, artifacts. Martz (1984:392) argued that this evidence suggested an important change indicating a transition in this culture's treatment and view of subadults and in the "appropriate way to express these feelings for the children of the upper class." Martz (1984:392–393) concluded that this change indicated a narrowing of the upper class, which is consistent with ethnographic references to a noble class in which emphasis is placed on heredity and lineage rather than "initiation and participation as a ritual, political, or economic specialist." These arguments by L. King and Martz were based on the assumption that the variation in the distribution of mortuary goods that they observed at Medea Creek represented contemporary burial practices. They failed to indicate, however, whether these differences could be due to temporal differences, as Chumash society undoubtedly changed dramatically after the arrival of the Spanish.

Of the nearly 400 burials examined at this site, few individuals exhibited any trauma. Only 1.3 percent of the burials presented evidence consistent with violence (L. King 1982:147–152; Martz 1984:376). Furthermore, only 2 adult females exhibited trauma: perimortem femoral fractures wrapped in asphaltum and fibers as if in a cast (Martz 1984:376).

More than 28,000 artifacts were collected from Medea Creek, consisting of numerous shell beads; worked-shell ornaments, containers, and fishhooks; worked-bone tools, musical instruments, markers, and pendants; stone beads; flaked stone tools; mortars, pestles, metates, bowls, pipes, charmstones, incised stone, and large, modified stone slabs; crystals; wooden canoe planks; asphaltum; cordage; and *Chlorogalum* (soaproot) brushes (L. King 1982:268–270; Martz 1984:302). Artifacts were recovered with 60 percent of the burial-area population (Martz 1984:323). Four individuals were painted with red ocher (Martz 1984:321). Fewer than 500 Historical period glass beads were recovered, primarily with inhumations. Eighty percent of these beads were associated with only 2 individuals; the rest were distributed among 15 individuals (Martz 1984:323–324). Martz (1984:322) suggested that the paucity of Historical period artifacts seemed to indicate a single "trading event with Spanish explorers." In addition to archaeological indicators, ethnohistorical evidence suggests that the Ventureño village at Medea Creek was abandoned relatively early in the Mission period (before 1792) (King and Johnson 1999:86–87).

LAN-1595 (Yaanga)

Yaanga, LAN-1595, was located near Union Station in downtown Los Angeles and east of the Historical period El Pueblo de Los Angeles (Goldberg 1999:1–2). LAN-1595 was a Native American burial area that, because of its location and age, might have represented Yaanga, an ethnohistorical Gabrielino/Tongva village located on the west bank of the Los Angeles River that was visited by the Portolá expedition in August 1769. The burials at LAN-1595 appeared to date between the Late and Mission periods. Unfortunately, only a portion of the burial area was identified archaeologically; an unknown portion of the burial area probably was removed during construction activity in the 1930s. In all, 14 primary inhumations, 3 cremations, 2 possible cremations, and 2 clusters of scattered human remains were recovered from this site (Goldberg 1999:Table 4.1). In terms of demography, all ages except those between 13 and 20 years of age were represented by these burials; the sexes were found to be relatively evenly represented, with 4 males and 5 females (Goldberg 1999:Tables 5.5 and 5.6).

Mortuary analysis of the burials revealed several general trends. On the basis of Warren and Maples's (1997) regression formula (see Goldberg 1999 for details) to estimate total cremation weight from stature and sex, one of the cremations from LAN-1595 (Feature 11) was found to contain only about a quarter of the estimated total amount of remains for an adult individual of that height and sex (Goldberg 1999:145–146). This information, coupled with the lack of thermally altered sediment and the small pit size associated with other cremations at the site, indicated that these cremations probably were secondary deposits (Goldberg 1999:146). All inhumations were flexed; they were placed primarily on the left side and oriented north (Adams 1999:Table 2.3). The range of directions faced by inhumations was wide, however, and no single direction appeared to be favored over any other (Adams 1999:Table 2.3). Finally, the burial area was spread over a wide area, and only two burials, Features 20 and 22, impacted one another.

Only 3 of the 14 inhumations had associated artifacts. These consisted of 3 bone pins (Feature 6), a Cottonwood projectile point and a piece of red ocher (Feature 7), and 2 olivella full-lipped shell beads (Feature 17) (Denardo 1999:Table F.19; Goldberg 1999:73, 149). Conversely, all 3 cremations had associated artifacts (e.g., beads, steatite bowls, basketry, worked bone, and red ocher). Feature 2, the burial of a child, exhibited the greatest quantity of artifacts associated with a burial (Goldberg 1999:149, Table 5.2). This individual had approximately 215 shell beads consisting of olivella cupped, olivella wall disk, olivella full-lipped, olivella spire-lopped, and abalone disk; approximately 5 stone beads composed of talc schist, jadeite, and chlorite schist; 2 bone awls; and red ocher (Denardo 1999:238; Goldberg 1999:Table 5.2). The olivella cupped disk beads—approximately 170—were the most numerous in this burial, and all but 5 of these beads were burned (Denardo 1999:238). Many of these cupped beads also had either right- or left-facing, oblique parallel lines; V-shaped markings; or X-shaped designs incised along the bead edges (Wyss 1999).

Various absolute- and relative-dating methods were used to establish the site chronology. Overall, radiocarbon dating indicated that LAN-1595 was in use between A.D. 950 and 1800 (Goldberg 1999:120). Different temporal groups of burials, however, could be established by radiocarbon dating. Goldberg (1999:120–122) indicated that five separate primary interments were radiometrically dated between the Late and Mission periods, whereas the two cremations both dated to the Mission period. Either two gaps existed in the use of the burial area—one between A.D. 1130 and 1630 (during the Late and Protohistoric periods) and a second between A.D. 1700 and 1810 (during the Protohistoric through Mission periods)—or the burial area was used relatively continuously, but use gradually moved from the northern portion of the site to the south (Goldberg 1999:122). Three sherds of Tizon Brown ware were also recovered; the presence of these ceramics is consistent with a Protohistoric through Mission period occupation.

LAN-2682 (The ARCO Site)

The ARCO site, LAN-2682, was located at the ARCO refinery in Carson, adjacent to the Wilmington–San Pedro wetlands, along San Pedro Bay. The site consisted of a burial area (of unknown total size) that was used during the Late through Mission periods. This site was first discovered in September 1998 during replacement of underground utilities at the refinery. Before the identification of human remains by construction workers, approximately 300 cubic yards of soil had been removed and stockpiled at another area of the refinery. At this point, archaeologists from Bonner and Associates were contracted to excavate any human remains (Bonner 2000:154). No formal report has been published on these excavations; the only published materials available are papers presented at the annual meeting of the Society for California Archaeology and subsequently published in their proceedings.

Despite natural, historical, and modern disturbances to the site, two distinct components were identified. The upper component was generally 80 cm thick and contained the remains of at least 10 adult males, 4 adult females, 1 infant, 1 subadult, and 4 adults of indeterminate sex. This upper component appeared to date to the Protohistoric through Mission periods (ca. A.D. 1680–1810). The lower component, separated from the upper one by approximately 20 cm of soil, was approximately 55 cm thick. This lower component apparently dated to the latter part of the Late period (ca. A.D. 1420–1620), as determined from radiocarbon dates, and contained at least 5 adult males, 1 child, and 1 adult of indeterminate sex. In addition to these 27 burials identified in situ, more than 32,000 human-bone fragments were recovered from the mechanically excavated soils and were removed before the archaeological investigation. Hundreds of loose adult teeth were found in this soil, as well as a representative sample of other elements from the human body. Bonner (2000:157) made clear that at least some of the intact burials were also represented in the screened, mechanically excavated soils, as 16 of the burials were impacted by mechanical excavation. All of the 32,000 bone fragments appeared to have been associated with the upper component of the site.

The condition of the remains was surprisingly free of disease. Bonner (2000:157) stated that teeth were generally free of caries and dental or gum disease, although the teeth were ground down and extensively worn. Some evidence of tuberculosis and some of interpersonal violence were present. Of note regarding the burials was the presence of trauma. Two burials were identified as having their extremities severed; a third burial consisted of a cremated skull that appeared to have been burned in place (Luhnow 2000:166). The skull was recovered with ash, charcoal, and a burned steatite-bowl fragment. One of the individuals, whose hands were missing, had suffered an antemortem fracture to the mandible and was also missing the sternum (Bonner 2000:157).

Compared to other burial areas dating to the Late through Mission periods in coastal southern California, the ARCO site deposit contained few artifacts (Luhnow 2000:162). Single examples of ground stone and fishing implements were recovered, and shell ornaments (including shell beads) were few and far between. Burials from the lower component contained a total of 279 artifacts, including shell beads (many covered in asphaltum), lithic debitage and formed stone tools, ocher, 1 glass bead, 3 complete abalone shells, and 1 bone tool (a deer [*Odocoileus*]-tibia wand). Luhnow (2000:163–166) argued that 11 of the artifacts were ritualistic, including the deer-tibia wand, a steatite eccentric resembling a sewing bobbin and placed in an unburned basket, a large stemmed obsidian dart point, an incised soapstone block, shell beads, red ocher, and a ground-shell columella ornament. Upper-component burials exhibited a pattern different from that of lower-component burials. Lower-component burials, both human remains and artifacts, were placed specifically and with care, whereas upper-component burials, even though they had more artifacts overall, were less formally organized (Luhnow 2000:166). In total, 608 artifacts were recovered from the upper component; shell beads, lithic debitage, and formed tools were most common. Very few Historical period artifacts were recovered from this upper component; these consisted of 2 leather disks and 13 glass beads, some of which were recovered from trenched soil. Glass beads were all of a drawn variety, half translucent and half opaque. Colors of beads were blue, white opaque, and clear. Overall, Luhnow (2000:167) argued that a few items in the burial area were related to shamanism or ritual, including an incised soapstone-tablet fragment, a soapstone eccentric, the previously mentioned deer-tibia wand, and a soapstone pipe. (Stone pipes were used to smoke tobacco, often in ceremonial settings [Hudson and Blackburn 1986]. In ceremonial usage, the smoke is believed to have carried prayers to the attention of the creator or other powerful spirits.) Because the extent of the burial area removed before archaeological investigation is unclear, and because published data are very limited, detailed information from the burial area is scant.

Landing Hill: ORA-260, ORA-261, ORA-262, ORA-263, ORA-264, and ORA-1472

All six Landing Hill sites (ORA-260, ORA-261, ORA-262, ORA-263, ORA-264, and ORA-1472) were located in the community of Seal Beach (Cleland et al. 2007). Although the sites had components dating to the Millingstone and Late periods, the primary occupation appeared to date to the Intermediate period. During mechanical grading in summer 2002, 37 human inhumations were identified, some located within site boundaries, some between sites. These burials and a large cremation area contained the remains of at least 40 individuals. In addition to human burials, a badger (*Taxidea taxus*) burial was identified. Of these human burial features, 17 could be identified to sex, and 15 could be identified to approximate age. Twenty-one of these burials and the badger burial were dated directly, through radiocarbon dating of teeth. Although DNA analysis was attempted on all burials with teeth, no aDNA could be extracted.

Of the human inhumations recovered at these sites and dated to a specific period, 9 dated to the Millingstone period, 10 to the Intermediate period, and 2 to the Late period; the badger burial also dated to the Late period (Gross et al. 2007). All burials except for those in the cremation area (see below) were inhumations. According to Gross et al. (2007:164–165), burials were tightly flexed during the Millingstone period, but by the middle portion of the Intermediate period, loosely flexed inhumation appeared to be favored. By the Late period, however, burials were once again interred tightly flexed. During the Millingstone period, more burials were oriented east–west than north–south, whereas the opposite was true during the Intermediate period. Dates from the large cremation feature, which was another example of the mourning ceremony, indicated that it was used during the Intermediate period. Gross et al. (2007:164) argued that these changes in burial preparation and orientation and the appearance of cremation may have related to the influx of Takic groups ca. 2000 b.p.

Because of restrictive conditions, all of the Landing Hill burials were analyzed in the field and only to a limited degree. Nevertheless, some interesting trends were noted. First, infants and young children were surprisingly absent. The reason for this was not clear but may have been related to preservation issues; only isolated infant and juvenile bones were recovered. In regard to pathology, a high degree of dental wear and disease, as well as osteoarthritis, was observed on a number of skeletons.

A large Intermediate period cremation area, burial Feature 29, was located at ORA-263 (Cleland et al. 2007:97–116). It had an area of approximately 23 m^2 and contained large amounts of fragmentary cremated human bone and ground stone fragments. It was clear that many of the ground stone fragments had been broken and left in place by the prehistoric inhabitants of the site. In total, 135 pieces of ground stone were recovered, nearly all within a roughly 3-by-5-m area. Most of the ground stone fragments in this feature were stone bowls and mortars, of which 63 fragments represented at least 15 separate vessels. Most of the bowls and mortars recovered appeared to have been intentionally broken, as at burial Feature 587 at LAN-63 in the Ballona. As at burial Feature 587, the number of shell beads and stone beads was disproportionately large compared to those associated with other features and burials at the site, although the quantity at Landing Hill's burial Feature 29 was significantly larger (822 stone and shell beads). This main concentration of cremated human bone also contained an exceptionally dense concentration of beads (primarily stone disks, although some shell beads were represented) or ornaments. Radiocarbon dates on human teeth within the cremation feature suggested that the cremation feature was used for a few hundred years to perhaps 1,500 years (ca. 2300–800 cal b.p.) for depositing the cremated remains of certain individuals and grave goods or offerings. Another interpretation is that most of the cremated remains were of individuals perhaps much older than the cremation feature (that is, curated human remains) and were all deposited at one time, in a single ceremony. Finally, the radiocarbon dates may represent several closely related events occurring between ca. 1900 and 2300 cal B.P.

Ethnohistorical Studies

In addition to archaeological data, California anthropologists have access to rich ethnohistorical and ethnographic sources that provide insight into aboriginal burial practices in southern California at the time of Spanish contact. These data provide a rare insight into mortuary practices that are often lost in the archaeological record. However, direct analogy must not used to interpret past behaviors solely on the basis of their similarities to ethnohistorical and ethnographic descriptions; instead, the interpretations should be based on context and testing of multiple hypotheses.

Three particular ethnohistorical sources provide valuable insight into mortuary behavior of southern California Native American groups at contact. First, Padre Boscana (2005), a Franciscan missionary at Mission San Juan Capistrano, detailed the mourning ceremony in his book *Chinigchinich.* This ceremony involved the cremation of recently passed

Luiseños as well as their personal items, such as their bows and arrows, hides, feathers, and beads. Second, Hugo Reid (1968), a mid-nineteenth-century author of letters detailing the Gabrielino/Tongva, who was married to a woman from the Gabrielino/Tongva village of Comicrabit (probably near present-day Santa Monica), wrote that the Gabrielino/Tongva waited several days to bury a member of the community, generally waiting until the body showed signs of decay. This delay may have been related to being sure that the person was actually dead. A third source of early Historical period information on Gabrielino/Tongva burial practices is mission records themselves. Between 1806 and 1819, Father Zalvidea at Mission San Gabriel recorded Gabrielino/Tongva informant reports on the burial practices of different villages in the Los Angeles Basin (Earle 2003:8).

In addition, through the use of the ECPP database housed at the Huntington Library (available online at http://www.huntington.org/Information/ECPPmain.htm), research on Mission period burial practices in southern California suggests that both inhumation and cremation were practiced by the Gabrielino/Tongva. However, only a few instances of cremations are noted, indicating that most burials were inhumations (see Chapter 7, this volume). For example, on July 23, 1785, a Gabrielino/Tongva informant notified Antonio Cruzado at Mission San Gabriel that a recently baptized neophyte with a Spanish name of Maria Josepha (Mission San Gabriel Baptismal No. 01154 and Death No. 00385) from the village of Comicrabit died at that village and was cremated by the native (and nonbaptized) inhabitants of that village. The gentiles from the village of Comicrabit were recorded as being the officiants of the burial. The record in part states, "*Havia muerto y la havian quemado los Gentiles* [she has died and the Gentiles have burned her]." Cremation is also documented from a variety of other villages in the Mission San Gabriel area, including Jutucabit and Jaysobit; these latter instances suggest that several individuals may have been cremated simultaneously. Some have argued that the distance from the location of an individual's death to the individual's home village was an important determinant of whether a body was cremated: the greater the distance to the home village, the more likely was cremation. However, this certainly was not always true; for example, Mission San Gabriel records related to the cremation of three individuals at the Gabrielino/Tongva *ranchería* of Jutucabit in October 1784 indicate that they were all from that village and died there. Among the Gabrielino/Tongva, according to ethnohistorical accounts (Boscana 1933:73, 197, Note 205), if an individual was to be cremated, the family typically hired someone from another lineage to officiate at the burning. In these cases, all possessions of the deceased were burned with the corpse during the cremation. After cremation, the ashes were placed in a stone bowl or a shell dish and were buried or scattered, typically to the east (Ashby and Winterbourne 1966:27; Hudson 1969:17–18; Merriam n.d.).

Evidence of mortuary practices and ritual outside the Gabrielino/Tongva territory includes ethnohistorical documentation of practices by groups to the east and south. Two early ethnographic studies of the Cahuilla and Serrano desert groups detail burial practices or ceremonies related to recently departed members (Benedict 1924; Strong 1929). Benedict detailed the Serrano living at Morongo Indian Reservation in Banning Pass, California, and reported that each year, the Serrano and other local groups came together to hold ceremonies involving dances and other observances, culminating in a mourning ceremony (Benedict 1924:374). After a week of dances, ceremonies, and other activities, the mourning ceremony began more than an hour before sunrise with the distribution of a meal to the heads of families of invited groups. Life-sized effigies of deceased family members were brought out, and family or group members of the deceased danced with the image (Benedict 1924:378). At the conclusion of the dancing and singing, the dancers put the life-sized images of deceased members of families and groups onto a pile of wood and burned them. Money and calico (cloth) were thrown to the guests by members of the deceased's family. Other objects of value were thrown into the fire, although most were tossed into the group. Benedict (1924:387) noted there were very few old Serrano baskets in the Morongo community, as baskets usually were destroyed at the death of the individual who owned the baskets. Strings of beads were distributed to members of the community, although beads were also buried with the dead in numbers as large as possible (Benedict 1924:379, 389). With these activities concluded, the mourning ceremony was complete for the year.

Strong (1929) documented the nearby Palm Springs Cahuilla and their rituals and preparation related to deceased members of the community. Strong (1929:84) discussed several ceremonies for the dead. Among the Cahuilla, cremating the body and burning the house of the deceased were common, both in prehistory and into the early 1920s. Strong indicated that in times of drought or food scarcity, the Cahuilla burned the house and body of the deceased quickly, before the news of the death traveled. A year after death, an image-burning ceremony was conducted, much like that described by Benedict (1924) for the neighboring Serrano. The life-sized images were made of reed matting and covered with deer hide. Men were represented with bow and arrow, whereas images of women had baskets decorated with eagle feathers (Strong 1929:85). After the images were burned, gifts (including money and beads) were distributed to the group before the ceremony's conclusion (Strong 1929:85, 130). The deceased was cremated shortly after death in a ceremony called *teutni'l* (Strong 1929:121). Gifts and wealth items, such as shell beads, were distributed to the lineage of the deceased by all those hearing of the death. Although interment had replaced cremation by the 1920s, the destruction of the deceased's property and house continued. Approximately a month after cremation of a body, family and clan members of the deceased gathered and dragged bolts of calico around the dance house to "wipe out the tracks of the dead" (Strong 1929:122). Afterward, any gifts, food, cloth, basketry, and other items collected by the assembled clan members were destroyed, as were any remaining personal items of the dead. Ceremonies for the dead among the Mountain Cahuilla (Strong 1929:180) and the Cupeño (Strong 1929:264–268) were identical or very similar to those of the Desert Cahuilla and the Pass Cahuilla.

Diegueño/Kumeyaay burial and related ceremonial practices were documented by Waterman (1910). Cremation, according to Waterman (1910:305), was regularly practiced by the Diegueño before the arrival of the mission system. When a person died, the deceased's body, clothes, and all belongings were burned in a large fire (Waterman 1910:278–279, 305). Once the body was cremated, the ashes were collected, placed in a small jar, and either buried or placed in a hidden location (Waterman 1910:306). A mourning ceremony, during which additional possessions of the deceased were burned or otherwise destroyed, occurred 1 year after the individual passed. At this ceremony, items of wealth, including beads, baskets, and calico, either were given away as gifts or were burned to mark the passing of the individual.

To understand the nature and scale of mortuary offerings as they relate to relationships between the deceased and the living, archaeologists have turned to ethnographic and ethnohistorical descriptions and accounts. Insight into the nature of "personhood" and expression of social structure (e.g., status, rank, and authority) in the archaeological data can be obtained through comparison to what is known of the culture from ethnographic and ethnohistorical records. For example, we know only through such comparisons that the adornment of the deceased with material culture reflects the complex interplay of relationships both within and outside the group (Chesson 2001; Hollimon 1997).

Ethnographic and ethnohistorical accounts indicate that by the time of European contact, the Gabrielino/Tongva and their better-studied Chumash neighbors lived in highly structured societies ranked according to specific political, ritual, and economic status. Chieftainship was hereditary, and the chief's children were recognized and given special titles (Martz 1984). The chief had moral authority that was reinforced through religious sanctions. "The chiefly lineage, the ʻantap cult, and occupational guilds were clearly associated with exclusive membership, differential access to wealth, distinctive dress, and other similar social prerogatives" (Martz 1984:67). Overall, society was divided into upper-class and common people. Most investigators agree that archaeological evidence from Chumash burial grounds supports the conclusions regarding Chumash social complexity derived from these historical accounts (Gamble et al. 2001; King 1969; Martz 1984).

A key aspect of these studies is that wealth, prestige (political status), and socioreligious roles were not concentrated in the hands of a single group; instead, the Chumash hierarchy was composed of distinct political, ritual, and wealth identities. A close relationship did exist between ritual and political roles, and these individuals were usually wealthy, but a distinct group also existed, composed of individuals with wealth but no apparent political or ritual affiliation. Martz (1984:475) suggested that that this group included successful but less prestigious occupational specialists. Both Gamble et al. (2001) and Martz (1984) argued for major changes in the relationships of these different identities over time, although both recognized the importance of the overlap of religious, political, and economic status by the Mission period. Most important, Gamble et al. (2001:207) argued that the restriction of steatite effigies to the Intermediate period burial ground and the presence of plank canoes in the Mission period burial ground at Humaliwo reflect a shift in power from religious leaders to secular authorities whose ownership of the canoes gave them control over economic exchange.

Although the Gabrielino/Tongva are a culture distinct from the Chumash, ethnohistorical and ethnographic accounts often point to a similar social order (McCawley 1996). On the basis of archaeological and ethnographic data (Bean and Smith 1978:543; Finnerty et al. 1970:18; Galdikas-Brindamour 1970:136), McCawley (1996) described Gabrielino/Tongva society as having been organized into several hierarchically ordered social classes. Although few ethnologists would consider any California hunter-gatherers a "class society" (as defined in cultural anthropology), most archaeologists (e.g., Gamble and Russell 2002) who have investigated the Chumash agree with this designation. The three primary social classes in Gabrielino/Tongva society were the elite, the middle class, and commoners. Two additional classes have also been distinguished: the poor and the slaves and vagabonds (Bean 1974:22; Bean and Smith 1978:543; Boscana 1933:70). McCawley (1996) stated that class membership depended on wealth and ancestry, and it played a large role in determining individual lifestyles. The Gabrielino/Tongva also had several social, economic, and religious identities that included chiefs, known as the *tomyaar*s, and a council of elders and shamans (McCawley 1996). Gabrielino/Tongva society was composed of numerous lineage-kinship groups united under the leadership of a *tomyaar*, who typically was the chief of the oldest or largest resident lineage. The *tomyaar* had the most social and religious power; the position was ascribed (usually inherited by sons from their fathers), as was the council of elders. Some Gabrielino/Tongva *tomyaar*s may also have served as provincial leaders and may have exercised authority over several communities simultaneously. The basis of power of the *tomyaar* was access to and understanding of the supernatural. The council of elders assisted the *tomyaar* and consisted of the leaders of the lineages resident in the community as well as other wealthy and influential individuals. Shamans were also an integral part of the political, economic, legal, moral, and religious affairs of the community; like *tomyaar*s, shamans gained their power from the supernatural. Shamans were ranked according to the amount of power that they demonstrated through curing, through transforming themselves into other life forms such as bears (*Ursus*) and wolves (*Canis lupus*), through divination, and through control of natural and supernatural phenomena (Bean 1976). In addition to these three roles, a group of religious officials was chosen from the elite class of the society in each community. This group, referred to as the *toovet*, or *yovaarekam*, was distinguished because of their sacred knowledge and supernatural power as well as their wealth and prestige (Bean 1974:29; Boscana 1933:34, 38; McCawley 1996). The members of this group were part of the Chinigchinich and were the only ones who had access to a sacred enclosure, the *yovaar*, where special and restricted religious and ritual activities were conducted. These religious leaders sought divine sanction for political and legal decisions through the performance of special rituals and ceremonies. Note, however, that, first, Kroeber (1925) and, then, Hudson and Blackburn (1978) and Strong (1929) argued that the Chinigchinich practice as described in the ethnohistorical accounts was a Mission period development in coastal southern California, even though some of the practices had roots in earlier times. Kroeber (1925, 1959) was the first to propose the hypothesis that the Chinigchinich religion incorporated ideas from the exposure of southern California Indians to Christianity during the Mission period. These Gabrielino/Tongva "personhoods" were recognized in daily life but also in death.

Although McCawley (1996:97) did not provide any material correlates for either the *tomyaar* or the council of elders, he did discuss "power objects" used by shamans (and possibly the *tomyaar*s). These "power objects" included wooden wands inlaid with shell; flint knives; small, dried animal skins; curiously shaped vegetable growths; rare, sparkling minerals; collars of beads, stones, and bear claws; quartz crystals; *noot* stone (gray with sparkling inclusions); *toshaawt* stone (a black rock from the islands); charmstones; pipes; plummet stones; and effigies. If the deceased was an official, the instrument denoting his office was included, as well. The amount and value of grave goods included with a burial depended on the social status of the deceased. *Tomyaar*s, shamans, and other members of the elite were buried with the most-elaborate and most-extensive grave goods (Finnerty et al. 1970:15–21; Geiger and Meighan 1976:97; Reid 1968:31; Winterbourne 1967:43). Funeral fires were sometimes kindled on or near the grave (Alliot 1969; Ashby and Winterbourne 1966:27; Bryan 1970:82–84). Beautiful urn-shaped baskets and choke-mouth baskets might also have been left on graves as markers, sometimes filled with food (Merriam 1962:85).

Boscana (2005) described offerings of bead money in graves; these are directly relevant to the interpretation of bead money associated with noncremation burials. Translation of Boscana's original notes provides insight into the offering of shell beads to the deceased (Johnson 2006b:8):

> They customarily would wrap up bead money and place it with the deceased person. They would toss the money and similar objects into the grave. I asked why they did this. Some told me that it was so the person could buy seeds and be well received at the place where he was going. Others said that they did not want to have any of the deceased's possessions. Since he had died, everything should die with him.
>
> It should be noted that those who place these items in the grave are relatives, mainly those most closely related to the deceased, as well as friends. . . .

As described by McCawley (1996:Chapter 6), local Gabrielino/Tongva sociopolitical organization had several levels. At the top of the pyramid was the *tomyaar* (called a *capitán* by the Spanish in colonial documents). According to McCawley (1996:90), the *tomyaar* was "the focus of the religious and secular life of the lineage and community, serving as chief administrator, fiscal officer, religious leader, legal arbitrator, and commander-in-chief." Although there were also people specifically associated with ritual and shamanism within Gabrielino/Tongva society, differentiation of some of the items of ritual significance from those associated with leadership may be difficult in a burial area. The *tomyaar*'s position generally was associated with an ankle-length cape of fur, something that probably would not have preserved archaeologically and therefore would not have been found in a burial area. Items of ritual significance, which may have been associated with either the *tomyaar* or shamans, included sun disks; bone wands; flutes, rattles, whistles, and other musical instruments; charmstones; stone effigies; painted rocks; and collections of waterworn pebbles or crystals, among other material items (Gamble et al. 2001:192–194).

Mortuary Patterns in the Ballona

The remains of more than 400 individuals have been recovered from burials and isolated contexts at 10 sites in the Ballona, 5 of which were part of the PVAHP (Figure 84). These 10 sites included 6 in the lowlands and 4 on the bluff tops. Most of the burial features (n = 374) were recovered at LAN-62, a site that dated from the Millingstone period to the Mission period (see Chapter 3, this volume); however, most of the burials dated between the Late period and the Mission period; a smaller number dated as far back as the Intermediate period. These burial features were concentrated in an area of approximately 25 by 17 m in the southwestern part of LAN-62 Locus A (Figure 85). This burial area had the densest concentration of burials in the Ballona and was one of only a few such concentrations documented within Gabrielino/Tongva territory. The burial area may have been demarcated by the placement of whalebone or other markers that would have been visible on the ground surface during use of the burial ground and probably for some time after abandonment. Burials dating to the Mission period were concentrated primarily in a much smaller area in the southwestern portion of the burial area, as also indicated by the concentration of glass beads in this part of the burial ground.

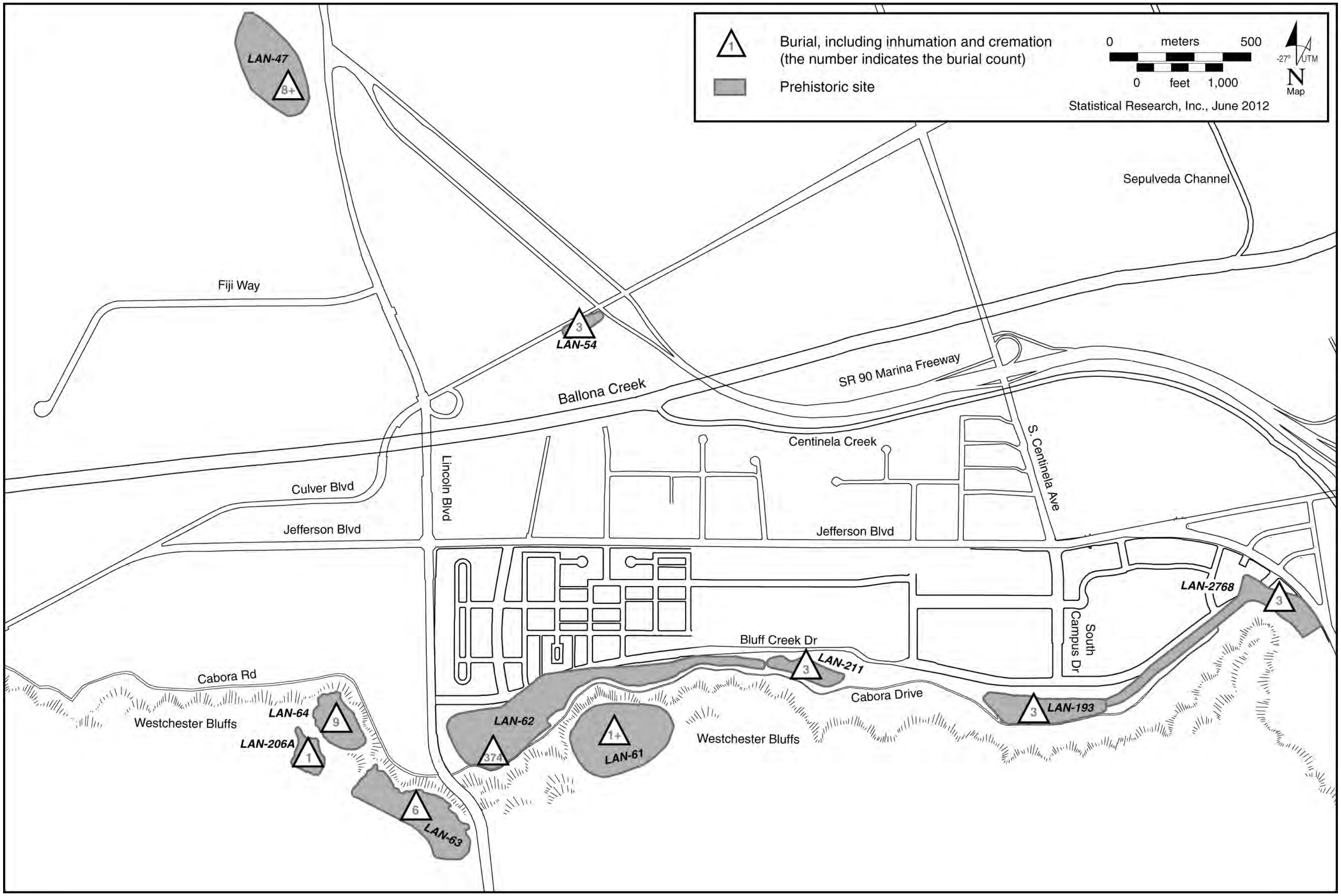

Figure 84. Burials recovered from the Ballona (including inhumations and cremations). Site numbers are abbreviated by omitting the CA- prefix.

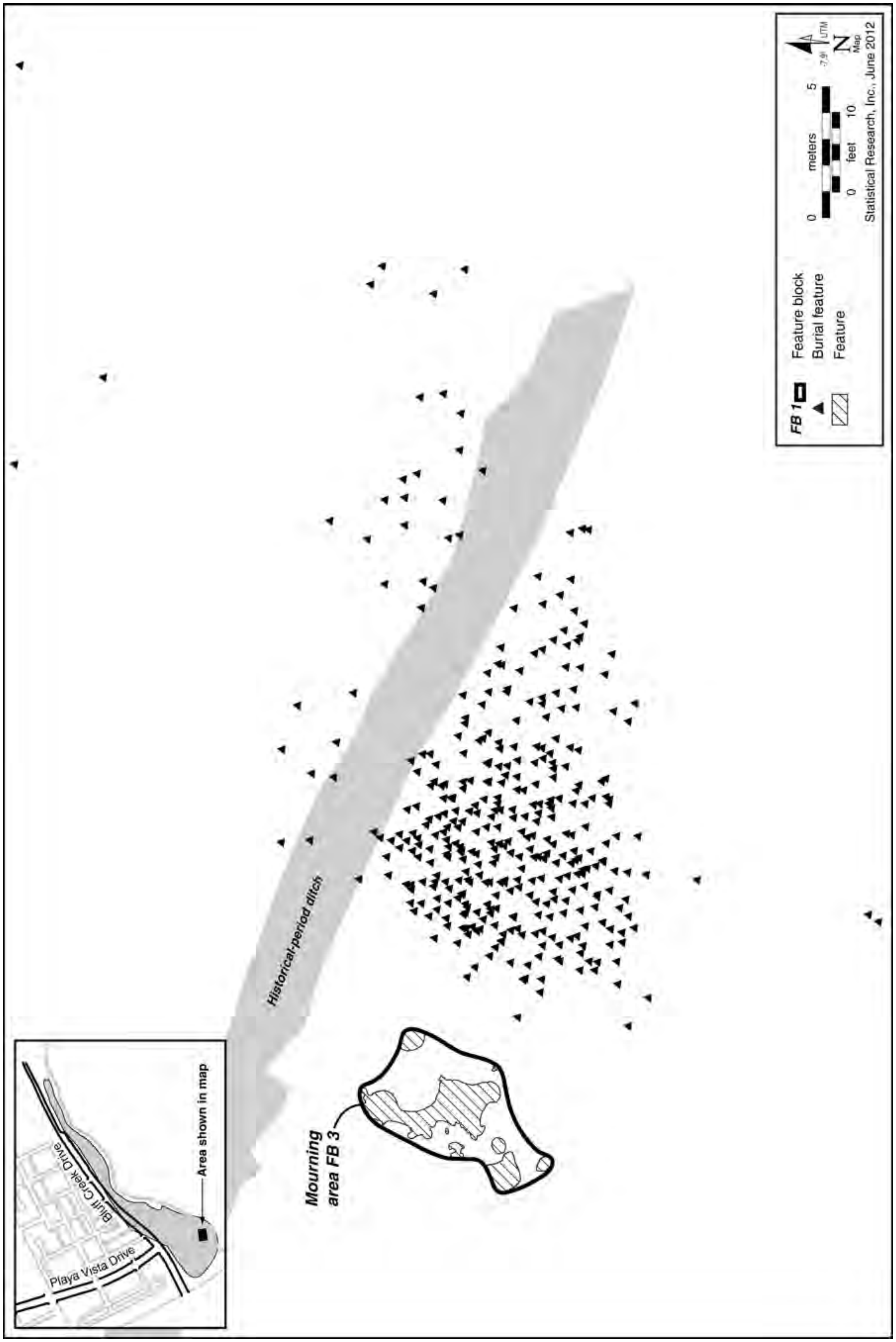

Figure 85. Burial ground at LAN-62.

In general, the tight concentration of burials was well demarcated on the south and west, but burials were more scattered to the north and east.

The northeastern portion of the burial area was bisected by a ditch, excavated in the early twentieth century, that removed a large swath of the burial area (see Volume 2 of this series). This ditch (Feature 16) was responsible for the destruction of numerous burial and nonburial features, as the remains of several features were found truncated in the walls of the ditch. The ditch was more than 3 m wide on the surface and narrowed significantly at its bottom, forming a V shape. The ditch probably was excavated with heavy equipment, as evidenced by damage to certain aboriginal artifacts in the form of scrape marks. In the early part of the twentieth century, the construction of both Cabora Road and the North Outfall Sewer on the slopes of the bluff above the site deposited fill on the burial ground. During the Hughes Aircraft Company era, however, major land alterations were undertaken, and up to 20 feet of additional fill was deposited on the burial ground.

Although the exact number of individuals that SRI found at LAN-62 will never be known, it probably lies between 349 and 377 and is closer to 377, as determined from conservative estimates (see Chapter 6, Volume 4 of this series). The demographic profile of the LAN-62 population included fetuses/infants, children, subadults, and adults. Overall, females outnumbered males, and adults dominated the sample (Table 26). Our mortuary analysis at LAN-62 focused on the burial features with primary individuals (n = 294). (A primary individual is the main individual around which the burial feature was defined. For a detailed definition of a primary individual, see Volume 4 of this series.) Because some burial features contained more than one primary individual each (see Appendixes 6.1–6.3, this volume, and Chapter 5, Volume 4 of this series), the total count for primary individuals is 303. Burial features without primary individuals consisted of human remains in disturbed contexts and often included only a single human element or a small number of human elements.

The remains of only 19 individuals were recovered from burial features and isolated contexts at the other PVAHP sites (see Table 24, Chapter 6, Volume 4 of this series). These include 6 individuals (4 in three burial features and 2 in isolated contexts) at LAN-54, 3 individuals (all in three burial features and none in isolated contexts) at LAN-193, and 5 individuals (3 in three burial features and 2 in isolated contexts) at LAN-2768 in Intermediate period contexts, as well as 5 individuals (2 in two Mission period burial features, 1 in one undated burial feature, and 2 in isolated contexts) at LAN-211. In addition to these discrete features, scattered, fragmentary remains of other individuals were recovered from all five sites.

In the past, human remains have been reported from two of the PVAHP sites. Many of these were found in LAN-62 Locus B, an area that had been completely destroyed by the Hughes Aircraft Company by the 1950s. Starting around 1939, Oscar Shulene, a collector, removed about 15 inhumations from this area, all of which were recorded as having been interred in a flexed position on their sides (see Chapter 2, Volume 4 of this series). Working in the same area, Peck (1947:8) reported that several burials were discovered in 1942 during construction activities by Hughes Aircraft Company. Peck himself discovered 2 additional burials. The first burial was fully flexed, lying on the right side with the head to the east, and without any associated artifacts, whereas the second burial, located in the same vicinity as the first, was oriented to the west or northwest (Peck 1947:9). Peck (1947:8) also found cremated human-skeletal remains throughout the deposits, and he noted at least one concentration of cremated remains in the southern portion of the site. With the exception of some burned shell beads, no artifacts were recovered from the cremation area (Peck 1947:8). In

Table 26. Age/Sex Composition of the Burial Population at LAN-62 over Time

Age and Sex	Protohistoric through Mission Period	Late through Mission Period[a]	Late Period	Intermediate through Mission Period	Total
Adult female	75	25	2	16	118
Adult male	39	16	1	15	71
Adult, indeterminate sex	36	10	—	9	55
Subadult female	1	2	—	—	3
Subadult, indeterminate sex	6	2	—	1	9
Child	6	3	—	6	15
Fetus/infant	15	6	—	8	29
Indeterminate-age female	2	—	—	—	2
Indeterminate age and sex	1	—	—	—	1
Total	181	64	3	55	303

Note: Burials with primary individuals only. Values in cells are for the primary individuals only. Age could be determined for only 300 individuals. Sex was determined for only 194 individuals.

[a] Six primary individuals in burial features initially classified as Late through Protohistoric period are assigned here, and throughout the mortuary analysis, to the Late through Mission period.

addition, in 1947, William Deane, a contractor working for Hughes Aircraft Company, began collecting from LAN-62 and recovered numerous artifacts and human remains. According to Thiel (1953),

> Four skulls were found altogether. Only one of the skulls had signs of being burned and that was only on one side of its head. The burials were flexed. One of the burials was upside down. The heads were not facing in any particular direction. These were found under three feet of dirt. Nothing was found with the burials. . . . All four of these skulls are adult.

In addition, an unknown number of human remains reportedly were found in a location that coincides with LAN-2768, in the vicinity of Locus A (see Figure 50, this volume) (*Los Angeles Times*, 1 April 1931:A9). Parts of several skulls and other human bone were found in association with fragments of ground stone bowls and pestles. Absence of Historical period artifacts suggested that the burials were prehistoric in age.

Previous investigations at five other sites in the Ballona have also recovered human remains. LAN-47, dated to the Late period, is located along the former lagoon edge, several kilometers north of the PVAHP project area. Levine (1969) reported that six human skeletons were found at this site in 1961, in Basin F of the excavation of Marina del Rey, and in 1965, two disturbed burials were removed from the basement of the National Security Bank. Unfortunately, none of these archaeological investigations was well documented, and therefore no additional information is available about these burials. SRI conducted excavations at LAN-47 in 1989 but found only a few isolated human-bone fragments in a disturbed area (Altschul, Homburg, and Ciolek-Torrello 1992).

The remaining burials were recovered from four bluff-top sites (LAN-61, LAN-63, LAN-64, and LAN-206A). At least six burial features were recovered at LAN-61 by Van Horn and Murray (1985), six burial features at LAN-63, nine burial features at LAN-64, and one burial at LAN-206A (Douglass et al. 2005). All burials appeared to have dated to the Intermediate period. Distribution of burial features differed from site to site. At LAN-63, three inhumations were located generally along the periphery of the site, on either the northern or the southern edge, whereas most (six of nine) of the burials at LAN-64 were located in an area approximately 10 m in diameter, on the western edge of the site. The other three burials at LAN-64 were located on the periphery of the site. A partial skull was recorded at LAN-206A, but no postcranial remains were identified.

Of the burials for which flexure could be determined with some certainty, all were buried in a flexed or semiflexed position (Yoshida et al. 2005). Two burials, both at LAN-63, were suggestive of secondary burials because of considerable disarticulation of the remains. Generally, for burials that had good preservation, burial orientations were to the north or west. Only 2 of the 15 burials for all sites had discernible pits. Few grave goods were clearly associated; grave goods included ground stone, flaked stone, stone beads, faunal bone, and shell. In many cases, which artifacts were grave goods and which were from surrounding midden were unclear.

In addition to the three inhumations on the periphery of the site, burial Feature 587 at LAN-63 contained cremated bone from a minimum of three individuals. This feature, measuring approximately 4.5 by 5 m, appeared to be the remains of a mourning ceremony containing numerous pieces of purposefully broken ground stone, large amounts of asphaltum, whalebone, ocher, worked bone, shell beads, stone beads, and other stone ornaments. The burned human remains from burial Feature 587 included both adult and nonadult remains, and it is likely that at least one subadult male, one adult female, and a 5–7-year-old child were present in the feature. A similar but smaller feature at the site, nonburial Feature 11, did not have human remains but included similar types of purposefully broken ground stone artifacts (see below). One nonburial feature at LAN-61 may have been another feature related to the mourning ceremony. It also contained a concentration of burned and broken ground stone artifacts associated with a scatter of unburned human remains and artifacts (Van Horn and Murray 1985). Van Horn and Murray (1985) found six additional concentrations of human remains at LAN-61A and LAN-61B. The four clusters at LAN-61A consisted primarily of cremated remains, whereas the two clusters at LAN-61B contained primarily unburned bone. None of these was reported as a burial, and no artifact associations were noted; however, Van Horn and Murray (1985) suspected that the two clusters at LAN-61B represented a single individual, whereas the four clusters at LAN-61A appeared to represent individual cremations.

At the five PVAHP sites and LAN-61, LAN-63, LAN-64, and LAN-206A, 323 burials contained primary individuals (Table 27). Except at LAN-62, all burials at all sites contained primary individuals and are included in our analysis. From LAN-62, only the burials with primary individuals are included in the analysis. No information was available regarding 8 Late period burials with primary individuals at LAN-47; these 8 burials were excluded from all analyses. Therefore, the total for the analytical sample was 323 burials. The ages of most burial features were determined through association with grave goods and stratigraphic relationships. Many of the burials had unknown temporal associations, as they lacked grave goods and stratigraphic relationships could not be determined; for LAN-62, these "unknown period" burials were assigned to the Intermediate through Mission period. However, burials from largely single-component Intermediate and Late period sites were assumed to date to those periods. Most burials with grave goods dated to the Protohistoric or Mission periods. In an analysis using very conservative criteria (see Chapter 4, Volume 4 of this series), only 77 burial features from LAN-62 and LAN-211 could be assigned specific dates based on stratigraphic placement, stratigraphic association with radiocarbon-dated features, and diagnostic artifacts directly associated with individuals. For

Table 27. Burial Features with Primary Individuals Recovered in the Ballona, by Site and Period

Site (CA-)	Terminal Mission Period	Late Mission Period	Protohistoric through Mission Period	Late through Mission Period[c]	Late Period	Intermediate through Mission Period	Intermediate Period	Unknown Period	Total
LAN-54	—	—	—	—	—	—	3	—	3
LAN-61[a]	—	—	—	—	—	—	1	—	1
LAN-62[b]	3	46	125	64	3	53	—	—	294
LAN-63	—	—	—	—	—	—	6	—	6
LAN-64	—	—	—	—	—	—	9	—	9
LAN-193	—	—	—	—	—	—	3	—	3
LAN-206A	—	—	—	—	—	—	1	—	1
LAN-211	—	—	2	—	—	—	—	1	3
LAN-2768	—	—	—	—	—	—	3	—	3
Total	3	46	127	64	3	53	26	1	323

Note: Not included in this table and in the total count are eight Late period burial features with primary individuals at LAN-47. No information was available regarding these eight burial features; therefore, they were excluded from all analyses.

[a] LAN-61 had one formal burial; additional areas contained human bone not classified by Archaeological Associates as burials.

[b] Only burials with primary individuals are included, because burials without primary individuals did not provide strong context and had poor integrity.

[c] Includes six burial features originally dated to the Late through Protohistoric period.

this analysis, an increase in the size of the dated sample and, thus, the use of more-liberal dating criteria were necessary. Priority was given to glass beads, temporally diagnostic shell beads, and Historical period artifacts in direct contact with individuals, but other artifacts found within graves were also considered. Consideration was also given to burial and articulatory integrity (i.e., criteria for artifact association were more stringent in heavily disturbed burials, whereas they were relaxed for cremations and infants). Because small artifacts like glass beads and shell beads could easily be moved (through bioturbation and the process of digging new graves) within the fill of a grave, we used a minimum of 10 glass or shell beads as a dating criterion. The following criteria were used:

- Burials with more than 10 glass beads were considered to date to the Mission period.
- If fewer than 10 glass beads but more than 10 shell beads were found with a burial, then the shell-bead typology was given priority.
- If more than one shell-bead type with an associated temporal range was present, then the burial was assigned to the later period.
- If a burial contained more than 10 shell beads, including ground disk beads, the burial was assigned to the early Mission period (A.D. 1771–1800). We note that needle-drilled olivella disk beads with fully ground peripheries probably preceded those that are semiground and rough-chipped. None of the date ranges assigned to each type has been subjected to empirical testing. Regardless, although the date ranges may not be precise, they provide good indicators of relative temporal differences for a time that has few other indicators.
- If a burial contained more than 10 shell beads, including semiground disk beads, the burial was assigned to the late Mission period (A.D. 1800–1816).
- If a burial contained more than 10 shell beads, including rough disk beads, the burial was assigned to the terminal Mission period (A.D. 1816–1834).
- When fewer than 10 glass beads and fewer than 10 shell beads were present, other artifacts such as projectile points were used to provide temporal assignments. If no other artifacts were present, then shell beads and glass beads were used.
- Burials with *comales* were considered to date to the Mission period. The Ballona geoarchaeological studies revealed that *comales* were recovered primarily from Protohistoric through Mission period strata. However, burials were not assigned to the Mission period based on the presence of *comales* alone. Furthermore, we do not suggest that *comales* were directly introduced by the Spanish, as the idea for this type of artifact could have been derived from other Native American groups. *Comales* in the Ballona were made from local materials such as steatite and were not European products like glass beads and metal tools.

- Burials with other Historical period artifacts and with introduced European domesticated plants and animals also were considered to date to the Mission period.

- Stratigraphic relationships were used to assign temporal associations to burials lacking temporally diagnostic or dated materials if these burials were present in the same strata as radiocarbon-dated features.

On the basis of these criteria, we were able to assign 322 of the 323 burial features in the analytical sample to the following five temporal groups: Intermediate period (n = 26), Intermediate through Mission period (n = 53), Late period (n = 3), Late through Mission period (n = 64), and Protohistoric through Mission period (n = 176). One burial (from LAN-211) could not be assigned to any of these five temporal periods because it lacked chronological indicators. The Protohistoric through Mission period burials included 46 late Mission period and 3 terminal Mission period burials (see Table 27). No evidence of Millingstone mortuary patterns has been found in the Ballona. The main goal of the mortuary analysis of the Ballona burial data was to gain insight into the socioeconomic, sociopolitical, and socioreligious realms of human behavior through the study of mortuary offerings and mortuary attributes of the burials. We accomplished this by examining patterns in mortuary attributes and mortuary offerings and comparing those to the demography and health of the burial population and to their spatial relationships within burial areas. The 323 burial features with primary individuals that were included in this analysis consisted of 302 inhumations and 21 cremations.

Mortuary Attributes

In documenting the mortuary attributes of the Ballona burial populations, five major aspects were recorded: burial type, treatment, position, orientation, and direction of head facing. These attributes were defined as follows (see Chapter 3, Volume 4 of this series):

> *Burial type*: Four burial types were described during the PVAHP: inhumation without incidental burning, inhumation with incidental burning, cremation, and partial cremation.
>
> *Treatment*: This category refers to a particular body layout—extended, fully flexed, or partially flexed—and describes the context (primary, secondary) in which the remains were discovered.
>
> *Position*: For each burial, observers recorded if the burial was supine, prone, seated, or on the left or right sides.
>
> *Orientation*: The cardinal (north, south, east, west) or intercardinal (northeast, northwest, southeast, southwest) direction for which the main axis of the individual was oriented, from foot to head, was recorded.
>
> *Direction of head facing*: The direction in which the individual was facing was recorded. These directions included cardinal and intercardinal directions as well as up and down.

The entire sample (n = 323) of burial features contained four burial types: inhumations without incidental burning (n = 297), inhumations with incidental burning (n = 5), full cremations (called just "cremations" in the original definition) (n = 8), and partial cremations (n = 13) (Table 28). In addition to the burial type, we considered how burials were placed (treatment, position, orientation, and direction of head facing) within the burial ground, both individually and with respect to other burials. For example, variation in the orientation of burials could have been due to changes in cultural beliefs and practices or to social differentiation. Similarly, association of burials to one another provides important information about sociocultural affiliation: for example, specific groups of people (family, lineage, or clan) might be buried close together. Such behavioral information provides valuable insight into the ideological and sociocultural framework of past cultures.

Protohistoric through Mission Period (A.D. 1542–1834)

Of the 322 burial features for which temporal period were assigned, most (n = 176) dated to the Protohistoric through Mission period, and all but 8 of these dated to the more tightly defined Mission period. The two temporal categories were combined, as no difference in burial preparation was apparent. This broad temporal category consisted of 174 burial features (with primary individuals) from LAN-62 and 2 from LAN-211 (see Table 27). King (1990) distinguished three occupational episodes during the Mission period based on rapid changes in shell-bead-manufacturing technology. Three types of shell beads were used to refine the temporal range of the Mission period burials in our analysis. The early Mission period (1771–1800) was denoted by the presence of olivella ground disk beads, whereas the late (1800–1816) and terminal (1816–1834) Mission periods were denoted by olivella semiground and rough disk beads, respectively. All three bead types were recovered in varying frequencies from 113 Mission period burial features at LAN-62. Early Mission period ground disk beads constituted only 1.2 percent of the shell beads recovered from the burial ground, whereas the later, semiground disk beads were the single-most-common type and constituted 58 percent of the shell-bead collection and almost 98 percent of Mission period disk beads (Table 29). Terminal Mission period rough disk beads were

Table 28. Burial Types of Burial Features with Primary Individuals Recovered from All Sites in the Ballona, by Period

Period	Inhumations without Incidental Burning		Inhumations with Incidental Burning		Partial Cremations		Full Cremations		Total	
	n	%	n	%	n	%	n	%	n	%
Protohistoric through Mission[a]	165	94	2	1	5	3	4	2	176	100
Late through Mission	56	88	1	2	5	8	2	3	64	100
Late[b]	3	100	—		—		—		3	100
Intermediate through Mission	47	89	2	4	3	6	1	2	53	100
Intermediate	25	96	—		—		1	4	26	100
Unknown[c]	1	100	—		—		—		1	100
Total	297	92	5	2	13	4	8	2	323	100

Note: Data in cells refer to burial features, not primary individuals. Burial type is that of the primary individual(s) only.

[a] Includes terminal and late Mission period burials.

[b] Excluded from the analysis were eight Late period burials from LAN-47 for which no information is available.

[c] A single burial feature at LAN-211 only. Burial features originally assigned to "unknown period" at LAN-62 are tallied in the Intermediate through Mission period, as in Table 6.3.

Table 29. Protohistoric through Mission Period Burial Features at LAN-62, by Phase

Phase	Shell-Bead Type	Number of Beads	Percent	Total Burials	Percent
Early Mission	ground disk	739	1.2	—	
Late Mission	semiground disk	36,273	57.7	46	26
Terminal Mission	rough disk	174	0.3	3	2
Protohistoric through Mission, indeterminate phase	other[a]	25,633	40.8	125	72
Total		62,819	100.0	174	100

Note: Burials were categorized as early, late, or terminal Mission period when more than 50 percent of the shell beads in a burial were ground disk, semiground disk, or rough disk, respectively. Only burials with more than 10 total shell beads were included.

[a] "Other" indicates beads that spanned the entire Protohistoric through Mission period.

even rarer (n = 174) than the early type and constitute only 0.3 percent of the collection. The remaining 41 percent of the shell beads from the Protohistoric through Mission period burials included beads that spanned the entire Protohistoric through Mission period. No burial features were assigned to the early Mission period, as ground disk beads were present in very low frequencies and usually were associated with semiground disk beads (*terminus post quem*). Each of the 46 burial features classified as late Mission period contained more than 10 semiground disk beads (which accounted for more than 50 percent of all shell beads in the feature) and fewer than 10 rough disk beads. Only 3 burial features (burial Features 13, 38, and 76) contained more than 10 rough disk beads each; these were assigned to the terminal Mission period. Most (n = 127, including the 2 burial features at LAN-211) of the Protohistoric through Mission period burials could not be assigned to a specific phase within the Mission period, although many of these may also have dated to the late Mission period, as indicated by the presence of semiground disk beads. Stratigraphic evidence suggested that 3 of these burials (burial Features 33, 96, and 143) were late Mission period in age and that 4 of the burials assigned to the late Mission period (burial Features 90, 152, 153, and 204) probably were terminal Mission period in age.

Given the paucity of rough disk beads and the fact that only three burials at LAN-62 could be assigned to the terminal Mission period, the burial ground probably was abandoned before a.d. 1816. This evidence corresponds with glass-bead data (see below) and with archival evidence that suggests that the burial ground and the entire Ballona were abandoned after the mid-1810s (see Chapters 7 and 8, this volume).

The 174 Protohistoric through Mission period burial features at LAN-62 contained 181 primary individuals (note that 5 burial features contained 2 primary individuals each, and 1 contained

3). Many of these burials had been heavily disturbed, primarily by later Mission period interment of individuals in such a relatively constricted space, as evidenced in part by the presence of more than 1 individual (primary and secondary inhumations) in 120 of the burial features. In many burials, for example, the remains of 1 individual were disturbed and partially removed when another individual was buried. In a few burials, the disturbed remains were neatly stacked adjacent to the intrusive burial. This pattern of disturbance in a confined space was similar to that seen at Malibu (Gamble et al. 1996; Gamble et al. 2001), Medea Creek (King 1969), and other Late and Mission period burial areas in the Chumash region. In fact, the disturbance or removal of 1 burial to place a new body in the same area has long been noted as a distinctive feature of densely congested Chumash burial areas (King 1969:30; Orr 1943:21). This often resulted in a mass of disarticulated bones and scattered artifacts that could not be assigned to any specific individual. We focused on primary burials, which usually were the least disturbed in the burial ground.

The Protohistoric through Mission period burials at LAN-62 and LAN-211 primarily were those of adults (n = 151, or 82 percent); few were those of fetuses/infants, children, or subadults (Table 30). In terms of sex, the demographic profile for this period was dominated by adult females (42 percent); frequencies of adult males were similar to those of adults of indeterminate sex (21 percent and 20 percent, respectively). At LAN-62, the more precisely defined Mission period burials were located primarily within the main burial concentration; an additional 10 burials were located primarily on the northern, southern, and eastern edges of the concentration. By contrast, 6 burial features that dated within the span from the Protohistoric through the Mission period were all scattered in the eastern part of the burial ground, and 1 of these 6 burial features was well outside the main concentration. These 16 peripheral Protohistoric through Mission period burial features consisted of 16 primary individuals; 4 of these burial features contained more than 1 individual. The primary individuals in these 16 peripheral burials included 9 adult females, 6 adult males, and 1 infant of indeterminate sex.

The two burials from LAN-211 could not be dated more precisely than to the Protohistoric through Mission period. Burial Feature 27 was in the northern part of FB 1 and was a single primary inhumation without evidence of burning or associated artifacts (dating to this period was based on its association with FB 1, which was a Protohistoric through Mission period activity area). The burial, that of a fetus/perinatal infant, was highly disturbed and consisted of only a few elements; no information could be garnered about burial treatment, position, orientation, or direction of head facing. Burial Feature 49 was found in Excavation Block B, in the eastern part of the site. This was the burial of a possible female found in a semiflexed position, oriented to the southwest, on her right side, with her head facing south.

Burial Type and Context

The Protohistoric through Mission period burials were categorized into four general types based on extent of burning (Figure 86; see Table 28). The 176 burial features at LAN-62 and LAN-211 included full cremations (n = 4), partial cremations (n = 5), inhumations with burning (n = 2), and inhumations without burning (n = 165). (Throughout this section, burial type is that of the primary individual[s].) All the burials with evidence of burning were at LAN-62.

The nine burial features with primary individuals cremated included four full cremations and five partial cremations, which were interspersed throughout the burial ground at LAN-62. Three of the four full cremations were clustered on the western side, and one was on the eastern edge. The partial cremations were on the northern and eastern edges of the burial concentration. Two full cremations were associated with more grave goods than the others (none of which had more than 20 artifacts). The two cremations with higher quantities of grave goods (burial Features 273 and 363) were located in the western part of the main burial concentration. Burial Feature 363 had high-status beads (n = 17) and ocher. The

Table 30. Age/Sex Composition of Primary Individuals in Protohistoric through Mission Period Burials at LAN-62 and LAN-211, by Burial Type

Age and Sex	Inhumation without Burning	Inhumation with Burning	Partial Cremation	Full Cremation	Count
Adult female	73	1	2	—	76
Adult male	38	—	1	—	39
Adult, indeterminate sex	32	1	1	2	36
Subadult female	1	—	—	—	1
Subadult, indeterminate sex	4	—	1	1	6
Child	6	—	—	—	6
Fetus/infant	16	—	—	—	16
Indeterminate-age female	2	—	—	—	2
Indeterminate age and sex	—	—	—	1	1
Total	172	2	5	4	183

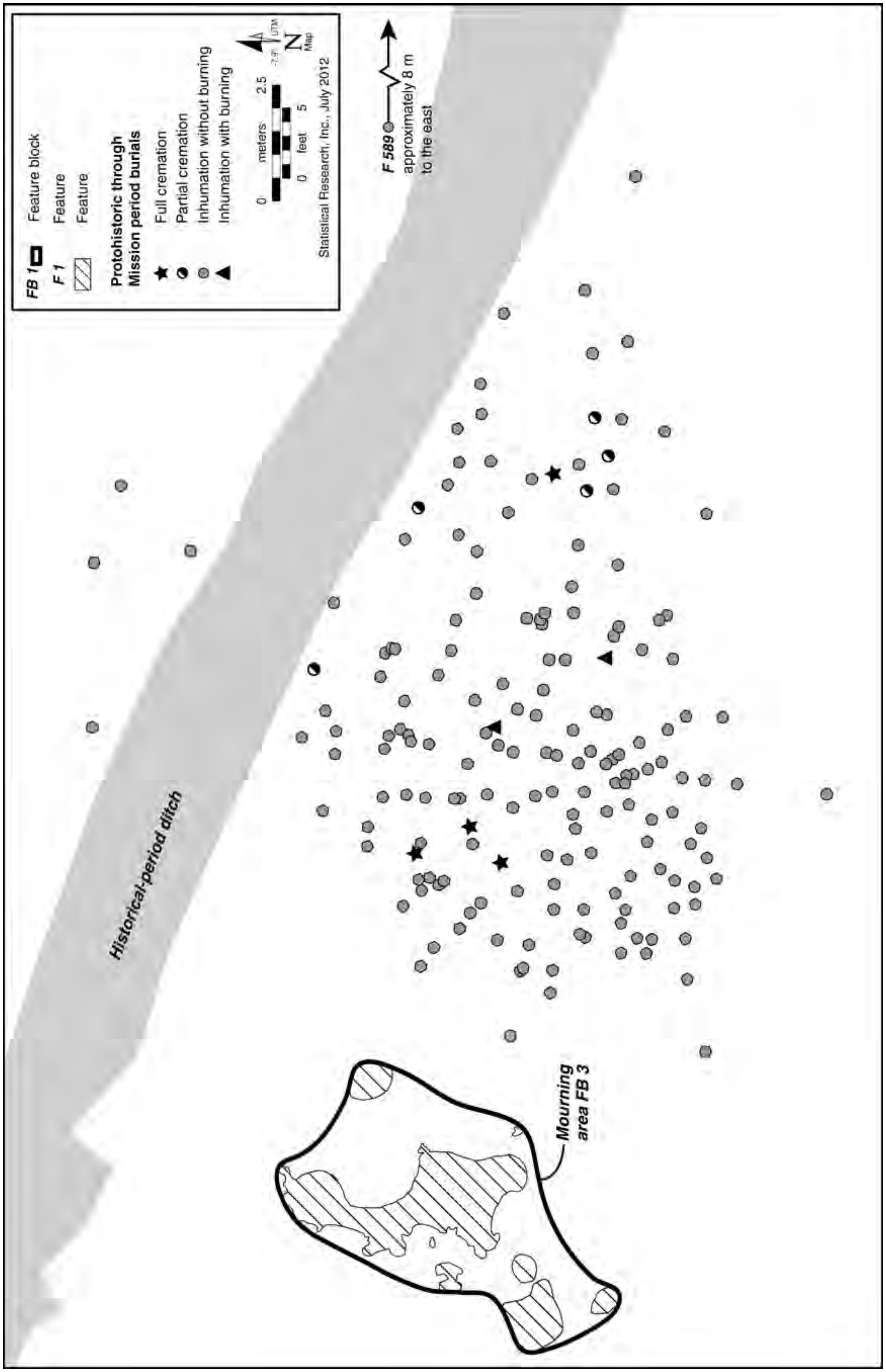

Figure 86. Distribution of Protohistoric through Mission period burials at LAN-62.

term "high-status beads" is used here for the six shell-bead types (Pismo clam tube and cylinder beads, olivella saucer beads, red abalone epidermis disks, California mussel disks, and giant rock scallop tube beads) that King (1974:88–89, 1981) identified as indicative of higher value and greater social status because of their time-intensive manufacture or showy/colorful appearance. Six of the nine cremations had burned wood associated with the remains.

In terms of context, the four full cremations included two secondary, one primary, and one indeterminate. (A primary cremation is one in which the human remains were left in place. In secondary cremation, an individual was cremated in one location, and the remains were collected and placed in a second location represented by the final burial feature.) Sex could not be determined for these individuals, and only one full cremation (burial Feature 91) included additional individuals in a secondary cremation (i.e., the other three full cremations had only primary individuals). However, these additional individuals in burial Feature 91 probably were intrusive, as determined from the degree of intrusion of other burials into this feature, and these individuals were represented by a single unburned first-proximal carpal phalanx and a single vertebral centrum. The primary individuals in the four full cremations were one subadult with a very low frequency of grave goods, two adults with low frequencies of grave goods, and one individual of indeterminate age with a very low frequency of grave goods (see Mortuary Offerings during the Late Period and the Late through Mission Period in the Ballona, below, for definitions of frequency categories for grave goods).

The five burial features with partial cremations of primary individuals were located on the periphery of the main concentration of burials, and all of them had very low frequencies of grave goods. The partial cremations included three primary cremations and two indeterminate partial cremations. These cremations were of one adult male, two adult females, one adult of indeterminate sex, and one subadult of indeterminate sex. Two of the five partial cremations also had additional individuals. Burial Feature 108 had one primary individual (adult male) and three additional individuals: an adult female and two children of indeterminate sex. Only the adult male probably was associated with the burial, as determined from the elements recovered (duplicate skeletal elements with evidence of burning); the two children were represented by an unburned femur fragment and a single vertebral neural-arch fragment; these remains probably were intrusive.

Two burials (burial Features 34 and 216) had inhumations with incidental burning; these were located in the main concentration of the burial ground. The primary individuals were an adult of indeterminate sex and an adult female, respectively. Burial Feature 34 had a low frequency of grave goods; burial Feature 216 had a very low frequency.

The 165 inhumations without evidence of burning consisted of 6 burial features with more than 1 primary individual and 159 burial features with single primary individuals. The 6 burials with more than 1 primary individual (burial Features 38, 144, 173, 196, 313, and 370) were located within the main concentration of the burials, and all except burial Feature 370 were located in the southern part. Burial Feature 370 was located in the northern part of the main concentration. Five of these burials had 2 primary individuals each, and burial Feature 370 had 3 primary individuals. Five of the 6 burials with more than 1 primary individual had at least 1 additional individual; only burial Feature 173 did not have any additional individuals. Two of the 6 burials with more than 1 primary individual (burial Features 38 and 313) had high frequencies of grave goods, 1 burial (burial Feature 196) had a moderate frequency, and 3 burials (burial Features 144, 173, and 370) had very low frequencies. In this temporal group, frequencies of grave goods and the presence of more than 1 primary individual did not seem to be correlated.

Burial Layout

Body layout (flexure) could be determined for 146 of the primary individuals in the analysis (Table 31). Of these 146, 77 percent were fully flexed and 16 percent were semiflexed. Approximately 4 percent (6 individuals) of the 146 individuals with "determinate flexure" (i.e., flexed to some degree) were flexed but to an undetermined degree. For 37 other individuals, presence or absence of flexure was indeterminate; these constituted 20 percent of the total sample of 183 primary individuals. Two of the 3 individuals with extended layout were adult males, and the other was a child. For the adults with determinate flexure, 83 percent of all females and 67 percent of all males were fully flexed. Flexure could be determined for only 6 nonadults (i.e., subadults, children, infants, and fetuses); 2 of these were semiflexed.

Burial Position

Burial position was determined for 150 of the primary individuals in the analysis (see Table 31). Of these, 48 percent were placed on their left side, and 29 percent were placed on their right side. Slightly more than 15 percent were placed in a prone position, and only 8 percent were in a supine position. A rough comparison suggested that adult males and adult females differed little with respect to position; of the 9 nonadults for whom position could be determined, 4 were on their left side, 3 were supine, and 2 were prone; none was positioned on the right side.

Burial Orientation

Eight different orientations were observed following the four cardinal points and the four intercardinal points (see Chapter 5, Volume 4 of this series). We were able to determine the orientation for only 153 of the primary individuals in Protohistoric through Mission period burials (see Table 31). Most of the individuals (66 percent) in the sample for which body orientation was discernible were oriented toward the southeastern quadrant: southeast (30 percent), east (21 percent), and south (15 percent). No other orientation was shown by more than 10 percent of the population. The orientations of Protohistoric through Mission period adult

Table 31. Mortuary Attributes of Primary Individuals in Burial Features from the Protohistoric through Mission Period at LAN-62 and LAN-211

Mortuary Attribute	Adult Female	Adult Male	Adult, Indeterminate Sex	Subadult Female	Subadult, Indeterminate Sex	Child	Fetus/ Infant	Indeterminate-Age Female	Indeterminate Age and Sex	Total
Flexure										
Extended	—	2	—	—	—	1	—	—	—	3
Semiflexed	10	8	4	—	1	1	—	—	—	24
Fully flexed	58	24	27	1	2	—	—	1	—	113
Flexed, degree indeterminate	2	2	2	—	—	—	—	—	—	6
Subtotal, determinate flexure	70	36	33	1	3	2	—	1	—	146
Indeterminate	6	3	3	—	3	4	16	1	1	37
Total, flexure	76	39	36	1	6	6	16	2	1	183
Position										
Right side	23	12	8	—	—	—	—	—	—	43
Left side	33	13	21	1	2	1	—	1	—	72
Prone	9	10	2	—	1	—	1	—	—	23
Supine	7	2	—	—	—	2	1	—	—	12
Subtotal, determinate position	72	37	31	1	3	3	2	1	—	150
Indeterminate	4	2	5	—	3	3	14	1	1	33
Total, position	76	39	36	1	6	6	16	2	1	183
Orientation										
East	10	10	10	—	—	1	1	—	—	32
North	1	2	1	—	—	—	—	—	—	4
Northeast	8	5	2	—	—	—	—	—	—	15
Northwest	2	1	2	—	2	1	—	1	—	9
South	15	3	4	—	—	1	—	—	—	23
Southeast	23	11	8	1	1	1	—	1	—	46
Southwest	10	1	—	—	—	—	1	—	—	12
West	3	4	4	—	—	—	1	—	—	12
Subtotal, determinate orientation	72	37	31	1	3	4	3	2	—	153
Indeterminate	4	2	5	—	3	2	13	—	1	30
Total, orientation	76	39	36	1	6	6	16	2	1	183

continued on next page

Mortuary Attribute	Adult Female	Adult Male	Adult, Indeterminate Sex	Subadult Female	Subadult, Indeterminate Sex	Child	Fetus/ Infant	Indeterminate-Age Female	Indeterminate Age and Sex	Total
Direction of head facing										
Down	10	7	3	—	3	1	1	—	—	25
Up	2	2	—	—	—	1	1	—	—	6
East	6	5	—	—	—	—	—	—	—	11
North	5	3	3	—	—	—	—	—	—	11
Northeast	3	1	—	—	—	—	—	—	—	4
Northwest	9	7	2	—	1	—	—	—	—	19
South	8	—	3	—	—	—	—	—	—	11
Southeast	4	1	3	—	—	—	—	—	—	8
Southwest	5	5	3	—	—	—	—	—	—	13
West	15	3	7	1	—	1	—	—	—	27
Subtotal, determinate direction of head facing	67	34	24	1	4	3	2	—	—	135
Indeterminate	9	5	12	—	2	3	14	2	1	48
Total, direction of head facing	76	39	36	1	6	6	16	2	1	183

males vs. adult females and adults vs. nonadults were slightly different. Although most adult males were oriented in the same three directions as the general population, the distribution for adult males was more variable. A smaller proportion of adult males than adult females were oriented to the south and southeast, and a larger proportion were oriented to the east, north, and west. The differences in orientation between adult males and adult females in burials from the Protohistoric through Mission period at LAN-62 and LAN-211 were not significant statistically (χ^2 = 10.68, *df* = 7, *p* = .15), but the value for Cramér's *V* (0.31) suggests strong association between sex and orientation (Table 32). Orientations could be determined for only 11 nonadults, 6 of whom were oriented to the southeast quadrant.

Burial Head-Facing Direction

Head-facing direction could be determined for 135 of the primary individuals in the analysis (see Table 31). The direction in which the head was facing was directly correlated to the body orientation and position. As many of the primary individuals in Protohistoric through Mission period burial features were oriented to the southeast and positioned on their left sides, the most common cardinal or intercardinal direction for the 135 primary individuals was westward (20 percent); northwest was the second-most-common of these directions (14 percent). Eighteen percent of the individuals faced down, and fewer than 5 percent faced up. No more than 10 percent of the population was buried with any other head-facing direction. Adult males and adult females were slightly different. Adult males more commonly faced northwest (20 percent) than did adult females (13 percent). No adult males faced south, and only 1 adult male faced southeast. By contrast, the most common direction for adult females was to the west (22 percent). The differences in direction of head facing between adult males and adult females in Protohistoric through Mission period burials were not significant statistically (χ^2 = 9.66, *df* = 9, *p* = .61), but the value for Cramér's *V* (0.31) suggests strong association between sex and head facing (Table 33). Head-facing direction could be determined for only 10 nonadults (5 down, 2 up, 2 to the west, and 1 to the northwest).

Summary of Protohistoric through Mission Period Mortuary Attributes

(*Note*: The summary statements in this paragraph apply only to primary individuals for whom the value of the attribute in question could be determined.)

The primary individuals in Protohistoric through Mission period burial features at these Ballona sites were almost all flexed to some degree; fully flexed individuals were by far most common. Cremations were extremely rare (only 5 percent of individuals). The most common orientation for the primary individuals in the analysis was toward the east-southeast-south quadrant, which accounted for nearly two-thirds of the individuals. Most individuals (77 percent) were placed on their sides; placement on the left side was more common than placement on the right. Fewer than 3 percent of the individuals were placed in an extended layout; 23 percent of the individuals were in a prone or supine position, suggesting that the body had been purposefully rotated. Given that most individuals were placed on their sides, their heads, for the most part, faced 90–180° from the body orientation. Thus, it is not surprising that the most common cardinal or intercardinal directions of head facing were to the west and

Table 32. Differences in Orientation between Adult Males and Adult Females in Burials from the Protohistoric through Mission Period at LAN-62 and LAN-211

Orientation	Adult Male	Adult Female	Total
East	10	10	20
North	2	1	3
Northeast	5	8	13
Northwest	1	2	3
South	3	15	18
Southeast	11	23	34
Southwest	1	10	11
West	4	3	7
Total	37	72	109

Note: χ^2 = 10.68, *df* = 7, *p* = .15. Cramér's *V* = 0.31. Male and female individuals for whom orientation could not be determined (n = 6) are excluded from the table.

Table 33. Differences in Direction of Head Facing between Adult Males and Adult Females in Burials from the Protohistoric through Mission Period at LAN-62 and LAN-211

Direction of Head Facing	Adult Male	Adult Female	Total
Down	7	10	17
Up	2	2	4
East	5	6	11
North	3	5	8
Northeast	1	3	4
Northwest	7	9	16
South	—	8	8
Southeast	1	4	5
Southwest	5	5	10
West	3	15	18
Total	34	67	101

Note: χ^2 = 9.66, *df* = 9, *p* = .61. Cramér's *V* = 0.31. Male and female individuals for whom direction of head facing could not be determined (n = 14) are excluded from the table.

northwest. Eighteen percent of the burials, however, faced downward, suggesting, again, that they had been purposefully rotated. Although mortuary attributes differed slightly by sex and age, these differences were not significant. In general, however, a higher proportion of adult males were oriented to the east, north, and west, whereas a higher proportion of adult females were oriented to the south and southeast. The heads of a higher proportion of adult females than of adult males faced south and west. A higher proportion of adult males than of adult females were placed in a semiflexed layout, and two of the three individuals with extended layout were adult males.

No change in these mortuary attributes was evident over the course of the Protohistoric through Mission period. The late and terminal Mission period burials exhibited the same patterns in burial position, orientation, and head-facing direction.

Late through Mission Period (A.D. 950–1834)

In all, 64 burial features were dated to this late, but generally indeterminate, temporal group that spanned the Late period to the end of the Mission period. This group included 2 full cremations, 5 partial cremations, 1 inhumation with evidence of burning, and 56 inhumations without evidence of burning (see Table 28).

Two full cremations were located on the northern and eastern edges of the main concentration of burials (Figure 87) and were associated with very few grave goods. The individuals in these two full-cremation features were an infant (burial Feature 94) and a young adult of indeterminate sex (burial Feature 194). The latter was a secondary cremation oriented to the southeast. In addition to these burials, five fragmentary partial cremations were located in two clusters in the eastern and western parts of the burial concentration. These partial cremations consisted of two adult females, one adult male, one subadult female, and one adult of indeterminate sex. Burial Feature 410 was a secondary partial cremation of an adult female with her head facing southeast. Burial Feature 426, a partial cremation of an adult of indeterminate sex, was distinct, given the relatively higher quantity of grave goods (n = 121), which included basketry/cordage, shell beads (including fused shell beads), and projectile points. (The fused shell beads are important to note because the fusion indicates that these had constituted strands of shell necklaces, as opposed to unattached shell beads, which would have been placed into a burial or cremation as a collection rather than as a necklace.) The single inhumation with evidence of burning (burial Feature 234), that of an adult female, was located to the east of and outside the main burial concentration. Burial Feature 234 was fully flexed on her right side, oriented to the east, with her head facing northwest.

Almost all the primary individuals were flexed to some degree (Table 34). Only 1 inhumation, an adult male, was extended. Of the 49 individuals for whom layout could be identified, almost 70 percent were fully flexed, and slightly more than 30 percent were semiflexed. Approximately 76 percent of the individuals for whom position could be determined were placed on their side; approximately 51 percent were placed on the left side. Approximately 16 percent were placed in a prone position, and fewer than 8 percent were supine. No difference was evident in the positions of adult males and adult females. The sample of nonadults for whom position could be determined was too small for discerning any pattern. In these respects, the Late through Mission period burials appeared to have received preparations largely similar to those given to the Protohistoric through Mission period burials.

More of the primary individuals in the Late through Mission period burial features than those in the Protohistoric through Mission period burial features appeared to have been oriented to the east. That is, approximately 72 percent of the Late through Mission period individuals for which orientation could be determined (vs. 61 percent for the Protohistoric through Mission period) were oriented to the northeast, east, or southeast. The least prevalent directions were west, northwest, and north. Late through Mission period individuals also exhibited a more even distribution of head-facing directions than the Protohistoric through Mission period individuals. Only 17 percent of the Late through Mission period individuals for whom direction of head facing could be determined faced to the west and northwest, vs. 34 percent for the Protohistoric through Mission period individuals.

The Late through Mission period inhumations included 16 that were located outside the main burial concentration. The 16 primary individuals in these burial features consisted of 2 children of indeterminate sex, 8 adult females, 5 adult males, and 1 adult of indeterminate sex. Burial Feature 213, one of the burials located outside the main burial concentration and toward the northeast of the burial area, was unique. It consisted of a single primary inhumation of an adult male (semiflexed, placed on the left side, and oriented to the east), with a second individual represented only by an isolated cranium (Figure 88). The isolated cranium, of a possible adult male, was placed adjacent to the right elbow of the primary individual. As discussed above, many of the burials in the burial ground at LAN-62 were heavily disturbed and contained disarticulated and fragmentary skeletal elements. In the case of burial Feature 213, we believe that the isolated human cranium was placed purposefully into this grave. Burial Feature 213 was located away from the main concentration, in an area with few other isolated human remains.

We have speculated that this isolated cranium was a "trophy" head, because this cranium had slightly different characteristics from those of others in the burial ground and could be from a different population group (see Chapter 9, Volume 4 of this series). Lambert's (2007) ethnographic study of trophy taking in California revealed that scalping and head taking were widespread and were reported consistently in 76 percent of a sample of 49 Native Californian groups (see also Kroeber 1925). These activities were associated commonly with Penutian populations

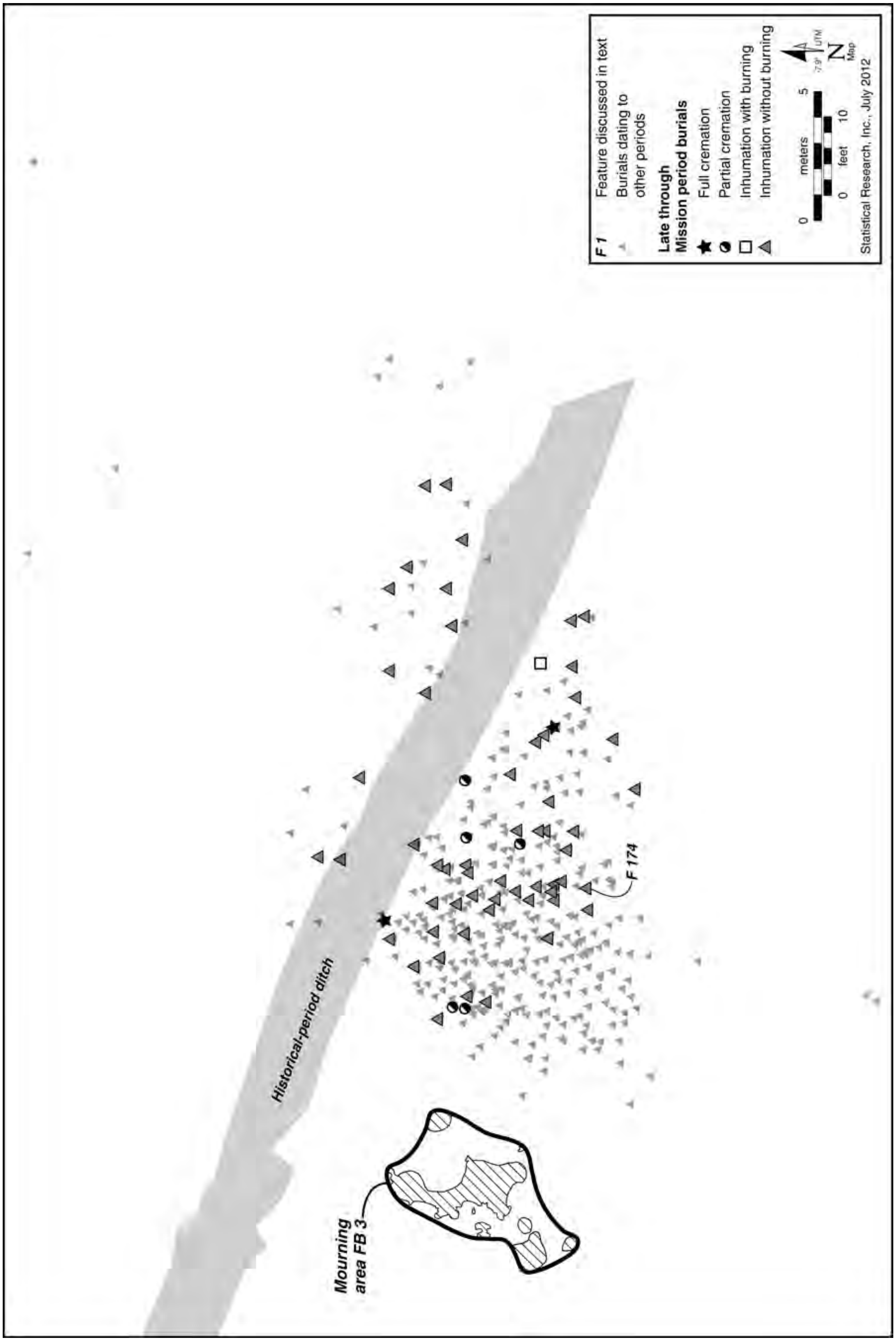

Figure 87. Distribution of Late through Mission period burials at LAN-62.

Table 34. Mortuary Attributes of Primary Individuals in Burial Features from the Late through Mission Period at LAN-62

Mortuary Attribute	Adult Female	Adult Male	Adult, Indeterminate Sex	Subadult Female	Subadult, Indeterminate Sex	Child	Fetus/ Infant	Total
Flexure								
Extended	—	1	—	—	—	—	—	1
Semiflexed	3	8	1	—	1	1	1	15
Fully flexed	19	5	6	1	1	1	—	33
Flexed, degree indeterminate	—	—	—	—	—	—	—	—
Subtotal, determinate flexure	22	14	7	1	2	2	1	49
Indeterminate	3	2	3	1	—	1	5	15
Total, flexure	25	16	10	2	2	3	6	64
Position								
Right side	6	3	2	—	—	1	1	13
Left side	9	7	6	1	2	1	—	26
Prone	4	4	—	—	—	—	—	8
Supine	3	1	—	—	—	—	—	4
Subtotal, determinate position	22	15	8	1	2	2	1	51
Indeterminate	3	1	2	1	—	1	5	13
Total, position	25	16	10	2	2	3	6	64
Orientation								
East	6	6	—	—	—	1	1	14
North	1	—	—	—	—	—	—	1
Northeast	6	3	3	1	—	—	—	13
Northwest	1	1	—	—	—	—	—	2
South	2	2	—	—	1	—	—	5
Southeast	5	1	5	—	1	—	—	12
Southwest	1	2	1	—	—	2	1	7
West	—	—	—	—	—	—	—	—
Subtotal, determinate orientation	22	15	9	1	2	3	2	54
Indeterminate	3	1	1	1	—	—	4	10
Total, orientation	25	16	10	2	2	3	6	64
Direction of head facing								
Down	6	3	—	—	—	1	—	10
Up	1	1	1	—	—	—	—	3
East	—	2	—	—	—	—	—	2
North	2	4	2	—	—	—	—	8
Northeast	1	—	—	—	—	—	—	1
Northwest	4	—	—	—	1	—	—	5
South	4	2	—	—	—	1	—	7
Southeast	2	—	1	—	—	—	—	3
Southwest	1	3	—	1	—	—	1	6
West	1	—	1	—	1	—	—	3
Subtotal, determinate direction of head facing	22	15	5	1	2	2	1	48
Indeterminate	3	1	5	1	—	1	5	16
Total, direction of head facing	25	16	10	2	2	3	6	64

Note: Data include those for seven cremated primary individuals. Flexure for these individuals was scored as indeterminate.

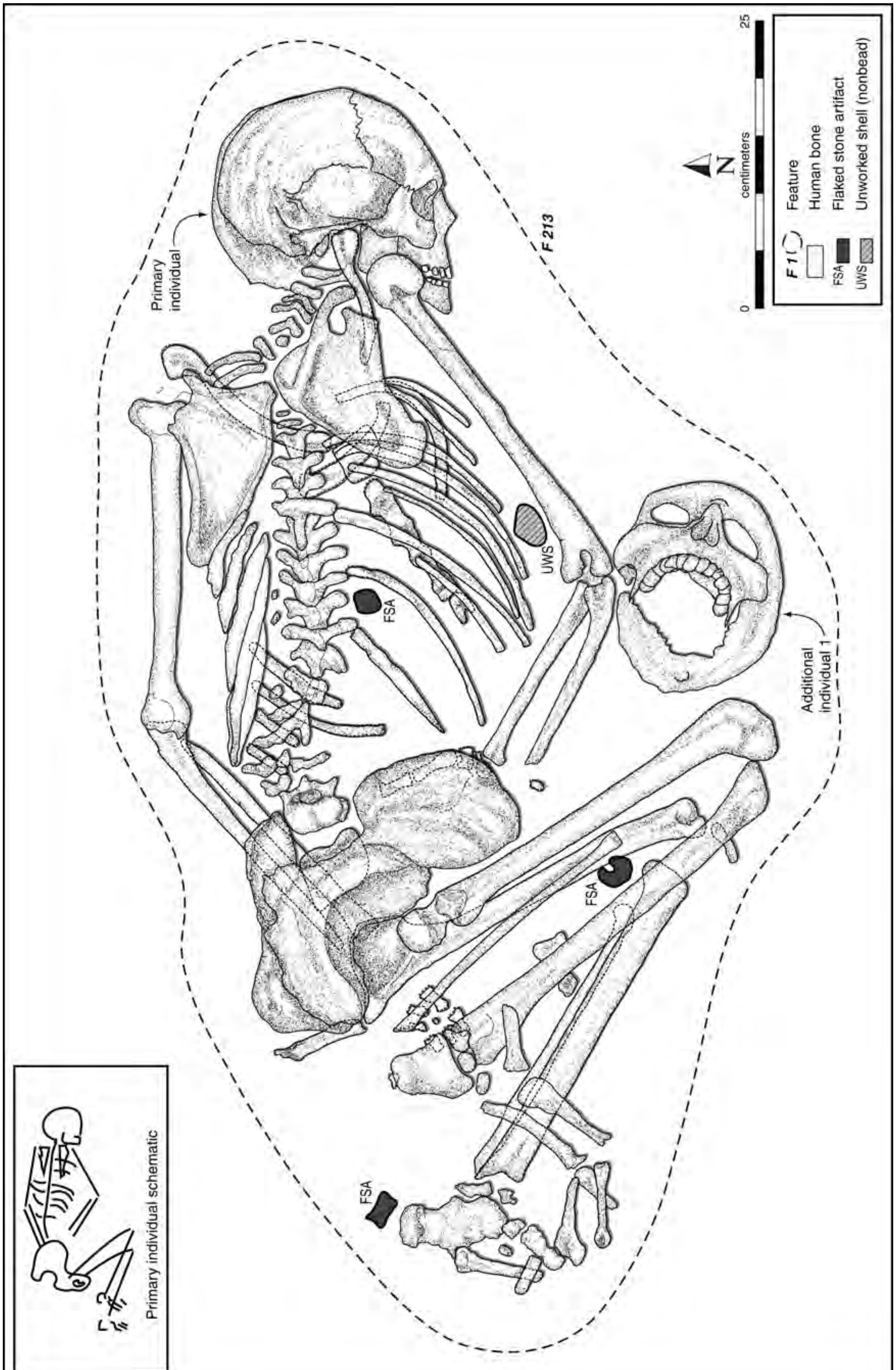

Figure 88. Burial Feature 213, Late through Mission period, LAN-62.

and, to a lesser extent, with Hokan populations. On the basis of these trends, Lambert (2007) suggested that the taking of human trophy heads or scalps probably was a practice that originated elsewhere and was introduced to California by Penutian-speaking migrants. Andrushko et al.'s (2010) study of trophy taking and dismemberment in prehistoric central California indicated that most of the trophy taking entailed upper-limb dismemberment; scalping and skull removal were somewhat less common, followed by lower-limb dismemberment and a single case of disembowelment. As the "trophy head" in burial Feature 213 was the only example found in the Ballona, it probably represented a rare and unusual activity in this region. The possessor of this trophy, however, did not stand out in the burial population in any other respect. The primary individual in burial Feature 213 was associated with a few common grave goods.

The Late through Mission period inhumations within the main concentration of burial features were located primarily to the northeast (see Figure 87). The primary individuals consisted of 5 fetuses/infants of indeterminate sex, 1 child of indeterminate sex, 2 subadults of indeterminate sex, 1 subadult female, 15 adult females, 10 adult males, and 7 adults of indeterminate sex. Burial Feature 271, that of an adult of indeterminate sex, was the most distinctive in this group of burials (Figure 89). This individual, semiflexed, oriented to the northeast and facing up, and laid on the right side, was associated with large quantities of carbonized *Calandrinia* cf. *breweri* (Brewer's redmaids) seeds (n = 89,827) in direct association with a steatite shaft straightener. The seeds were in a 12.5-by-7.5-cm concentration about 7.5 cm east of the anterior side of the cranium of the primary inhumation. This burial also had a bone wand, cordage, fused and unfused high-status beads (n = 21), fire-affected rock, a biface, and ground stone (both affected and unaffected by fire). The combination of *Calandrinia* seeds, the steatite shaft straightener, and the bone wand suggested that the primary individual in this burial may have had a ritual role (see below).

Summary of Late through Mission Period Mortuary Attributes

Overall, the burials in this temporal category could be grouped into those located within the main burial concentration and those located outside. Like the Protohistoric through Mission period burials, most were contained within the main burial concentration. No patterning by sex or age was apparent in terms of which individuals were placed inside or outside the main burial concentration. Little to no evidence suggested differential mortuary attributes of adult male and adult female burials, and too little information could be obtained about the mortuary attributes of nonadults to discern any differences among age groups. The primary individual in burial Feature 271 was noteworthy in that mortuary attributes were different from the norm: semiflexed, positioned on the right side, and oriented to the northeast with the face up. This burial had a large quantity and unusual variety of grave goods (see below).

Late Period (A.D. 950–1540)

Because LAN-62 was reoccupied at the end of the Late period, after a hiatus during the MCA (see Chapter 3, this volume), the Late period burials at LAN-62 probably dated to the end of this period and probably were similar to those of the Protohistoric through Mission period. Only three burial features, all inhumations without incidental burning, were dated specifically to the Late period at LAN-62. These included three primary individuals (two adult females and one adult male). One of the Late period burials, burial Feature 214, was located outside the main burial concentration, and two were located on the northern edge of the concentration (Figure 90). Burial Feature 214 was that of an adult female oriented to the east in a semiflexed layout, on her right side, with head facing west. The primary individual in burial Feature 392, an adult male, was a semiflexed inhumation on his right side with an unusual west orientation and a southeast-facing head direction. Burial Feature 525 was that of an adult female placed in a fully flexed layout on her right side, oriented to the common east direction, and with her head facing north.

Intermediate through Mission Period (1050 B.C.–A.D. 1834)

In all, 53 burial features at LAN-62 and 1 burial feature at LAN-211 could not be assigned to a specific temporal period, because they did not have any chronological indicators (artifacts) or could not be associated with dated burials through stratigraphy (Figure 91). Most of these burials had very low frequencies of grave goods and contained temporally nondiagnostic materials, such as ground stone fragments, debitage, and fire-affected rock. Seven of these burials (burial Features 20, 49, 162, 186, 209, 329, and 511) contained datable artifacts, but their temporal ranges were so broad that they could not be placed more precisely than after the Millingstone period. These 7 burials had very low frequencies of grave goods (a total of 22 artifacts), including a single high-status bead and a bone awl recovered from burial Feature 162, that of an infant. One of these burials, burial Feature 329, that of an adult female, located outside the main burial concentration, contained a total of 5 artifacts, including 1 Cottonwood Triangular projectile point, 1 fire-affected abrader, 1 fire-affected rock, 1 chopper, and 1 flake. (Cottonwood Triangular points date to a range beginning as early as 1350 cal b.p. and ending in the Protohistoric through Mission period [Koerper et al. 1996]). Burial Feature 49, located on the southwestern edge of the main burial concentration, contained an inhumation without evidence of burning, a fully flexed adult female in a supine position, oriented to the southeast, with her head facing to the north. A single high-status shell bead was the only grave good recovered from this burial. A large fragment of whalebone was found approximately 15 cm northeast of the right foot of this individual. The whalebone may have been a grave marker, but direct association with this burial was not certain.

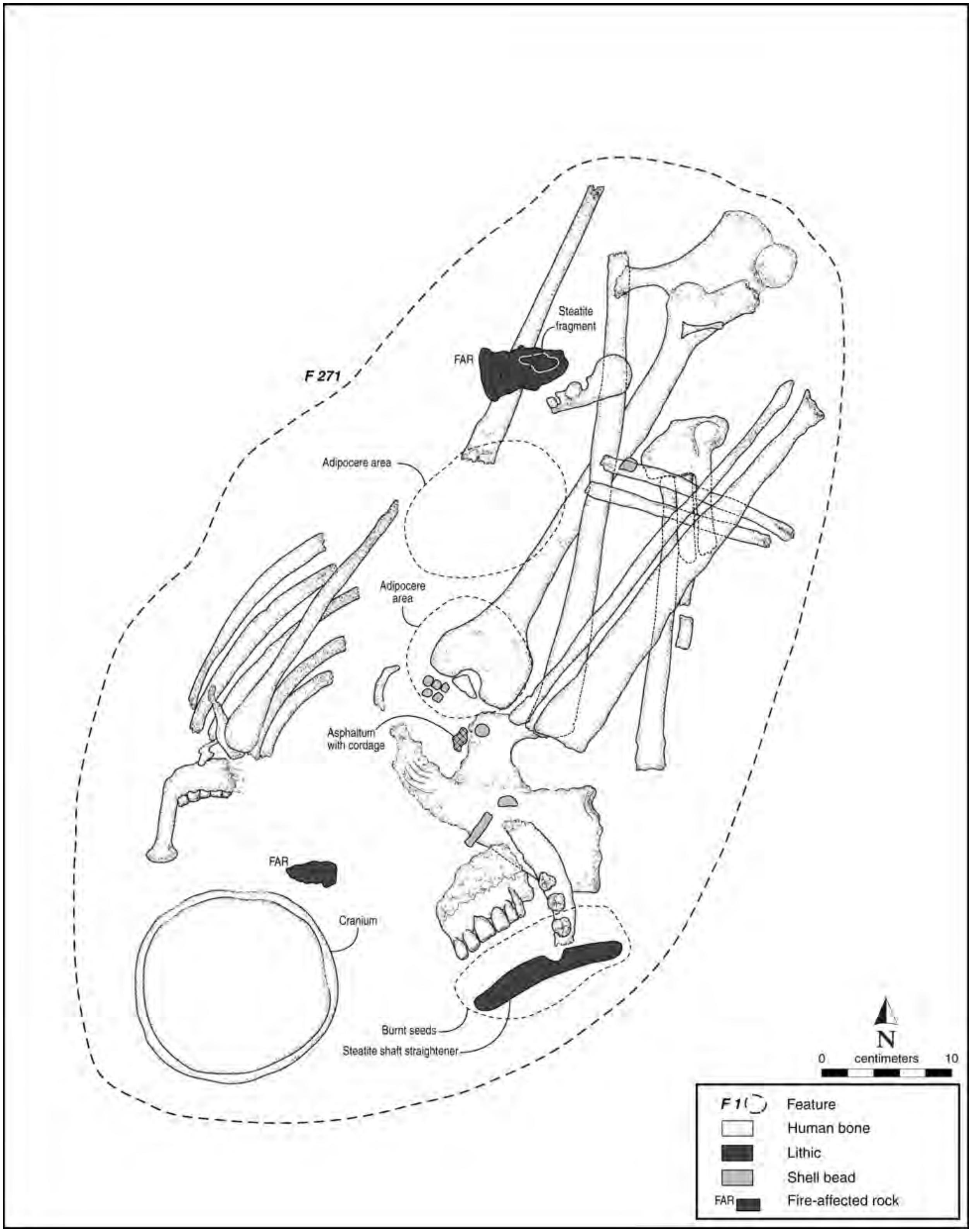

Figure 89. Burial Feature 271, Late through Mission period, LAN-62.

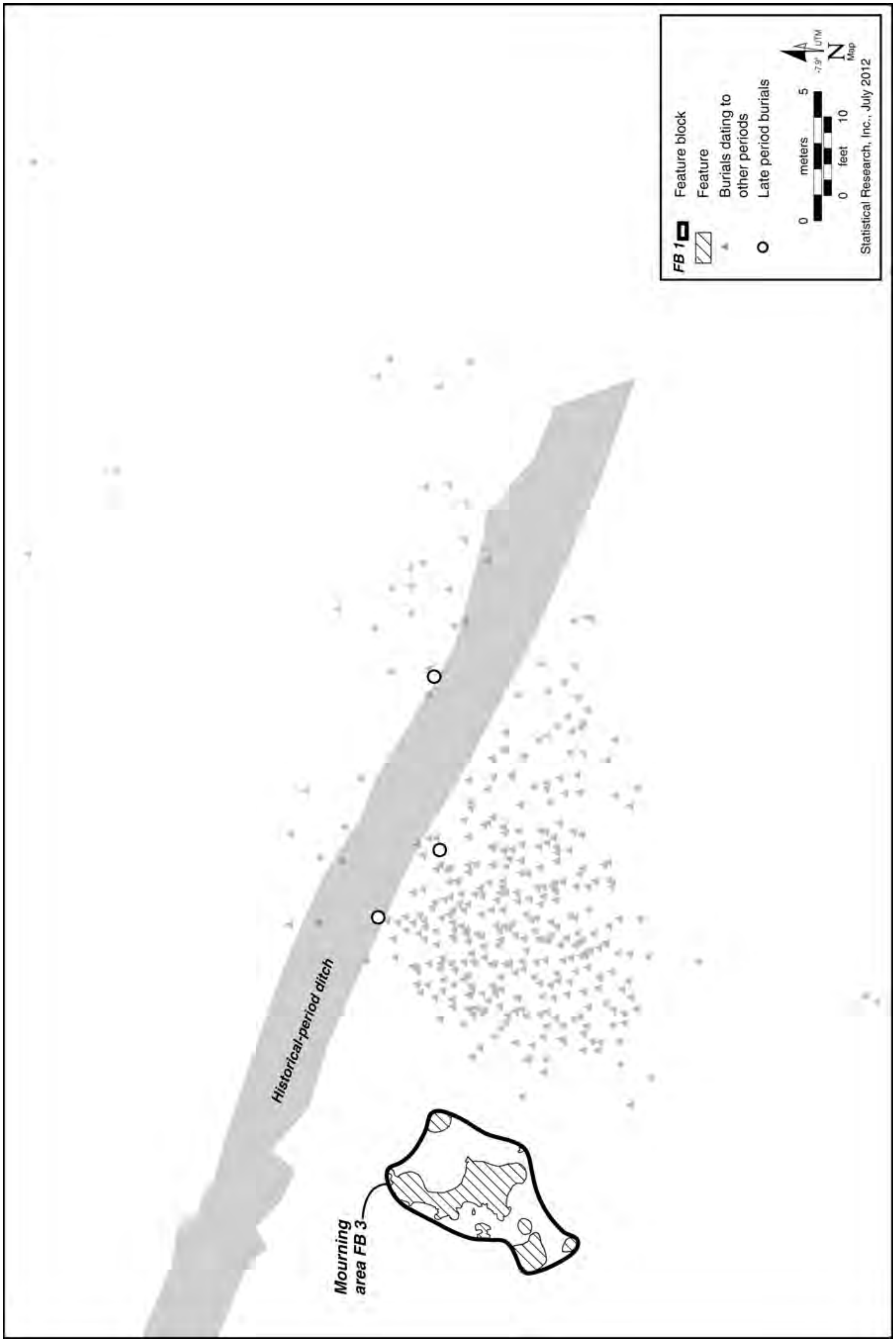

Figure 90. Distribution of Late period burials at LAN-62.

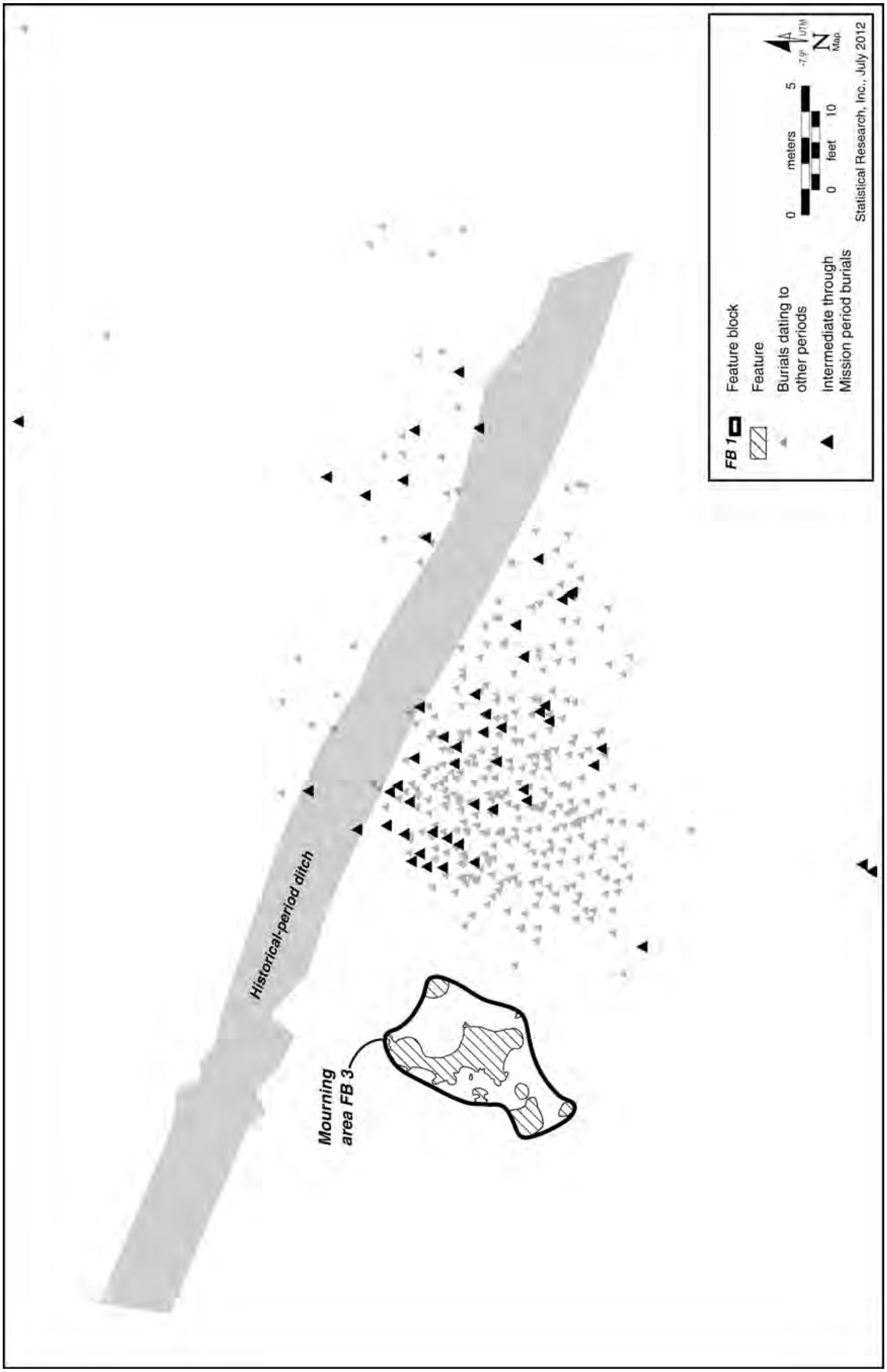

Figure 91. Distribution of Intermediate through Mission period burials at LAN-62.

The 53 burials at LAN-62 were assigned to the Intermediate through Mission period. Most were located within the northern and eastern part of the burial area. Two apparently isolated burials were located about 6 m south of the main burial area. This gap, however, was a function of excavation constraints. Both burials were discovered at the beginning of fieldwork, and the excavation area was subsequently reduced in extent. The area between these two burials and the main concentration was outside the area of direct impact and was not excavated. Clearly, additional burials were present south of the excavated area and under the modern slope of the bluff. However, burial density in this area probably was low, and the main part of the burial ground, especially the Mission period area, was fully excavated. The single burial from LAN-211 was found in an isolated context during mechanical stripping. The burials at LAN-62 consisted of 1 full cremation, 3 partial cremations, 2 inhumations with burning, and 47 inhumations without burning. The full cremation (burial Feature 241) was located east of the main burial concentration, and the 2 partial cremations were located to the north and east. The 2 inhumations with burning were located within the southeastern part of the main burial concentration. Most of the inhumations (n = 36) were also located outside the main burial concentration.

The 53 Intermediate through Mission period burial features at LAN-62 contained 55 primary individuals (burial Features 24 and 376 had 2 primary individuals each). Burial orientation could be determined for 42 of these 55 individuals. The most common orientation was to the east (n = 13); nearly 70 percent of the individuals with determinate orientation were oriented to the northeast, east, or southeast (Table 35). However, approximately 62 percent were oriented to the southeast quadrant, showing the same pattern found for the Protohistoric through Mission period burials. Similarly, the least prevalent orientation was to the north (n = 0). In contrast to those in the Protohistoric through Mission period burials, however, only a few adult females (5 percent) were oriented to the southeast, the most prevalent orientation in the later period.

Head-facing direction was determined for 34 primary individuals; the most common directions were south (n = 6), north (n = 6), southwest (n = 5), and down (n = 7). The least prevalent directions were up (n = 0), northeast (n = 2), and southeast (n = 2). Frequencies were too low to allow differences between adult males and adult females and between nonadults and adults to be ascertained.

Body layout and position were determined for 36 and 40 primary individuals, respectively. All but 2 of the 36 individuals were flexed to some degree; 78 percent were fully flexed and 14 percent semiflexed. No patterning by age or sex was evident, although the only extended burials were nonadults. A large proportion of the 40 individuals with determinate position (78 percent) were placed on their side; 45 percent were on their left side and 32 percent on their right side. Some differences between adult males and adult females were apparent. All adult males with determinate position were placed on their right or left side, whereas 2 adult females were prone and 2 were supine. Furthermore, for individuals with determinate position, 50 percent of adult males but only 33 percent of adult females were placed on their right side.

Overall, the 55 primary individuals in burial features assigned to the Intermediate through Mission period showed high variation in mortuary attributes. For the most part, these attributes were similar to those seen in the Protohistoric through Mission period burials, suggesting that many may date to that time. Like the primary individuals in the Protohistoric through Mission period burials, most were oriented to the southeast quadrant, but the most common head-facing directions were different. Most faced south, north, southwest, or down, whereas most of the Protohistoric through Mission period individuals faced west, down, or northwest. In terms of orientation and body layout and position, these individuals were similar to those in the Protohistoric through Mission and Late through Mission period burials at LAN-62. Nevertheless, differences included the low frequency of adult females oriented to the southeast and the high proportion of adult males placed on their right side in the Intermediate through Mission period group. These differences suggest that the Intermediate through Mission period group consisted of individuals from a variety of periods.

Intermediate Period (1050 B.C.–A.D. 950)

In all, 26 Intermediate period burial features with primary individuals were recovered from seven sites in the Ballona: LAN-54, LAN-61, LAN-63, LAN-64, LAN-193, LAN-206A, and LAN-2768 (Table 36; see Figure 84). Significantly, no burial features at LAN-62 could be specifically assigned to this period, although several that were essentially undated could have been buried sometime between the Intermediate and Mission periods. The 26 Intermediate period burial features consisted of 25 inhumations and 1 cremation. Several of the Intermediate period burials—including burial Features 475, 492, and 617 at LAN-63 and burial Feature 100 at LAN-206A—were secondary burials with scattered human remains and, as a result, could not provide much information about mortuary attributes. Most of these burials were inhumations, although cremated individuals were found at LAN-63. At least 29 individuals were identified in these 26 burial features; the demographic profile of the burials included more adult females (n = 13) than adult males (n = 6) and adults of indeterminate sex (n = 6). Of the 29 individuals, 86 percent (n = 25) were adults; only 4 were nonadults, 1 of which could be identified as a male. Most burials were found without discernible pits and, except for those at LAN-63 and LAN-64, appeared to be located relatively randomly in the sites. At LAN-63, a large mourning-ceremony feature containing cremated human remains (burial Feature 587; see below) was found in the center of the site, whereas many of the burials at LAN-64 were clustered in the western portion of the site. One of the burials was a secondary cremation. Burial Feature 587 at LAN-63 contained the remains of at least 1 adult female, 1 subadult male, and 1 child of indeterminate sex.

Table 35. Mortuary Attributes of Primary Individuals in Burial Features from the Intermediate through Mission Period at LAN-62

Mortuary Attribute	Adult Female	Adult Male	Adult, Indeterminate Sex	Subadult, Indeterminate Sex	Child	Fetus/ Infant	Total
Flexure							
Extended	—	—	—	—	1	1	2
Semiflexed	1	1	1	—	1	1	5
Fully flexed	14	9	3	—	2	—	28
Flexed, degree indeterminate	—	—	—	—	1	—	1
Subtotal, determinate flexure	15	10	4	—	5	2	36
Indeterminate	1	5	5	1	1	6	19
Total, flexure	16	15	9	1	6	8	55
Position							
Right side	5	6	1	—	1	—	13
Left side	6	6	4	—	2	—	18
Prone	2	—	1	—	2	1	6
Supine	2	—	—	—	—	1	3
Subtotal, determinate position	15	12	6	—	5	2	40
Indeterminate	1	3	3	1	1	6	15
Total, position	16	15	9	1	6	8	55
Orientation							
East	3	3	3	—	2	2	13
North	—	—	—	—	—	—	—
Northeast	4	1	1	—	—	—	6
Northwest	1	—	—	—	1	1	3
South	1	1	1	—	—	—	3
Southeast	2	5	1	—	1	1	10
Southwest	3	1	—	—	—	—	4
West	2	—	—	—	1	—	3
Subtotal, determinate orientation	16	11	6	—	5	4	42
Indeterminate	—	4	3	1	1	4	13
Total, orientation	16	15	9	1	6	8	55
Direction of head facing							
Down	1	2	2	—	—	2	7
Up	—	—	—	—	—	—	—
East	2	1	—	—	—	—	3
North	2	2	—	—	1	1	6
Northeast	—	1	—	—	—	1	2
Northwest	3	—	—	—	—	—	3
South	3	1	2	—	—	—	6
Southeast	1	1	—	—	—	—	2
Southwest	1	1	1	—	2	—	5
West	—	—	—	—	—	—	—
Subtotal, determinate direction of head facing	13	9	5	—	3	4	34
Indeterminate	3	6	4	1	3	4	21
Total, direction of head facing	16	15	9	1	6	8	55

Note: Data include those for five cremated primary individuals in four burial features.

Table 36. Mortuary Attributes of Primary Individuals in Burial Features from the Intermediate Period at Sites in the Ballona

Site (CA-)	Feature No.	Individual ID[a]	Age and Sex	Flexure	Position	Orientation	Direction of Head Facing
LAN-54	3	P	adult female	fully flexed	left side	south	west
	6	P1	adult female	semiflexed	supine	southwest	south
		P2	adult female	semiflexed	prone	west	south
	11	P	adult female	fully flexed	right side	west	south
LAN-61	none	P	adult male	fully flexed	indeterminate	indeterminate	west
LAN-63	475	P	child, indeterminate sex	not applicable[b]	not applicable	not applicable	not applicable
	480	P	adult, indeterminate sex	flexed, degree indeterminate	indeterminate	west	indeterminate
	492	P	adult, indeterminate sex	not applicable[b]	not applicable	not applicable	not applicable
	600	P	adult female	fully flexed	supine	west	north
	617	P	adult, indeterminate sex	not applicable[c]	indeterminate	indeterminate	southwest
	587[d]	P1	adult female	not applicable[b]	not applicable	not applicable	not applicable
		P2	subadult male	not applicable[b]	not applicable	not applicable	not applicable
		P3	child, indeterminate sex	not applicable[b]	not applicable	not applicable	not applicable
LAN-64	32	P	adult, indeterminate sex	not applicable[b]	not applicable	not applicable	not applicable
	43	P	adult female	semiflexed	left side	northeast	east
	52	P	adult probable male[e]	flexed, degree indeterminate[f]	right side	north	indeterminate
	56	P	adult probable female[g]	indeterminate	prone	south-southwest[h]	indeterminate
	61	P	child, indeterminate sex	semiflexed	indeterminate	unknown	indeterminate
	62	P	adult possible female[g]	indeterminate	indeterminate	north?[i]	indeterminate
	64	P	adult possible male[e]	flexed, degree indeterminate	indeterminate	north	west
	65	P	adult, indeterminate sex	flexed, degree indeterminate	supine	west	indeterminate
	66	P	adult female		supine	north?[i]	indeterminate
LAN-193	101	P	adult male	flexed, degree indeterminate	left side	east	west
	214	P	adult female	fully flexed	left side	northeast	south
	216	P	adult female	indeterminate	supine	north	up
LAN-206A	100	P	adult probable male[e]	not applicable[c]	indeterminate	not applicable	not applicable
LAN-2768	108	P	adult female	semiflexed	supine	southeast	up
	109	P	adult, indeterminate sex	flexed, degree indeterminate	right side	southwest	indeterminate
	112	P	adult male	semiflexed	supine	northeast	southwest

[a] P = primary individual (just one primary in the burial feature); P1 = primary individual 1; P2 = primary individual 2; P3 = primary individual 3.
b Disarticulated.
[c] Head only.
d Cremation; minimum number of individuals (MNI) = 3.
e Counted as adult male in analyses discussed in text.
[f] Recorded as "side-flexed" (flexed to a side, but which side not determined).
[g] Counted as adult female in analyses discussed in text.
[h] Counted as southwest in analyses discussed in text.
[i] Counted as north in analyses discussed in text.

Of the 26 individuals in Intermediate period inhumations, orientation could be determined for 19. Of these, most (53 percent) were oriented to the northwestern quadrant; north and west (n = 5 each) were the most common orientations. Significantly, only 1 each was oriented to the east, south, and southeast—the three most common orientations for individuals in the Protohistoric through Mission period burials. Differences in body orientation by age and sex could not be determined, as orientation could be determined for only 4 adult males and none of the nonadults.

The head-facing direction of the primary individual was recorded for only 14 of the 26 individuals in inhumations. One adult female faced north, another faced east, and 2 faced up. Most faced toward the southwest quadrant: 4 faced south, 2 faced southwest, and 4 faced west. Again, too few adult males and nonadults were present to allow any patterning by age or sex to be distinguished.

Position of the individual in the burial could be determined for 16 of the 26 individuals in inhumations. In contrast to the pattern for later burials, the most common position was supine (n = 7). Two individuals were prone, and 7 were on their sides: 4 on their left and 3 on their right. All of the individuals with determinate flexure in these burial features were flexed (n = 17) to some degree; 6 were semiflexed, 5 were fully flexed, and 6 were flexed to an indeterminate degree. Once again, too few adult males and nonadults were present to allow any patterning by age or sex to be distinguished.

Although the sample size was very small, mortuary attributes in the Intermediate period exhibited important patterning. Approximately 11 percent of the individuals in these burials were cremations, a frequency that was higher than that for the Protohistoric through Mission period (5 percent). As in the Protohistoric through Mission period, a notable proportion of the Intermediate period inhumations were flexed to some degree, but the proportion of individuals with determinate flexure that were semiflexed was considerably higher for the Intermediate period burials (35 percent) than for the Protohistoric through Mission period burials (16 percent). The most striking differences, however, related to burial orientation and position. Most of the Intermediate period burials were oriented toward the northwest quadrant, whereas the southeast quadrant, which was the most prevalent orientation in the Protohistoric through Mission period, was least prevalent in the Intermediate. In addition, more than 40 percent of the individuals in Intermediate period burials were placed in a supine position, which was the least prevalent position for the Protohistoric through Mission period.

Summary of Mortuary Attributes in the Ballona

Although the numbers of non–Mission period burials were relatively small, evidence was sufficient to suggest both continuity and change in mortuary attributes in the Ballona over time. In all, 322 burial features with primary individuals could be assigned to five broad temporal periods: the Intermediate period (n = 26), the Intermediate through Mission period (n = 53), the Late period (n = 3), the Late through Mission period (n = 64), and the Protohistoric through Mission period (n = 176). A single burial (from LAN-211) could not be assigned to a temporal period. Overall, mortuary attributes of the primary individuals in these burial features reflected cultural continuity (Table 37) Inhumation was the most prevalent burial type from the Intermediate period through the terminal Mission period. The dominant practice was to place fully flexed or semiflexed individuals on their sides, except during the Intermediate period, when both semiflexed individuals and individuals flexed to an indeterminate degree were most frequent, and when the most prevalent burial position was supine. Significantly, the shift from extended burials in the Intermediate period to flexed burials in the Late period that has been observed in the neighboring Chumash areas (Gamble et al. 2001; Martz 1984) was not evident in the Ballona. Extended burials were always rare in the Ballona, and none was evident in the small Intermediate period sample. Cremation, whether complete or partial, also was always very rare, although it may have become even more so by the Mission period. In contrast to this broad pattern of continuity, several important changes in mortuary attributes were noted:

- One of the most striking changes was an almost complete reversal in burial orientation from the Intermediate period to the Mission period. Intermediate period burials were oriented primarily to the northwest quadrant, Late through Mission period burials were oriented primarily east, and Protohistoric through Mission period burials were oriented primarily to the southeast quadrant. The differences among these periods in orientation of primary individuals were significant in an uncorrected chi-square test ($\chi^2 = 16.35$, $df = 9$, $p = .02$) but were not significant at the 95 percent confidence level with Yates's correction (Table 38). The value for Cramér's *V* (0.28) was strong or moderately strong for the association between period and orientation. When the chi-square table was altered to collapse orientations with low frequencies (north, northwest, and west) into one category, the differences were significant in an uncorrected chi-square test ($\chi^2 = 15.89$, $df = 5$, $p = .007$) and with Yates's correction ($\chi^2 = 12.27$, $p = .03$) at the 95 percent confidence level or higher; the value for Cramér's *V* (0.28) suggests that the association is strong or moderately strong.

- The Chumash pattern of a shift from extended to fully flexed burials was not evident in the Ballona; a weak trend from semiflexed to fully flexed burials was apparent over time. Semiflexed burials were slightly more common in the small Intermediate period sample (ratio of fully flexed to semiflexed = 0.8). Fully flexed burials, however, were more than twice as common as

Table 37. Prevalent Mortuary Attributes in the Ballona, by Period

Period	No. of Burial Features[a]	Burial Type	Orientation	Direction of Head Facing	Position	Flexure
Intermediate	26	inhumation without burning	northwest quadrant	southwest quadrant	supine	flexed (fully flexed, semiflexed, and flexed, degree indeterminate)
Intermediate through Mission	53	inhumation without burning	east, southeast	down	left side	fully flexed
Late	3	inhumation without burning	east	none prevalent	right side	semiflexed
Late through Mission	64	inhumation without burning	east	down, north	left side	fully flexed
Protohistoric through Mission	176	inhumation without burning	southeast	west, down	left side	fully flexed

[a] Includes only burials with primary individuals.

Table 38. Orientation of Primary Individuals in Burial Features in the Ballona, by Period

Orientation	Protohistoric through Mission Period	Late through Mission Period	Intermediate Period
East	32	14	1
North	4	1	5
Northeast	15	13	3
Northwest	9	2	—
South	23	5	1
Southeast	46	12	1
Southwest	12	7	3
West	12	—	5
Total	153	54	19

Note: $\chi^2 = 16.35$, $df = 9$, $p = .02$. When north, northwest, and west are collapsed, $\chi^2 = 15.98$, $df = 5$, $p = .007$. Cramér's $V = 0.28$ for both comparisons. Burials with indeterminate orientation are excluded from the table.

semiflexed burials among Late through Mission period groups (fully flexed to semiflexed = 2.2) and almost five times as common in the Protohistoric through Mission period (fully flexed to semiflexed = 4.7). The differences among these periods in flexure of primary individuals in the Ballona were not significant ($\chi^2 = 5.92$, $df = 3$, $p = 0.24$), and the association between flexure and period is weak (Cramér's $V = 0.17$) (Table 39).

- Furthermore, supine positions were more common than left-side positions in the Intermediate period, whereas supine positions were rare in the Late through Mission and Protohistoric through Mission periods, and left-side positions were dominant in these later times. The Intermediate period sample size was too small to test statistically for significant differences in burial position. Burial Feature 49, which was assigned to the poorly defined early Intermediate through Mission period, may in fact be an Intermediate period burial. Although fully flexed and oriented southeast, this individual was in a supine position.

- Perhaps equally important and related to these trends was the placement of burials in burial grounds. Most Intermediate and Late through Mission period burials were placed individually or in small groups that might have reflected family plots and showed little evidence for disturbance by later burials. By contrast, the Protohistoric through Mission period burials in the Ballona reflected the Late and Mission period pattern in the neighboring Chumash region, where burials were densely concentrated in small, tightly confined, communal burial grounds with extensive evidence for disturbance as new burials were placed on top of old ones. The shift from the more-open, semiflexed burials to the more-compact, fully flexed burials and the

Table 39. Flexure of Primary Individuals in Burial Features in the Ballona, by Period

Flexure	Protohistoric through Mission	Late through Mission	Intermediate
Extended	3	1	—
Fully flexed	113	33	5
Semiflexed	24	15	6
Flexed, degree indeterminate	6	—	6
Total	146	49	17

Note: $\chi^2 = 5.95$, $df = 3$, $p = .024$. Cramér's $V = 0.17$. Burial features for which we could not determine whether the individual was flexed to any degree were excluded from the table.

possible shift from supine burial to burial on the side may have been related to the development of these densely packed and tightly confined burial grounds as space within the burial ground became a premium, and the smaller the grave, the less the disturbance caused to preexisting burials.

- It is perhaps equally significant that cremation did not become more important as a burial practice when burial space became more compact and limited. To the contrary: cremation appeared to have been an important though uncommon practice in the Intermediate period. By the Protohistoric through Mission period, it appeared to have been incidental (see below).

As discussed earlier in the chapter, differences in burial practices could have reflected cultural differences (Whittlesey 1978). The changes in burial orientation from northwest in the Intermediate period to southeast in the Protohistoric through Mission period—along with the formation of compact, communal burial areas and related changes in body positioning—probably reflected important cultural changes in the Ballona. Such changes could have resulted from the appearance of new cultural groups with different ideologies. However, these changes cannot be attributed to the Takic invasion, which occurred during the Intermediate period, long before these changes took effect. These changes also may have been caused by greater interaction with the Chumash. The orientation of Chumash burials primarily to the west is noteworthy, however, and a shift in burial orientation did not occur in the Chumash area in the Late or Mission period (Martz 1984).

Cremation vs. Inhumation (Time and Space)

Cremations, partial or full, are uncommon in the Ballona, and most were recovered at LAN-62 (Table 40). The 10 sites in the Ballona yielded 27 cremated individuals in 23 burial features with primary individuals. Of these 27, 24 were primary individuals and 3 were additional individuals. Eleven of the 27 (10 primary individuals and 1 additional individual) were fully cremated; 16 (14 primary and 2 additional) were partially cremated. Seven (all primary individuals) of the 27 cremated individuals were found in primary contexts; 8 (7 primary individuals and 1 additional individual) were found in secondary contexts. For the rest (n = 12), cremation type was indeterminate. More primary cremations were partial than full, whereas the opposite was true for secondary cremations. Seven cremated individuals in 7 burial features dated to the Late through Mission period. Adults were the dominant age group among the cremated primary individuals (n = 16). Sex could be determined for fewer than 50 percent of the cremated individuals; among cremated primary individuals of determinate sex, 5 were adult females, 4 were adult males, and 1 was a nonadult.

Although cremations are found in the archaeological record and are reported in mission records, the practice was not standard among the Gabrielino/Tongva. Primary and secondary cremations, however, have important sociocultural implications. The primary cremations at LAN-62 were distinctive, because most were only partially burned. This cremation characteristic could have been an ecological adaptation to an environment in which large quantities of wood fuel may not have been readily available year-round in a coastal wetland area; alternatively, it could have been a distinctive Gabrielino/Tongva mortuary practice independent of ecological adaptation. The coastal sage scrub vegetation is not ideal for the high fuel requirements of cremations, because it does not produce adequate quantities of wood fuel and burns too rapidly to cremate the human remains fully. Approximately 400–600 kg of fuelwood is needed (depending on the type of wood used) to burn an average body completely (Dasgupta 2010; Lahiri 2007). In the Ballona, wood from *Salix* (willow), *Populus* (cottonwood), and *Platanus* (sycamore) stands in riparian habitats would have been more suitable than wood from the sage scrub. Soft wood, branches, and twigs are optimal for reducing a body, because they actually produce hotter fires (Elayne Pope, personal communication 2008). In this context, partial cremations in the Ballona may have been a product of periods when fuel was sparse. At LAN-63 (on the

Table 40. Cremations in Burial Features with Primary Individuals in the Ballona, by Site

Period	Burial Feature No.	Individual ID[a]	No. of Primary Individuals	No. of Additional Individuals	Age	Sex	Burial Type	Cremation Type	Artifacts
					CA-LAN-62				
Protohistoric through Mission	61	1	1	1	adult	male	partial cremation	indeterminate	13
Protohistoric through Mission	91	P	1	2	subadult	indeterminate	full cremation	secondary	4
Protohistoric through Mission	108	P	1	3	adult	male	partial cremation	primary	6
Protohistoric through Mission	108	1	1	3	adult	female	full cremation	indeterminate	6
Protohistoric through Mission	150	P	1	—	adult	indeterminate	partial cremation	indeterminate	5
Protohistoric through Mission	185	P	1	1	subadult	indeterminate	partial cremation	primary	9
Protohistoric through Mission	221	P	1	—	adult	female	partial cremation	primary	7
Protohistoric through Mission	273	P	1	—	adult	indeterminate	full cremation	primary	412
Protohistoric through Mission	363	P	1	—	adult	indeterminate	full cremation	indeterminate	225
Protohistoric through Mission	406	P	1	—	adult	female	partial cremation	indeterminate	20
Protohistoric through Mission	508	1	1	3	adult	male	partial cremation	secondary	14
Protohistoric through Mission	587	P	1	—	indeterminate	indeterminate	full cremation	secondary	13
Late through Mission	94	P	1	—	infant	indeterminate	full cremation	primary	2
Late through Mission	194	P	1	—	adult	indeterminate	full cremation	secondary	1
Late through Mission	231	P	1	2	subadult	female	partial cremation	indeterminate	15
Late through Mission	312	P	1	2	adult	female	partial cremation	indeterminate	14
Late through Mission	346	P	1	2	adult	male	partial cremation	primary	19
Late through Mission	410	P	1	—	adult	female	partial cremation	secondary	6
Late through Mission	426	P	1	—	adult	indeterminate	partial cremation	primary	121

Period	Burial Feature No.	Individual ID[a]	No. of Primary Individuals	No. of Additional Individuals	Age	Sex	Burial Type	Cremation Type	Artifacts
Intermediate through Mission	24	P1	2	1	adult	male	partial cremation	indeterminate	13
Intermediate through Mission	24	P2	2	1	adult	indeterminate	partial cremation	indeterminate	13
Intermediate through Mission	147	P	1	—	adult	indeterminate	partial cremation	indeterminate	—
Intermediate through Mission	241	P	1	—	infant	indeterminate	full cremation	indeterminate	—
Intermediate through Mission	364	P	1	—	adult	indeterminate	partial cremation	indeterminate	—
					CA-LAN-63				
Intermediate	587	P1	—	1	adult	female	full cremation	secondary	3,500
Intermediate	587	P2	—	1	subadult	male	full cremation	secondary	3,500
Intermediate	587	P3	—	1	child	indeterminate	full cremation	secondary	3,500

[a] P = primary individual; P1 = primary individual 1; P2 = primary individual 2; 1–9 = additional individual 1–9.

bluff tops), many of the bones were calcined, suggesting temperatures greater than 500°C. A significant amount of fuel and a long duration of burning would have been needed to achieve this temperature (Shipman et al. 1984; Walker and Miller 2005). This site was occupied at a time when the environment was wetter than it is today. Wood, therefore, may have been more abundant.

Secondary cremation probably occurred when individuals died away from home, perhaps during hunting trips. As Gould (1963) has suggested, carrying the remains back to the home village may have been easier if the individual had been cremated. Walthall (1999) argued that hunter-gatherer mobility and settlement patterns—for example, fall population aggregations and winter population dispersion—played an important role in how the dead were treated within these groups. When a death occurred during the dispersed period, attempts were often made to return the body to the band or family burial grounds. This often involved cremation and the return of the ashes to the burial area or other sacred place (Walthall 1999). The preparation of secondary "burials" through exposure or cremation reduced the body to a more portable size and weight (and preserved the remains). Such reduction allowed the remains to be returned, even over long distances and rough terrain, to special burial places. The return of the dead to a central place facilitated their inclusion in group rituals and in the validation of group continuity with ancestors. Such burial practices afforded the family and the corporate entity, the band, the opportunity to honor their dead in rituals that reinforced group solidarity and corporate ties to the landscape (Goldstein 1980; Hertz 1960; Saxe 1970; Walthall 1999). The return of the physical remains of these individuals to the group burial grounds or other sacred locations legitimized the rights of the group to their home territory and their claims of lineal descent from ancestors buried within these ritual spaces (Walthall 1999).

Protohistoric through Mission period cremations typically had very low frequencies of grave goods, with the exception of two cremation features (burial Features 273 and 363). Most of the grave goods in burial Feature 273 were wild-plant seeds and one stone vessel, and burial Feature 363 primarily had glass beads and no ground stone. By contrast, the Intermediate period cremations on the bluff tops (burial Feature 587 at LAN-63) contained large quantities of ritually broken and burned ground stone, whalebone, and small numbers of stone beads and other artifacts (Douglass et al. 2005). This feature was a mourning feature with cremated human remains. Many mourning features in southern California, including two other mourning features at LAN-63, did not contain human remains, and those that did had only fragments. Whether the features with human remains were true burials is not clear. Instead, they may have been mourning features into which remains of some individuals were added during the mourning ritual.

Still unresolved are why only some individuals were cremated whereas most of the population was buried and why some of the primary cremations at LAN-62 were partial cremations. In general, cremation was more frequent among the Gabrielino/Tongva than among the Chumash (Koerper and Fouste 1977; Wheeler 2004). Johnston (1962) stated that the Gabrielino/Tongva preferred cremation to burial later in prehistoric times; however, archaeological evidence suggests that flexed inhumation was the predominant practice (Hudson 1969; Koerper and Fouste 1977). Mission records suggest the same. Few cremations are documented in baptismal and burial records, and these probably were reported to the missions by Native Californian informants. In some cases, cremation of an individual at the native village suggests that distance to the burial area was not necessarily the only factor in the decision to cremate a particular body. Another important contributing factor could be related to distinct mortuary practices reserved for particular individuals (based on social, ritual, or religious standing in the group).

Cremations in the Ballona were similar to those identified at LAN-1595 (Yaanga) in that individuals were cremated soon after death and in that defleshing or tissue disintegration before cremation was minimal (Goldberg 1999; see Volume 4 of this series). Whereas all cremations at LAN-1595 were found in a secondary context, Ballona cremations included both primary and secondary contexts. The low frequency of cremation in the Ballona suggests that, although cremation was a practice embraced by the Gabrielino/Tongva, it may have been available to only a select minority of the population. Three reasons for selective cremation are possible. First, cremation could have been associated with the ritual role of the individual(s). For example, shamans and ritual-related individuals may have been cremated because of their unique status and role in society. Second, as suggested by Erlandson and Bartoy (1995), cremation may have been a way to minimize the spread of disease if the individuals cremated died of particular infectious diseases. For example, Preston (1996) argued that cremation would curtail the spread of infectious diseases (such as smallpox), and the cultural practice was explained as an effective method to kill the evil spirits, to protect the community. Finally, the individuals who were cremated may have been away from the home base, and their remains may have been cremated and brought back to the groups' burial grounds in the Ballona.

Health: Trauma and Pathological Conditions

Information on trauma and pathological conditions is summarized from Chapter 9, Volume 4 of this series. Several different types of trauma and pathological conditions associated with joint disease, inflammatory/infectious conditions, sharp- and blunt-force trauma related to interpersonal violence and ritual activity, and metabolic-related conditions have been identified at sites in the PVAHP. Most of the data come from the LAN-62 burials.

Osteoarthritis was noted on skeletal elements of 33 adults, including 19 males and 14 females, at LAN-62. The most commonly affected joints were elbows and shoulders for both sexes. This evidence is consistent with the interpretation that LAN-62 males were involved in more activity that employed the upper body, such as hauling nets or hunting with bows, and that females were engaged in food-procurement and food-processing activities, such as digging and grinding.

Albeit limited, data from other PVAHP sites are consistent with data recovered from LAN-62. Of the six individuals (four in burial features and two recovered as isolates) recovered from LAN-54, only two exhibited any skeletal pathological conditions. Both of these burials were estimated to have been interred during the early Intermediate period, on the basis of chronostratigraphic data. For the primary inhumation (a 35–39-year-old female) in burial Feature 3, the observed osteoarthritic changes are a typical manifestation of a specific behavior pattern that involves kneeling while using the arms to pound an object repetitively against a stable target (Capasso et al. 1999:127). At LAN-2768, osteoarthritis was observed to some degree in all three inhumations. For the primary inhumations in burial Features 108 and 112, osteoarthritis was restricted to the carpal phalanges. For the primary inhumation (an adult of indeterminate sex) in burial Feature 109, osteoarthritis was observed only on the tarsal phalanges.

Inflammatory and infectious conditions, such as periostitis and osteomyelitis, were observed on only a few individuals at LAN-62. Osteomyelitis was very rare at LAN-62 and was observed on only 1 right tibia and 1 left radius from 2 different individuals (primary inhumations of adult males in burial Features 277 and 606). Periostitis (inflammation of the periosteum) was comparatively more common than osteomyelitis at LAN-62 but still was relatively uncommon when LAN-62 is compared to the Malibu site, LAN-264 (Walker et al. 1996). Only 12 skeletal elements belonging to 10 individuals (1 infant, 1 child, and 8 adults) exhibited periostitis. More than half of the adults with evidence for periostitis were males, but by and large, this condition appeared on only 1 skeletal element per individual. The overall frequency of periostitis noted in the LAN-62 collection was strikingly different from those observed by Walker et al. (1996) for the Historical period and Middle period Malibu collections. Far less incidence of this condition was observed on the LAN-62 human remains than on those found at either of the components at Malibu. However, the dramatic difference in frequency probably was an effect of the lower sample size from LAN-62 (see Chapter 9, Volume 4 of this series). Barring differences in frequency, the remains associated with LAN-62 and the Middle period burials at Malibu shared a similar trend: some expression of periostitis, mostly in limb bones, with the greatest expression in the legs.

The primary inhumation (a 24–28-year-old female) from burial Feature 329 was remarkable in that this individual exhibited reactive areas on three elements: both humeri and the left fibula. The periosteal reactions on the humeri as observed in this individual are referred to as golfer's elbow (also known as medial epicondylitis) and tennis elbow (also known as lateral epicondylitis). Though these names imply a sports-related origin, the conditions known as golfer's elbow and tennis elbow often result from a variety of situations, including inflammation of tissue in these regions from overuse, separation of the tendons from the periosteum, or infection (Garden 1961:101; Kurvers and Verhaar 1995:1374; Nirschl and Pettrone 1979:832). Certainly, many activities in which this population might have engaged (e.g., mano use or throwing/hauling nets) could have resulted in these conditions through repetitive extension/flexion of the arms. One cannot discount the presence of periostitis on the left fibula, however. Though potentially unrelated, the involvement of the left fibula might indicate that these conditions originated from a more serious, systemic infection.

Evidence for interpersonal violence was noted in several burials and included both sharp- and blunt-force trauma and fractures. Interpersonal sharp-force trauma was observed on individuals in burial Features 305, 267, and 112. Three Cottonwood Triangular projectile points were embedded in the sacrum (base of spine), right innominate (hip bone), and midthoracic vertebra (upper-middle back) of an adult male in burial Feature 305, which did not have a primary individual (see Chapter 9, Volume 4 of this series). These wounds did not exhibit signs of healing. Individual 2, an adult possible female, in burial Feature 112 (which contained no primary individuals) had perimortem cut marks on the right maxilla that had been caused by an unknown sharp object (see Chapter 9, Volume 4 of this series). The adult female in burial Feature 267 exhibited six perimortem cut marks on the right tenth and eleventh ribs. A large chert blade was found beneath the right femur of this individual, and five of the six cuts appeared to have been made by the blade (see Chapter 9, Volume 4 of this series).

Evidence of interpersonal violence in the form of blunt-force trauma and fracturing of the cranium, the forearm, and, possibly, the ribs was also observed at LAN-62. Certainly, several factors might have resulted in such trauma. Though trauma from mundane sources or accidents (e.g., falling from a height) might have resulted in similar fractures, interpersonal violence appeared to have been a major cause of blunt-force trauma, especially on the cranium. Walker (1997:160) stated that targeting the head, and especially the face, during conflict is tactically advantageous, because these wounds can be debilitating, and the subsequent wounds and bruises are highly visible, asserting the aggressor's dominance over the victim. Furthermore, research shows that cranial trauma is more likely to be the result of violence among individuals between the ages of 15 and 50 years (Walker 1997:163).

Some postcranial fractures might also have indicated evidence of interpersonal violence. Unfortunately, separating accidental from intentional trauma, especially in long bones, is often difficult. Ortner (2003:143) wrote that "it is certainly plausible that many if not most fractures of the long bones, other than parry fractures, are the result of accidental causes." Following this assertion, only fractures believed to be "parry" fractures were included as evidence of interpersonal violence. These fractures (also known as nightstick fractures) are simple fractures of the ulna or radius usually resulting from direct trauma, such as one might receive while blocking a blow (Perry et al. 1995:107–108).

In addition to parry fractures, antemortem rib fractures were included. A recent study of domestic abuse found that injuries to the thorax were the next most common, after injuries to the head and face, in battered women (Muelleman et al. 1996:Table 2). Although cultural patterns of violence do not necessarily translate exactly across groups and through time, and modern analogs should be used with caution, modern clinical data can provide information regarding areas of the body that are more susceptible to injury.

For the skeletal remains at LAN-62, 14 fractures on the remains of at least eight adult individuals might have been attributable to interpersonal violence (see Chapter 9, Volume 4 of this series). Most of the evidence of trauma was found on the ribs or the cranium. Very little trauma was located on the ulna, and none was observed on the radius. Unfortunately, for some elements, association with a specific individual was not possible. Though the numbers were relatively small, some patterns were apparent.

Slightly more males than females exhibited trauma on the cranium. Females displayed evidence of trauma on more parts of the body than did males and had a slightly greater frequency of trauma overall. Of the individuals for whom sex could be determined, trauma to the face was exclusive to males, and postcranial trauma was exclusive to females. All but one of the fractures attributed to interpersonal violence were located on the anterior portions of skeletal elements. The exception was a single depression fracture found on a posterior cranial vault of a female individual, the primary inhumation from burial Feature 4. Nearly three times as many fractures were seen on the left side (n = 8) as on the right (n = 3).

Two individuals exhibited several fractures each. Both the mandible and the maxilla of the partially cremated primary individual (a 31–42-year-old male) in burial Feature 346 exhibited some antemortem trauma. The primary inhumation (a 17–25-year-old female) associated with burial Feature 234 displayed two broken ribs. Two individuals, the primary inhumation associated with burial Feature 341 and the partial cremation in burial Feature 346, exhibited partially healed cranial trauma, indicating that these individuals died as a result of, or because of complications from, this injury or other injuries that might have been sustained in addition to this wound. Cranial-vault trauma consisted of three healed or partially healed circular or elliptical depression fractures. Dimensions of two of these fractures indicated a mean diameter of approximately 17 mm. Although the shape of these fractures was comparable to that described by Walker (1989:316–317) on skeletal remains recovered from the Channel Islands, the fractures observed at LAN-62 were nearly twice as large (Walker 1989:Table 2). As suggested by Walker (1989:319), the wounds might have been inflicted by a weapon similar to a Gabrielino/Tongva war club, which was sometimes lined with wooden studs (McCawley 1996:Figures 31 and 32).

Although the frequency of trauma was low, the distribution of fractures had some social implications. First, the exclusivity of facial trauma and the absence of postcranial trauma in the males suggest that their wounds were inflicted in a situation in which the head was the focus for aggression, such as in close combat or in a duel similar to the one described by Walker (1989:320). The anterior (and left) placement of these fractures, where the individual probably was struck in the face by a right-handed assailant, helps to support this hypothesis.

The pattern of trauma on the female skeletons was similar to the pattern submitted by Muelleman et al. (1996) regarding battered women. The lack of trauma on the face, however, is interesting. As mentioned before, the face is one of the primary locations in cases of spousal abuse. Unfortunately, because soft-tissue damage and bruising would not appear skeletally, any injury that did not result in a fracture would be lost as supporting evidence. A word of caution: The similarity between the pattern of trauma observed at LAN-62 and that of injury from spousal abuse should not be misconstrued. As mentioned before, intent does not translate very well skeletally. Injury incurred from spousal abuse and from attack by a third party could look identical.

Ritual-related trauma was observed only on one individual: the partially cremated remains of an adult male, the primary individual in burial Feature 108. The feature, which dated to the Mission period, was located along the northern periphery of the main burial concentration, immediately south of the historical-period trench (Feature 16). The primary individual was complete, unlike other partial cremations at the site, and was interred in an extended prone position, oriented to the west. Associated grave goods, which consisted of one shell bead, a piece of carbonized wood, and four flaked stone artifacts, informed little on the social identity of this individual. Two ribs of this individual had deep cut marks that were similar to marks made during defleshing. According to Harrington (1934:45), ethnohistorical information gathered by Boscana indicates that Juaneño shamans were cremated and that a part of a shoulder near the neck of the deceased was removed during a precremation ritual. The location of the cut marks on the first rib, though extremely deep, could have been made by a blade inserted into the thoracic inlet, possibly during the removal of this tissue. Though the location for the cut marks on the second rib did not correspond to the location described in the ethnographic account, they might have represented a variation of this ritual or another activity altogether.

Metabolic and infectious conditions observed in the skeletal remains provided some insight into the relative health of the individuals. As discussed in greater detail in Chapter 9, Volume 4 of this series, among these varied pathological conditions, the most commonly referenced was iron-deficiency anemia. Forty-seven observations of porotic hyperostosis were recorded at LAN-62; two additional individuals exhibited some degree of cribra orbitalia. Males and females exhibited a similar distribution; slightly more males than females exhibited porotic hyperostosis. No individual exhibited both cribra orbitalia and porotic hyperostosis. Only a single individual from LAN-211 exhibited possible porotic hyperostosis. Limited instances of skeletal indicators of infection and malnutrition, such as porotic hyperostosis or cribra orbitalia, suggested that these individuals either were living comparatively healthier lives than those of nearby native populations or were succumbing to virulent illnesses before any major skeletal response. Regardless, when the burial population at LAN-62 was compared to that at LAN-264 (Walker et al. 1996), we found that, as with trauma, evidence of infectious disease appeared to be less at LAN-62.

In summary, trauma was less common than expected in the LAN-62 sample, especially in the Mission period population, and the results of the analysis contradicted Mission period accounts, which report that 30 percent of individuals died of trauma (accidental or intentional). The discrepancy could have been the result of a fundamental inability to categorize some trauma in the archaeological sample. Furthermore, the ECPP tabulations may not be representative of the true situation regarding causes of death among indigenous populations during the Mission period. Almost 35 percent of the individuals in the Mission records died as the result of disease (including cholera, rabies, smallpox, stroke, and others) (data from ECPP database, http://www.huntington.org/Information/ECPPmain.htm, accessed 2008–2011). Few of the individuals from LAN-62 exhibited lesions associated with infectious disease, suggesting that these individuals succumbed either to illnesses that rarely leave skeletal indicators, such as virulent infectious disease, or to deadly noninfectious ailments, such as cardiovascular disease, and probably not to chronic illnesses.

Wealth, Political Status, and Socioreligious Roles: Three Aspects of Social Order

Types of grave offerings found in association with deceased individuals provide powerful insights into the individuals' roles in the society/group and family. A wide range of material goods found in coastal southern California burials provides such insights, as suggested by ethnohistorical records and ethnographic interviews. Varying combinations and frequencies of these types of artifacts in southern California burial sites have been interpreted as indicative of social ranking and social and religious roles (Gamble 2008; Gamble et al. 2002; Martz 1984). Some artifacts, such as specific types of shell beads, ear spools, and pendants, are indicative of social differences; some artifacts, such as flutes, whistles, rattles, and others, are indicative of shamanism. Gamble (2008:243–247) identified artifacts that indicate prestige and ritual. These artifacts, associated with elite individuals, include personal adornment, ritual paraphernalia, and large vessels used for feasting. Gamble (2008:243) stated that these prestige goods were part of the Chumash system of wealth finance (D'Altroy and Earle 1985) and that the elite "exchanged these prestige goods to maintain their alliances and reinforce their power and rank." These elites were distinguished from the nonelite in life and death by these prestige goods or "accoutrements." Gamble (2008:244) further argued that destruction of prestige items through burial and mourning practices was one way to keep the value of the elite goods high. We have not adopted Gamble's (2008) prestige-artifact groups wholesale in our analysis because the Ballona burial data are distinct enough from the Chumash data to make direct comparisons difficult. As a result, we have used Gamble's (2008:243–247) details of artifacts associated with prestige and ritual, along with other data sets (including Martz's [1984] work at Malibu and other important sites along the Santa Monica Mountains and Santa Monica Bay), to create a more inclusive set of criteria. Our analysis is not focused on the identification of social order through wealth finance based on ethnohistorical data, as was the work of Gamble (2008), who relied heavily on ethnohistorical records and ethnographic data. Rather, our analysis is based primarily on archaeological data.

To examine the character of the social order in the Ballona, we distinguish the three social identities or statuses identified by Martz (1984) and Gamble et al. (2001). Prestige (political status) is associated with individuals of chiefly lineage and other political leaders. Wealth represents secular economic status that is obtained through exchange, ownership of means of production (such as the plank canoe), or membership in occupational guilds. Socioreligious status is associated with shamans, other ritual practitioners, or members of the *'antap* cult (Figure 92).

The presence of certain classes of artifacts within graves provides clues to the social identities of the dead. Large quantities of glass beads and different types of shell beads indicate wealth and social status, whereas unusual artifacts with suspected socioreligious or ritual functions are indicators of the socioreligious roles of the dead. In addition, we examine the distribution of other types of grave goods, such as common utilitarian artifacts, food remains, and introduced European goods, to explore the social identities of individuals. Lester Ross (see Chapter 6, Volume 3 of this series) has identified some types of glass beads as having high and highest values in the PVAHP collection. Ross included bead varieties 88 and 97 in the highest-value category, whereas bead varieties 14, 31, 46, 51, 63, 65, 68, 83, 86, 87, and 108 were placed in the high-value category (for details, see Chapter 6, Volume 3 of this series). Of the entire collection, only 2 glass beads in the highest-value category were recovered, and neither was from a burial. In addition, 21 high-value glass beads were recovered from nine burials (each containing a single high-value glass bead), one mourning feature (n = 7), and general burial-ground-midden contexts (n = 5). This overall distribution of high- and highest-value-glass-bead categories did not indicate a closer association of these beads with particular primary individuals in specific burials. The recovery of only 23 highest- and high-value glass beads from more than 58,000 glass beads in the PVAHP collection suggests that Ballona residents had extremely limited access to these

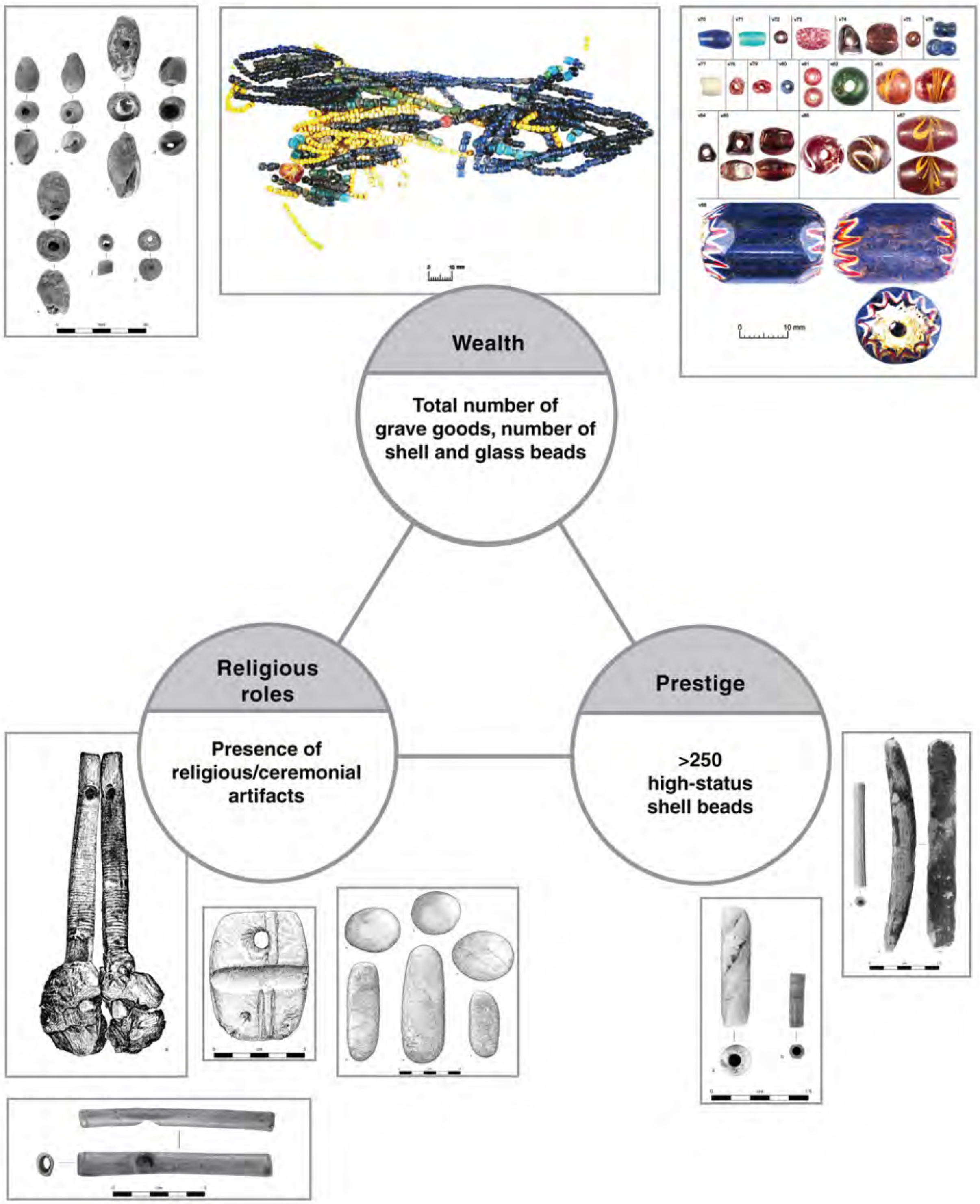

Figure 92. Model for social organization during the Protohistoric through Mission period in the Ballona.

prestige goods. Their low frequencies do not allow us to draw conclusions about their distributions with any confidence.

It is important to consider King's (2010) premise that the associations of materials with the burials do not reflect social status and rank of the dead alone; in addition, they are symbols of the survivors' efforts to negotiate political and social realms within the group. Other scholars have taken similar stances, that richness of burials does not necessarily translate to social ranking and differentiation (e.g., Carr 1995; Huntington and Metcalf 1979; Kamp 1998; Pearson 1982) but that the items placed in a grave indicate the many social identities of the dead (Joyce 1999).

Prestige Indicators

Martz (1984) and Gamble et al. (2001) used location of burials within a burial ground, depth of graves, and other variables related to grave preparation as primary indicators of status in their analyses of the Chumash burial grounds. These did not appear to be important factors in distinguishing status in the Ballona, especially at LAN-62, where placement within the burial ground was strongly influenced by temporal factors as burial locations shifted gradually to the south and southwest over time. Instead, we focus on the distribution of "high-status beads" as the primary indicator of prestige. The term "high-status beads" is used here for six shell-bead types: Pismo clam tube beads and cylinder beads, olivella saucer beads, red abalone epidermis disks, California mussel disks, and giant rock scallop tube beads. King (1974, 1981, personal communication 2005) identified these bead types as indicative of higher value and greater social status of the person with whom they were associated because of their time-intensive manufacture or showy/colorful appearance. Considering the locations of these high-status beads within the western and central portions of the burial area at Medea Creek (LAN-243), King (1974:89) interpreted the function of these beads as markers of higher status and as objects used in ritual exchange between spiritual leaders and chiefs. King (1974) contrasted the distribution of these high-status shell beads with beads such as olivella callus and lipped beads that also were relatively time intensive to manufacture but were not particularly showy or colorful. The latter were more widely distributed throughout the burial ground, suggesting to King (1974:88) that the olivella callus and lipped beads were used by people of all social classes as a medium of exchange. Abalone disks were often found in burials, strung with other types of shell beads, including olivella, Pismo clam, and California mussel shell beads. Harrington's Ventureño Chumash informant, Fernando Librado (quoted by Gibson 1976:89), noted abalone-bead-stringing patterns:

> They made the *'anqink'inini* necklace of *t'o* [California mussel], red and black abalone and the thinner of the [clam shells]. These beads were uncommon. Fernando never saw anyone make them but Teodoro. He made them for his daughter who was to marry a *wot* [chief] at Ventura. Teodoro made his daughter bracelets and a collar necklace of these beads.

Though not necessarily more difficult to manufacture, abalone beads were considered of slightly higher value because of their showy or colorful display (King 1974). On the basis of their distribution at the Medea Creek burial ground, King (1974:87) suggested that abalone beads were used by chiefs and other high-status individuals. However, Gibson et al. (2003:209) argued that, given their extensive manufacture during and following the Late period, abalone beads may have been used also by lower-status individuals as jewelry and ornaments or on special occasions.

King's interpretations of the correlations between particular types of shell beads and social status were based on direct analogies derived from ethnographic accounts of Chumash groups. For example, King (1974:91) also argued that disk beads were used as a badge of authority for secular and ritual leaders, rather than as a medium of exchange between individuals or households. Ethnographic accounts, however, indicate that disk beads were used as money in both socioeconomic exchange and ceremonial activities.

We acknowledge that King's (1974, 1981) framework of using particular shell-bead types as tangible criteria for discerning social status is not universally accepted by archaeologists researching the Chumash (Braje et al. 2008; John Johnson, personal communication 2014). For example, giant rock scallop beads are among the shell-bead types that King (1981) has associated with high social status among the Late period Chumash (see also Gifford 1947:46); however, Braje et al. (2008:229) extended the antiquity of these artifacts by 7,000 years and cautioned that although these shell beads may serve as status markers, their "occasional presence in much earlier sites raises questions about such interpretations."

Wealth Indicators

According to Martz (1984:25), secular economic status is represented by "wealth," which is measured by higher quantities of grave goods—in particular, glass and shell beads (more than 1,000 items per burial feature) and, especially, shell beads that have been identified as "money" that Native Californians used as a standardized medium of exchange (King 1990). As discussed above, shell beads were an important medium of exchange among Native American groups of southern California during both prehistory and the early Historical period. Shell beads generally were signs of wealth and status among both the Chumash and the Gabrielino/Tongva. Olivella shells were the shells most commonly used for beads in prehistoric California (Bennyhoff and Hughes 1987; Milliken and Schwittalla 2012).

One of Harrington's Mojave consultants noted that a yard-long string of olivella rough or chipped beads was worth a horse (Earle 2005:16). José Longinos Martínez's (1961:43) 1792 account describes the manufacture of metal-needle-drilled olivella beads used as currency: "Their currency is fashioned from a kind of snail shell, broken up and shaped one piece at a time into lentil-like beads, which they drill with our needles and then string, polishing them to the fineness they consider most desirable."

By contrast, Harrington (1942:27) provided an account of the use of olivella disk beads in ceremonial contexts, although they were clearly viewed as valuables. Fernando Librado, Harrington's Ventureño Chumash informant, described the following:

> For San Miguel Day [September] the old people used to commence in July to bore abalorio [shell-bead money] and on San Miguel Day they would shower it over the dancers. After the fiesta was over somebody came and gathered up the beads from the ground. Once a rich man in order to show his wealth cut a string of beads belonging to him and did not tie the ends of [it] but let the beads go all over for the poor people to pick up.

Gamble et al. (2001:208) noted that the sudden availability of large quantities of glass trade beads through economic influences created by European contact and trade, as well as an increase in the indigenous production of olivella disk beads, appears to have increased the amount of wealth available to indigenous populations in the Mission period. They attributed the increase in native production of shell beads to an attempt to counteract the inflation caused by glass beads as a new source of wealth. It is more likely, however, that this increased production was facilitated by the introduction of metal needles that greatly sped up the previously slow and tedious process of drilling beads with stone drills (King 1990). Such increased production undoubtedly served only to increase the rate of inflation.

Gamble et al. (2001) also argued that the use of glass beads and other items of European origin (colonial) as burial accoutrements is one indication of the strong influence that the colonists had on the Chumash, by providing new, nontraditional avenues for acquiring wealth and social status. This was also observed in the Ballona with the inclusion of glass beads and colonial items (such as metal objects and domesticated plants) in the burials. Glass beads, however, were often given to the Gabrielino/Tongva at the missions (see Chapter 9, this volume). Alternatively, the Ballona Gabrielino/Tongva may have collected these colonial items through economic interactions with local ranchos and the inhabitants of the Pueblo of Los Angeles. Gamble (2008:204; see also Bickford 1982) reported similar colonial items from burials at Humaliwo, and she suggested that these items were associated with *vaqueros,* or cowboys, who worked on the ranchos. The incorporation of indigenous Ballona residents into the local rancho or pueblo economy as house or field labor could have afforded these Gabrielinos/Tongvas opportunities to obtain colonial items, such as bottle glass, buttons, metal knives, ceramics, and the like. Another source of these colonial items would have been the Yankee smuggler ships that sailed the California coast during the late eighteenth and early nineteenth centuries. For example, a smuggler ship, the *Mercury*, was captured by a Spanish ship outside Santa Bárbara in 1813 and was confiscated for illegal trade along the California coast (Miller 2001). Some colonial items may have been scavenged from a possible shipwreck off the west side of Santa Catalina Island, hypothesized to have been the *San José*, a ship lost during the 1769 Portolá expedition (Daily 2008).

Socioreligious Indicators

Socioreligious roles are indicated by the presence of artifacts associated with socioreligious activities (Martz 1984:106–107). A number of artifacts found with the Ballona burials were nonutilitarian and nonornamental in function, and we suspect that they might have had socioreligious significance or that their special preparation in burials might have had such significance. These artifacts included bone wands, charmstones, crescents, crystals, gaming pieces, incised stones, musical instruments, palettes, pipes, plummets, rattle pebbles, and waterworn pebbles (Table 41). These artifacts were rare and were recovered primarily in mortuary contexts, suggesting that they may have had socioreligious and/or spiritual significance. Other unusual artifacts, such as shaft straighteners, may have had utilitarian functions but also were recovered only in mortuary contexts.

Transversely grooved arrow-shaft straighteners have been recovered from burials in the general southern California region, and small steatite vessels with grooves for straightening shafts on their exteriors were reported from Santa Catalina Island (Abbott 1879; Susan Haskell, personal communication to Henry Koerper 2007). Miniature shaft straighteners, possibly manufactured specifically for use as grave goods, were recovered from the Cuyamaca region of San Diego County (True 1970:92, Plate 6, Nos. 6 and 21). Archaeological evidence indicates that, in addition to the utilitarian use of these shaft straighteners, they were commonly deposited as ritual offerings. Shaft straighteners often were incised with a variety of patterns. Several explanations have been offered for the designs, including their use for pyrography (Aginsky 1943; Driver 1937:71–72; Drucker 1937), to indicate ownership (Bean 1978), as religious symbols perhaps to invoke hunting magic (Koerper 1985:36; Parkman 1985:36–37; Polk 1972:12), or simply as decoration (Kroeber 1908:54). Additionally, some designs may have had utilitarian purposes: for example, as grooves for abrading (Gifford and Schenck 1926:67), as ridges for bending cane arrow shafts at their joints (Kroeber 1908:53–54), as perforations for removing the heated shaft straightener from the fire, as levers to bend shafts (Cosner 1956:300; Mason 1907:92), or for suspension on a cord (Abbott 1879; Treganza 1942:157). Shaft straighteners have also been indicated to be associated with death ritual (Koerper et al. 2008). These objects are referenced in Chumash folklore as a weapon used by the culture hero to defeat a supernatural animal

Table 41. Socioreligious Artifacts Found in Ballona Burial Areas and Their Possible Associations

Artifact	Possible Association[a]
Stone effigy	shamanism
Waterworn pebble	shamanism
Crescent	shamanism
Stone pipe	shamanism/fertility
Charmstone/plummet/lozenge stone	shamanism/fertility
Quartz crystal	shamanism/fertility/weather
Shell rattle	shamanism
Bone flute, whistle	shamanism/performance of music
Datura (jimsonweed)	ritual performance/rites of passage
Bone wand	shamanism
Stone (steatite) tablet/plaque[b]	shamanism/mortuary
Ocher/pigment	mortuary performance
Sundisk/sunstick	shamanism/seasonal ritual performance
Grooved stone/shaft straightener	shamanism/fertility/hunting magic
Gaming piece	shamanism/fertility
Phallus-shaped pestle	shamanism/fertility
Comal	unknown

[a] From the following sources: Bickford 1982; Gamble et al. 2001; Goldberg 1999; McCawley 1996; McDougall and Mirro 2010; Koerper 2009; Koerper and Chace 2009; Koerper and Cramer 2009; Koerper and Desautels-Wiley 2010a, 2010b; Koerper and Mason 2010; Koerper et al. 2008; Koerper et al. 2010.
[b] Includes palettes.

(Blackburn 1975:104–112) and are cast in the Luiseño creation story as an object of power (DuBois 1908:138–148).

Therefore, the presence of these types of artifacts in particular burials may signify a social or ritual role for particular individuals (powerful people including healers, hunters, and warriors). For example, quartz crystals probably functioned as magico-religious items (Koerper et al. 2006). The archaeological literature attests to a regional practice of contributing crystals to graves: in coastal Takic territory (Bates 1972:44; DuBois 1908:92; Koerper and Drover 1983:23 [see also Koerper and Fouste 1977]; Winterbourne 1967:55), in Chumash territory (Abbott 1879; Ford 1887:13; Hudson and Blackburn 1986:155; Jones 1956:227, 230; King 1969; Schumacher 1875:349; Yates 1889, 1890, 1900), and in coastal Yuman territory (Moriarty 1982:85–87, 90–92).

Mortuary Offerings during the Intermediate Period in the Ballona

In general, in southern California, burials contained few, if any, grave goods before and during the Intermediate period. This pattern was true for the Ballona during the Intermediate period. In all, 26 burial features dated to the Intermediate period at these Ballona sites: 9 from PVAHP sites (3 each from LAN-54, LAN-193, and LAN-2768) and an additional 17 from four sites on the bluff tops (1 from LAN-61, 6 from LAN-63, 9 from LAN-64, and 1 from LAN-206A) (Table 42).

Shell Beads

No Intermediate period burials had any significant quantities of associated grave goods (excluding debitage), no high-status shell beads were found, and shell beads were generally rare. Stone beads were also rare. Only two burials (burial Features 475 and 587), both at LAN-63, contained shell beads, and these were the only shell beads identified at the site. Shell-bead types identified in these two burial features included both whole olivella shell beads and olivella wall beads. Almost all of these beads (16 of a total of 18) were deposited in a mourning feature (burial Feature 587) that contained other artifacts, including ground stone and stone beads. This evidence suggests that although individuals with high-status roles may have existed in Intermediate period society, these roles were not overt or marked with badges of authority.

Socioreligious Artifacts

Socioreligious artifacts in Intermediate period burial features included ground stone tools (pestles, manos, metates, and bowls), stone ornaments and beads, shell pendants, worked bone, ocher, and shaft straighteners. Normally, one would

Table 42. Selected Grave Goods from Intermediate Period Burial Features in the Ballona

Site No. (CA-)	Feature No.	Projectile Point	Biface	Core	Debitage	Hammerstone	Asphaltum	Pestle, Mano, Metate, or Bowl	Shell Pendant	Shell Bead	Stone Ornament or Bead	Worked Bone	Ocher	Shaft Straightener	Total
LAN-54															
	3	—	—	1	6	—	—	—	—	—	3	—	—	—	10
	6	—	—	—	4	—	—	—	—	—	—	—	—	—	4
	11	—	—	—	2	—	—	—	—	—	—	—	—	—	2
LAN-61	none	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LAN-63															
	475	—	—	—	10	—	—	—	—	2	1	1	—	1	15
	480	—	—	5	105	—	—	1	—	—	—	—	1	—	112
	492	—	—	—	160	—	—	—	—	—	—	—	—	—	160
	600	—	—	—	11	—	—	—	—	—	—	—	—	—	11
	617	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	587	—	—	1	87	—	64	54	3	16	6	7	9	—	247
LAN-64															
	32	—	—	1	2	—	—	—	—	—	—	—	—	—	3
	43	—	—	—	86	—	1	—	—	—	—	—	—	—	87
	52	—	—	—	22	—	—	1	—	—	8	—	1	—	32
	56	—	—	1	35	—	—	—	—	—	2	—	—	—	38
	61	—	—	—	3	—	—	—	—	—	—	—	—	—	3
	62	—	—	—	3	—	—	—	—	—	2	—	—	—	5
	64	—	—	—	62	—	—	—	—	—	4	—	—	—	66
	65	—	1	—	17	1	—	—	—	—	6	—	—	—	25
	66	—	—	—	10	—	—	2	—	—	7	—	—	—	19
LAN-193															
	101	2	—	3	1,053	—	—	2	—	—	—	7	—	—	1,067
	214	—	—	—	2	—	—	—	—	—	—	—	—	—	2
	216	—	—	—	1	—	—	—	—	—	—	—	—	—	1
LAN-206A	100	—	—	—	9	—	—	—	—	—	—	—	1	—	10
LAN-2768															
	108	—	—	—	2	—	—	—	—	—	—	—	—	—	2
	109	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	112	—	—	1	7	—	—	—	—	—	—	—	—	—	8
Total		2	1	13	1,699	1	65	60	3	18	39	15	12	1	1,929

not consider ground stone tools socioreligious artifacts, given their utilitarian function. The large mourning feature, burial Feature 587, at LAN-63 contained 54 whole and fragmentary pestles, manos, metates, and bowls. Some of these broken vessels were manufactured from steatite, and large quantities of steatite flakes were present in both burial Feature 587 and a nonburial ritual feature, nonburial Feature 11. Nonburial Feature 11, also interpreted as a mourning feature, contained similar numbers of ground stone artifacts and broken steatite vessels as well as an extraordinarily large (approximately 2-m-long), broken sandstone pestle. Many of these artifacts from burial Feature 587 and nonburial Feature 11 showed no evidence of use and appeared to have been produced specifically to be destroyed in these mourning features. Many were also covered in ocher and sprayed with asphaltum. Significantly, the socioreligious artifacts were not associated with any individual Intermediate period graves but, rather, with communal mourning features. This evidence suggests that although individuals with important socioreligious roles may have existed in Intermediate period society, those roles were masked or downplayed in death (Martz 1984).

Utilitarian Artifacts

Utilitarian artifacts in Intermediate period mortuary contexts included projectile points, a biface, cores, a hammerstone, debitage, and asphaltum. Although grave goods were rare, all but 3 burials (burial Feature 109 at LAN-2768, burial Feature 617 at LAN-63, and an unnumbered burial feature at LAN-61, none of which had grave goods) had at least one of these types of goods. The most ubiquitous artifact among burials was debitage, which was reportedly found in 23 of the 26 burial features. The amount of debitage varied among burial features that had debitage, from a low of 1 piece (burial Feature 216 at LAN-193) to a high of 1,053 pieces (burial Feature 101 at LAN-193). Burial Feature 101 at LAN-193, in the lowlands, had 2 projectile points (a Cottonwood Triangular point and a Marymount point with asphaltum on the hafting element) and 1,053 pieces of debitage, 16 fire-affected rocks, 1 manuport, and 1 metate. (As noted earlier, Cottonwood Triangular points date to a range beginning as early as 1350 cal b.p. and ending in the Protohistoric through Mission period [Koerper et al. 1996]). Most burials were placed in midden; therefore, at least some of the debitage identified may not have been grave goods.

Utilitarian items other than debitage were extremely rare in Intermediate period burials besides burial Feature 587 at LAN-63. Although many Intermediate period burials may have had one or two types of utilitarian artifacts, burial Feature 587 contained several types, partly because it was a communal mourning feature, not just an individual burial. Burial Feature 587 may have been used several times for departed community members. In general, sites below the bluff had lower quantities of grave goods (other than debitage) per burial than sites on the bluff tops.

Food Remains

In general, the food record for Intermediate period sites was poor, and such data for burials were scarce. Some evidence of food remains was associated with Intermediate period burials, however. Most of these burials contained small amounts of bone, shell, and seeds, although it is unclear whether these remains were directly associated with the burials themselves or were background noise from the surrounding midden into which the burials had been placed.

At upland sites (LAN-63, LAN-64, and LAN-206A), most of the macrobotanical material collected was not carbonized, and pollen samples had very poor preservation. Both above and below the bluffs, many Intermediate period macrobotanical remains that were carbonized (suggesting prehistoric origin) were highly fragmentary and/or had lost enough surface detail that they could be assigned only roughly to family or, occasionally, to genus. Burial Feature 56 at LAN-64 was unusual in containing 35 carbonized *Schoenoplectus* cf. *californicus* (California bulrush) seeds, numerous whole and fragmentary grass seeds, and a variety of other carbonized seeds too fragmentary to be identifiable. This discovery may suggest that sedge and the other plant remains were placed within this burial. At LAN-54, burial Features 3 and 6 contained relatively high frequencies of *Schoenoplectus* cf. *californicus* compared to those of control contexts, suggesting that this seed-bearing plant was intentionally included in the burials. Overall, evidence of food offerings in mortuary contexts during the Intermediate period was rare.

Mortuary Offerings during the Late Period and the Late through Mission Period in the Ballona

Insight into mortuary offerings during the Late period and the Late through Mission period in the Ballona is gleaned from 67 burial features at LAN-62. These burials, with a single primary individual per burial feature, consisted of 3 burial features dated to the Late period and 64 dated to the Late through Mission period. Most of the primary individuals in these burials were adults (81 percent), and adult females were more numerous than adult males (ratio = 2.45:1), although sex could not be determined for 10 adults (18 percent of all adults). In terms of spatial distribution of burials by age, nonadults and adults were located in the main concentration and on the periphery of the burial area, to the east and north. The spatial distribution of males did not differ from that of females.

The burial features dating to the Late period and the Late through Mission period at LAN-62 were categorized into four groups based on frequency of grave goods: high frequency of grave goods (more than 1,000 items per burial feature), moderate frequency (500–1,000 per burial feature), low frequency (100–500 per burial feature), and very low frequency (fewer than 100 per burial feature) (Table 43). The frequency of grave goods was determined largely by shell-bead frequencies, in that this artifact was the most common type (84 percent) of grave goods. Almost all (96 percent) of the burial features in these temporal groups fell into the category of very low frequency of grave goods, and only one burial fell into each of the other three frequency categories.

Shell Beads

Shell beads were the most common type of grave goods in the Late period and Late through Mission period burial features and were recovered from all burial features in these temporal groups, in frequencies of 1–1,258 per burial. Significantly, none of the beads was of the specific types considered to have served as money. Burial Feature 174, that of an adult female, located in the south-central part of the burial ground (see Figure 87), contained 1,283 grave goods, including 1,258 shell beads, 585 high-status (both fused and unfused) shell beads, and 20 stone beads: the largest single collection of high-status beads in the burial ground from any period. The mortuary attributes of this burial were typical of Mission period burials of females: a southeast-oriented, fully flexed individual positioned on her left side, with her face down. As Mission period beads, especially semiground disk beads, were the most ubiquitous bead types at LAN-62, their absence from such a large collection as that found with burial Feature 174 probably was not due to chance and suggests that this individual predated the Mission period. Furthermore, stone beads were proportionately more common in pre–Mission period contexts, and the number of stone beads in burial Feature 174 would have been very unusual for a Mission period burial. The highest frequency of stone beads in a Mission period burial was only 7 (burial Feature 120), and no others had more than 3 or 4. The location of this burial on the periphery of the burial ground was also consistent with a pre–Mission period age. Burial Feature 316, that of a subadult of indeterminate sex, contained 639 shell beads, of which only 4 were high-status beads, 435 were olivella bushing shell beads (including 7 fused beads), 1 was an olivella cylinder bead, and 199 were beads of unknown type. Neither burial Feature 174 nor burial Feature 316 contained notable numbers of other burial goods. The individual in burial Feature 316 was fully flexed on its left side and oriented to the southeast, with the head facing northwest. Burial Feature 426, that of a primary partial cremation located on the northwestern edge of the burial ground, contained 121 items, only 12 of which were shell beads; none was a high-status bead. Also present were several projectile points, bifaces, and other stone tools. The most-abundant artifacts in this burial feature, however, were basketry fragments and cordage. For the 67 burial features analyzed, the distribution of high-status shell beads was noteworthy in that many burial features had very low frequencies of grave goods, but of the 27 burial features with high-status shell beads, 25 had very low frequencies of grave goods.

Socioreligious Artifacts

Ten items indicative of socioreligious roles were recovered from the Late period and Late through Mission period burials. These items consisted of six bone wands, three waterworn pebbles, and one shaft straightener, which were recovered from seven burial features. (One of the functions of waterworn pebbles could have been magico-religious [Koerper et al. 2009].) The primary individuals in these burial features were one adult female (burial Feature 398), two adults of indeterminate sex (burial Features 271 and 426), two subadults of indeterminate sex (burial Features 316 and 368), one child of indeterminate sex (burial Feature 219), and one fetus/infant of indeterminate sex (burial Feature 476).

The single shaft straightener was recovered from burial Feature 271; it was placed among thousands of carbonized *Calandrinia* sp. seeds. This feature contained a single primary inhumation of an adult of indeterminate sex placed in a semi-flexed position on its right side, oriented to the northeast, with head facing up. Scattered skeletal remains of three additional individuals were found in the feature. According to ethnohistorical records, *Calandrinia* was used by aboriginal populations for its medicinal qualities and ritual properties, and the seeds also were used ceremonially as ritual offerings (Timbrook 2007). This cache of *Calandrinia* seeds was placed approximately 7.5 cm east of the anterior side of cranium of the primary individual and probably was an offering. Shell beads and steatite fragments were also found scattered around the individual. In addition to these, 1 bone wand, cordage, 21 high-status shell beads, 1 biface, 2 ground stone fragments, and fire-affected rock were recovered from burial Feature 271. On the basis of this evidence (in particular, the shaft straightener in association with *Calandrinia* seeds and bone wand), we infer that this was an individual of socioreligious importance. As noted, this burial also contained a small number of high-status shell beads. The fetus/infant in burial Feature 476 had a bone wand and 10 high-status shell beads; this infant may have been related to an individual of socioreligious importance.

Burial Feature 316 (see above) also had two bone wands; white, fibrous botanical material, probably grass chaff, was located immediately north of the cranium and may have been the remnants of pit lining or clothing. Bone wands were also recovered from another subadult (burial Feature 368), an adult female (burial Feature 398), and a fetus/infant (burial Feature 476). Of these three burials with wands, only burial Feature 476 had high-status shell beads (n = 10). Wands were restricted to Late period and Late through Mission period burial features; none was found in Intermediate period or Protohistoric through Mission period contexts.

Overall, the relationship among demography, socioreligious artifacts, and other aspects of society appeared to be weak. The single adult female with numerous high-status and other

Table 43. Summary of Grave Goods in Late Period and Late through Mission Period Burial Features at LAN-62, by Artifact-Frequency Category

Grave Goods	High (Burial Feature 174)		Moderate (Burial Feature 316)		Low (Burial Feature 426)		Very Low (n = 64 burial features)		Total	
	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts
Shell										
All shell beads	1,258	98.1	639	99.2	12	9.9	490	60.3	2,399	83.8
Shell beads, high-status fused	221	17.2	—		—		20	2.5	241	8.4
Shell beads, high-status unfused	364	28.4	4	0.6	—		125	15.4	493	17.2
Shell beads, non–high-status fused	319	24.9	7	1.1	8	6.6	49	6.0	383	13.4
Shell beads, other[a]	354	27.6	628	97.5	4	3.3	296	36.4	1,282	44.8
Shell ornaments	—		—		—		4	0.5	4	0.1
Shell tools	—		—		—		12	1.5	12	0.4
Asphaltum-covered shell	—		—		—		3	0.4	3	0.1
Stone tools										
Projectile points	—		—		3	2.5	8	1.0	11	0.4
Bifaces	—		—		2	1.7	19	2.3	21	0.7
Other flaked stone tools	—		1	0.2	6	5.0	68	8.4	75	2.6
Ground stone artifacts	—		—		1	0.8	20	2.5	21	0.7
Organic remains										
Wild animals	1	0.1	—		—		7	0.9	8	0.3
Wild-plant seeds[b]	—		—		—		—		—	
Basketry	—		—		18	14.9	8	1.0	26	0.9
Cordage	—		1	0.2	76	62.8	11	1.4	88	3.1
Wood plank	—		—		1	0.8	—		1	<0.1
Other										
Stone beads	20	1.6	—		—		32	3.9	52	1.8
Fire-affected rock	2	0.2	—		—		101	12.4	103	3.6
Tarring pebble	1	0.1	—		—		4	0.5	5	0.2
Bone artifacts	1	0.1	1	0.2	—		19	2.3	21	0.7
Socioreligious artifacts	—		2	0.4	1	0.8	7	0.9	10	0.3
Asphaltum	—		—		1	0.8	—		1	<0.1
Total	1,283	100.0	644	100.0	121	100.0	813	100.0	2,861	100.0

Note: Artifact-frequency categories are as follows: high = more than 1,000 items per burial feature, moderate = 500–1,000 items per burial feature, low = 100–500 items per burial feature, very low = fewer than 100 items per burial feature. Total number of burial features analyzed = 67 (3 Late period burial features and 64 Late through Mission period burial features).

[a] Shell beads that are neither high status nor fused.

[b] In total, 89,827 carbonized seeds of *Calandrinia* (redmaids) were recovered from burial Feature 271, in association with a steatite shaft straightener. These seeds are not included in this table because they would skew the results.

beads had no items of socioreligious function; only two (burial Features 316 and 426) of the seven burial features with socioreligious artifacts had more than very low frequencies of grave goods, and none had more than a handful of high-status beads. No association of socioreligious artifacts with age and sex was apparent. Three of the seven individuals with socioreligious artifacts were adults, and only one could be identified to sex. Mortuary attributes were not unusual, except that the primary individual in burial Feature 426 was cremated.

Utilitarian Items

Utilitarian artifacts included projectile points, bifaces, debitage, cores, utilized flakes, hammerstones, ground stone artifacts (including vessels), shell tools, bone tools, basketry, cordage, a wood plank, and asphaltum. The most-common utilitarian items in the Late period and Late through Mission period burial features were debitage and cordage, followed by basketry. Most Late period and Late through Mission period burials had at least one of these types of goods (only 12 burials did not have utilitarian items), and the most ubiquitous artifact among burials was debitage. Burial Feature 174 (with the highest frequency of grave goods) had only one utilitarian artifact (a bone tool). Similarly, burial Feature 316 (that of a subadult of indeterminate sex with a moderate frequency of grave goods) had only three utilitarian items (a flaked stone tool, a bone tool, and cordage). Therefore, the two burial features with the greatest frequencies of grave goods had few utilitarian items. There was no apparent association of particular utilitarian artifacts with a particular age or sex of the primary individual in the burial feature, with the exception of the basket and cordage fragments, which were recovered mainly with adults.

Food Remains

Food remains in the form of faunal remains were recovered from eight burial features that ranged from high to very low in grave-goods frequency. Carbonized seeds were recovered only from burial Feature 271, in the form of *Calandrinia* seeds, with a shaft straightener. Although *Calandrinia* can be both consumed as food and used ritually, the association of these seeds with the shaft straightener suggested a ceremonial role for these seeds rather than use as a food offering. (Shaft straighteners often are associated with ritualized behavior in California [Koerper 2006, 2007; Koerper et al. 2008].)

Mortuary Offerings during the Protohistoric through Mission Period in the Ballona

The two Protohistoric through Mission period burials from LAN-211 did not contain grave goods; thus, this analysis focuses on the 174 Protohistoric through Mission period burials from LAN-62. To facilitate the analysis of the Protohistoric through Mission period burial features, burial features from LAN-62 were grouped into the same four categories, based on frequency of grave goods (high, moderate, low, and very low), used for Late period and Late through Mission period burials (see above). The distribution of selected grave goods in these groups is presented in Table 44 and is mapped in Figure 93. Glass beads and shell beads were the most frequent and abundant types of grave goods at LAN-62. Most of the burial features (70 percent) were in the category with the lowest frequency of grave goods, and only 13 percent of the burials were in the category with the highest frequency of grave goods.

Shell Beads and Ornaments

Together, shell beads and glass beads constituted most of the grave goods found in Protohistoric through Mission period burials, ranging from 79.5 percent of the grave goods in burial features with very low grave-goods frequencies to 99.2 percent of the grave goods in the category with the highest frequencies (Figure 94). Fused (including both high-status and non–high-status) shell beads constituted a high proportion of the total shell-bead count. Olivella shell beads dominated the grave goods at LAN-62 and accounted for 90 percent of the shell beads from all burials. Other shell-bead types were found in low quantities in all frequency groups, and no clear pattern was seen in the variation of shell types: both local (California mussel, clam, gastropods, and Pismo clam) and nonlocal (abalone, olivella, and giant rock scallop) shell was present in all four groups in largely similar frequencies.

A few bead types dominated the collection from LAN-62 burial features. Semiground disks, which became common in the late Mission period, constituted more than half of the collection, followed in decreasing frequency by olivella disks of unknown type (9.2 percent), bushings (7.3 percent), and red abalone epidermis disks (4.7 percent). Some researchers believe that the two most common bead classes (disk and callus) were used as media of exchange and that disk beads were used in ritual activities. In all, 26 giant rock scallop beads were recovered from a few burial features with low frequencies of grave goods. King (1974:89) noted that giant rock scallop beads were associated, in portions of the Medea Creek burial ground, with spiritual and secular leaders. In the Ballona, however, giant rock scallop beads were not associated with burials that had high frequencies of either grave goods or sacred items, such as crystals, ocher, charmstones, and other ritual-related artifacts.

At LAN-62, fused and unfused high-status beads (as defined by King 1974) accounted for only 7.8 percent of the shell beads among the Protohistoric through Mission period burials, as might be expected for high-status items. Although high-status beads were widely distributed throughout the burial ground at LAN-62, both fused and unfused specimens

Table 44. Summary of Grave Goods in Protohistoric through Mission Period Burial Features at LAN-62, by Artifact-Frequency Category

Grave Goods	High (n = 22 burial features)		Moderate (n = 12 burial features)		Low (n = 20 burial features)		Very Low (n = 120 burial features)		Total	
	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts
Shell										
All shell beads	53,968	75.4	5,188	64.7	2,180	48.4	1,487	56.6	62,823	72.5
Shell beads, high-status fused	994	1.4	396	4.9	46	1.0	83	3.2	1,519	1.8
Shell beads, high-status unfused	2,258	3.2	561	7.0	178	4.0	376	14.3	3,373	3.9
Shell beads, non–high-status fused	21,822	30.5	1,580	19.7	753	16.7	268	10.2	24,423	28.2
Shell beads, other[a]	28,894	40.4	2,651	33.1	1,203	26.7	760	29.0	33,508	38.7
Shell ornaments	16	0.02	8	0.1	3	0.1	8	0.3	35	0.04
Shell tools	6	0.01	2	0.02	1	0.02	5	0.2	14	0.02
Abalone, nonornament	2	0.003	2	0.02	2	0.04	1	0.04	7	0.01
Asphaltum-covered shell, nonornament	—		—		—		3	0.1	3	0.003
Stone tools										
Projectile points	5	0.01	4	0.05	4	0.1	32	1.2	45	0.1
Other flaked stone tools	43	0.1	10	0.1	30	0.7	154	5.9	237	0.3
Ground stone artifacts	84	0.1	4	0.05	6	0.1	35	1.3	129	0.1
Comales	18	0.03	—		—		—		18	0.02
Organic remains										
Domesticated animals	1	0.001	—		—		—		1	0.001
Wild animals	3	0.004	1	0.01	—		11	0.4	15	0.02
Domesticated-plant seeds	18	0.03	8	0.1	—		21	0.8	47	0.1
Wild-plant seeds	291	0.4	402	5.0	410	9.1	195	7.4	1,298	1.5
Basketry	8	0.01	—		7	0.2	18	0.7	33	0.04
Cordage	4	0.01	—		1	0.02	1	0.04	6	0.01
Metal and glass										

continued on next page

Grave Goods	High (n = 22 burial features)		Moderate (n = 12 burial features)		Low (n = 20 burial features)		Very Low (n = 120 burial features)		Total	
	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts in Group	n	Percent of Artifacts
Glass beads	16,986	23.7	2,367	29.5	1,849	41.0	601	22.9	21,803	25.2
Glass items, other[b]	1	0.001	2	0.02	1	0.02	—		4	0.005
Metal items[b]	34	0.05	4	0.05	4	0.1	4	0.2	46	0.05
Fragmentary metal items	16	0.02	2	0.02	3	0.1	3	0.1	24	0.03
Other										
Bone artifacts	5	0.01	5	0.1	1	0.02	31	1.2	42	0.05
Grave markers	—		1	0.01	—		—		1	0.001
Socioreligious artifacts[c]	26	0.04	11	0.1	3	0.1	15	0.6	55	0.1
Total	71,535	100.0	8,021	100.0	4,505	100.0	2,625	100.0	86,686	100.0

Note: Artifact-frequency categories are as follows: high = more than 1,000 items per burial feature, moderate = 500–1,000 items per burial feature, low = 100–500 items per burial feature, very low = fewer than 100 items per burial feature. Total number of burial features analyzed = 174.

[a] Shell beads that are neither high status nor fused.

[b] Complete or nearly complete artifacts only.

[c] Nonutilitarian, possibly ritual related (bone wand, charmstone, crescent, crystal, *Datura* [jimsonweed] seeds, gaming pieces, incised stone, musical instrument, palette, perforated disk, pipe, plummet, rattle pebbles, shaft straightener, sunstone, and waterworn pebbles).

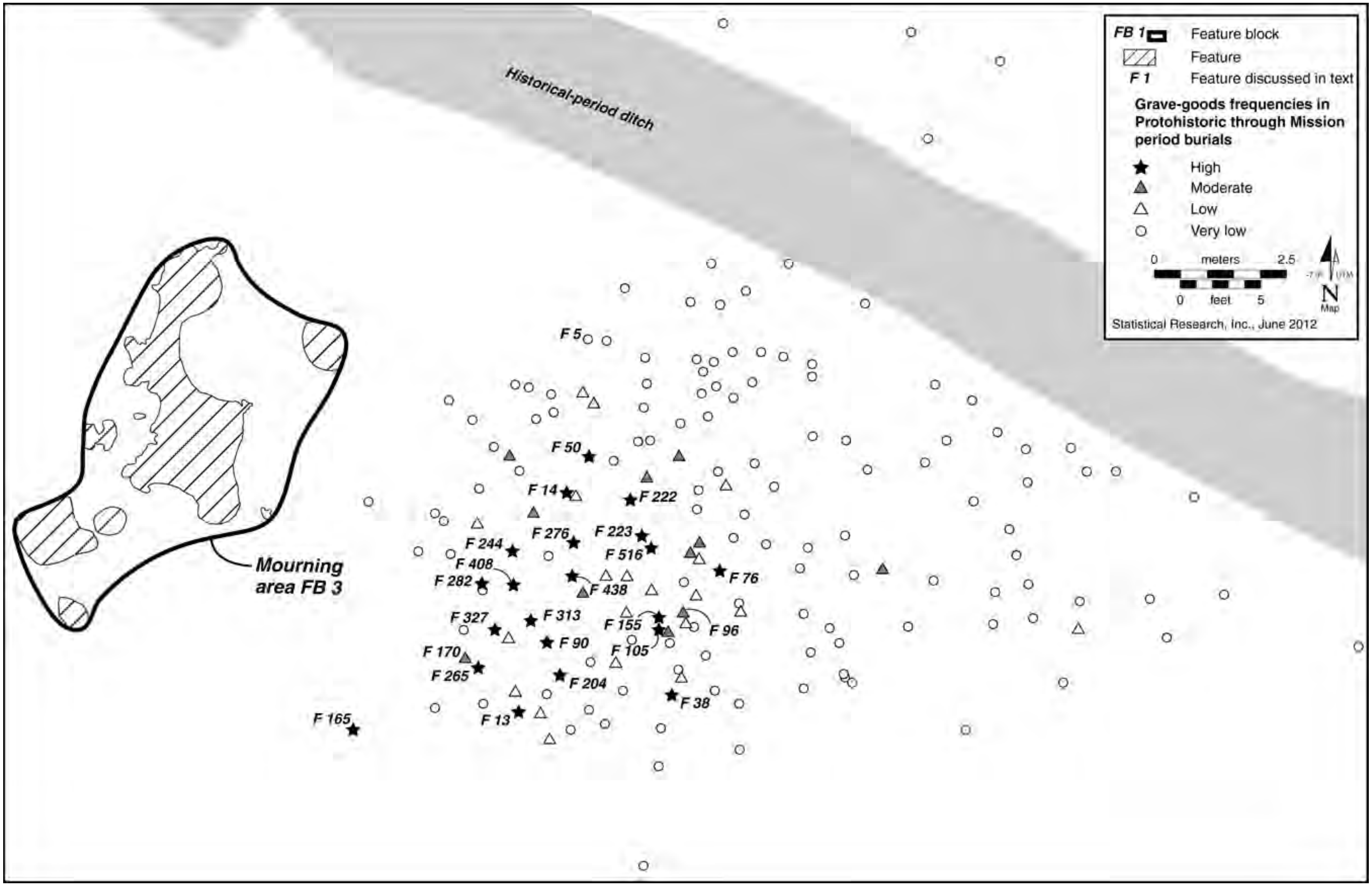

Figure 93. Protohistoric through Mission period burials at LAN-62, by grave-goods frequency. (See text for definitions of frequency categories.)

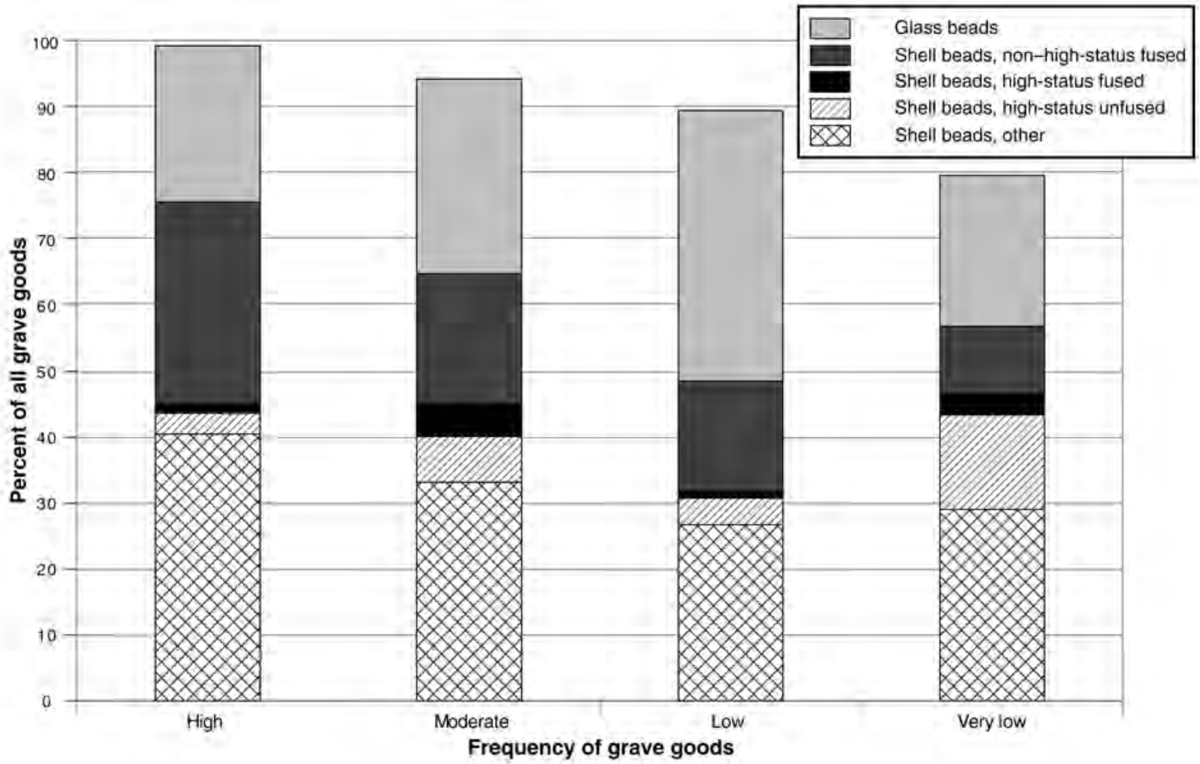

Figure 94. Percentages of grave goods that are shell beads and glass beads, by grave-goods frequency, LAN-62.

of these beads were most abundant in the graves of individuals with the highest frequencies of grave goods. Ninety-six (55 percent) of the Protohistoric through Mission period burial features contained high-status beads. High-status beads, however, were clearly concentrated in burial features with the highest frequencies of grave goods. Of the 4,892 unfused and fused high-status beads recovered from burial features at LAN-62, 3,252 (66.5 percent) were recovered from 22 burial features with more than 1,000 artifacts, for an average of approximately 148 per burial feature; 957 were recovered from 12 burial features with 500–1,000 artifacts, for an average of 87 high-status beads per burial feature. By contrast, only 683 high-status beads were recovered from 135 of the 140 burial features in the two groups with low and very low frequencies of grave goods. A higher percentage of burials of adult females (44 percent) than burials of adult males (16 percent) had high-status beads. However, the average number of high-status beads per burial was 44 for adult males but 31 for adult females. The average number of high-status beads was higher for burials of adults than for burials of nonadults. The burial features with the highest number of high-status beads also included those of fetuses or infants. The primary individual in burial Feature 105, for example, was a fetus with 5,073 grave goods, including 536 high-status shell beads. Burial Feature 313, which contained an adult of indeterminate sex and a fetus, also had more than 5,000 grave goods (n = 5,108), as well as 365 high-status beads. None of the items in this burial feature, however, was directly associated with the fetus.

Thus, although high-status beads were concentrated in the burials of wealthier individuals (as measured by frequency of grave goods) at LAN-62, they were not restricted to these individuals but were widely distributed throughout the burial ground. Furthermore, high-status beads constituted a much larger proportion of the grave goods in burial features with very low frequencies than they did in those with the highest frequencies. Also, a larger percentage of burials of adults (especially those of females) than burials of nonadults contained high-status beads. Given the widespread distribution of high-status beads, their cultural value for the Gabrielino/Tongva may have been different from their value for the Chumash.

The burial area also contained most of the nonbead shell ornaments found at LAN-62. In all, 35 shell ornaments were recovered from 15 burial features, including burials of 8 adult females, 1 adult of indeterminate sex, 4 nonadults, and burial Features 38 and 313, each of which contained 2 primary individuals. Among the ornaments included in these features were 2 rectangular abalone ornaments with decorative lines incised around the perimeters of the ornaments (Gifford Type S5bII, in burial Feature 5), a red abalone disk ornament with a central perforation (Gifford Type K1, in burial Feature 96), and a Euroamerican-made mother-of-pearl button (two-hole sunken panel, in burial Feature 170). Burial Feature 170 also had 3 abalone ornaments with single perforations (Gifford Type K1); 1

of the perforated disks was fused to approximately 75 olivella tiny saucers. The abalone disks were found adjacent to clusters of fused olivella beads that probably were parts of strands. The abalone disks and the olivella beads probably were strung together, originally. Burial Feature 438 contained 5 shell ornaments, including an abalone disk ornament with a single perforation (Gifford Type K1), 2 abalone rectangular ornaments with single perforations and incised edges (Gifford Type S5bII), and a Pismo clam plummet-shaped object with a grooved end exhibiting asphaltum staining.

The 15 burial features with the nonbead shell ornaments were located within the southwestern concentration of the burial ground. These shell ornaments probably functioned as important burial offerings, reflecting aesthetic preferences or, perhaps, wealth, social status, or cultural affiliation of the deceased. Although 8 of these features contained adult females, this pattern may be indicative of the demographic profile of the LAN-62 burial area rather than an association with the sex of the deceased. No adult males had nonbead shell ornaments, however.

Colonial Items

Colonial items, such as artifacts of European manufacture (glass beads, other glass artifacts, and metal objects) and introduced foods, were found in 128 Protohistoric through Mission period burial features with primary individuals (74 percent of the Protohistoric through Mission period burials at LAN-62) (Table 45). Most colonial artifacts were not differentially distributed by sex. Given that 15 of the burial features with nonadults contained colonial items, these nonindigenous items obviously were not restricted to adults, who were most likely to be the individuals with the most contact with European ranchers or missionaries. Most of the burial features with colonial items were within the main part of the burial ground; the exceptions were 11 burial features that are on the periphery (Figure 95).

Glass beads were the most ubiquitous type of colonial item (Figure 96; Table 46). In addition, the only colonial items in 86 burial features were glass beads. Of the 9 Protohistoric through Mission period cremations, only 1 (burial Feature 587, a cremation of an individual of indeterminate age and sex) had glass beads (n = 6). Burial Feature 587 had only 7 other artifacts, including 3 Cottonwood Triangular projectile points. Many of the Protohistoric through Mission period burials had fewer than 10 glass beads (n = 111; 64 percent), and only 6 burial features (burial Features 155, 244, 282, 313, 327, and 438) had more than 1,000 beads each. These 6 burial features consisted of the burials of 3 adult females, 1 adult male, 1 adult of indeterminate sex with 1 fetus (both were primary individuals), and 1 infant; all were located immediately adjacent to one another within the concentration in the southwestern part of the burial ground.

As determined from the demography of the burial population, slightly fewer burial features with adult primary individuals than expected and slightly more burials with nonadult primary individuals than expected had glass beads, as well as high frequencies of glass beads, but differences between the age classes were not statistically significant (χ^2 tests, $p = 0.3–0.5$). Slightly fewer burial features with adult female primary individuals than expected and slightly more burial features with adult male and nonadult primary individuals than expected had glass beads and high frequencies of glass beads, but these differences likewise were not statistically significant ($p = 0.5–0.8$).

Other colonial items recovered from burial features at LAN-62 included a hoe (burial Feature 438) (Figure 97a), a metal horse trapping (burial Feature 222), metal clothing-related items (burial Features 50, 196, 223, 225, 227, 313, 438, and 461) (see Figure 97b), knives (burial Features 223, 438, and 565) (Figure 98), other metal tools and hardware (burial Features 32, 38, 50, and 222) (see Figure 97c), two copper chocolate pots (burial Features 50 and 265) (Figure 99), a tin container (burial Feature 50), and possible gun-barrel fragments (burial Feature 313). The two chocolate pots were

Table 45. Colonial Items Recovered from Protohistoric through Mission Period Burial Features at LAN-62

Colonial Items	No. of Burial Features	Percent
Glass beads only	86	67
Colonial items excluding glass items (beads and nonbeads), foods, and metal items	7	5
Introduced-animal foods only	4	3
Introduced-plant foods only	1	1
Glass beads and foods only	7	5
Glass items (nonbead) and food only	—	
Glass (beads and nonbeads) and metal items only	13	10
Glass beads and metal items only	10	8
Glass items (nonbead) and metal items only	—	
Total with any colonial item	128	

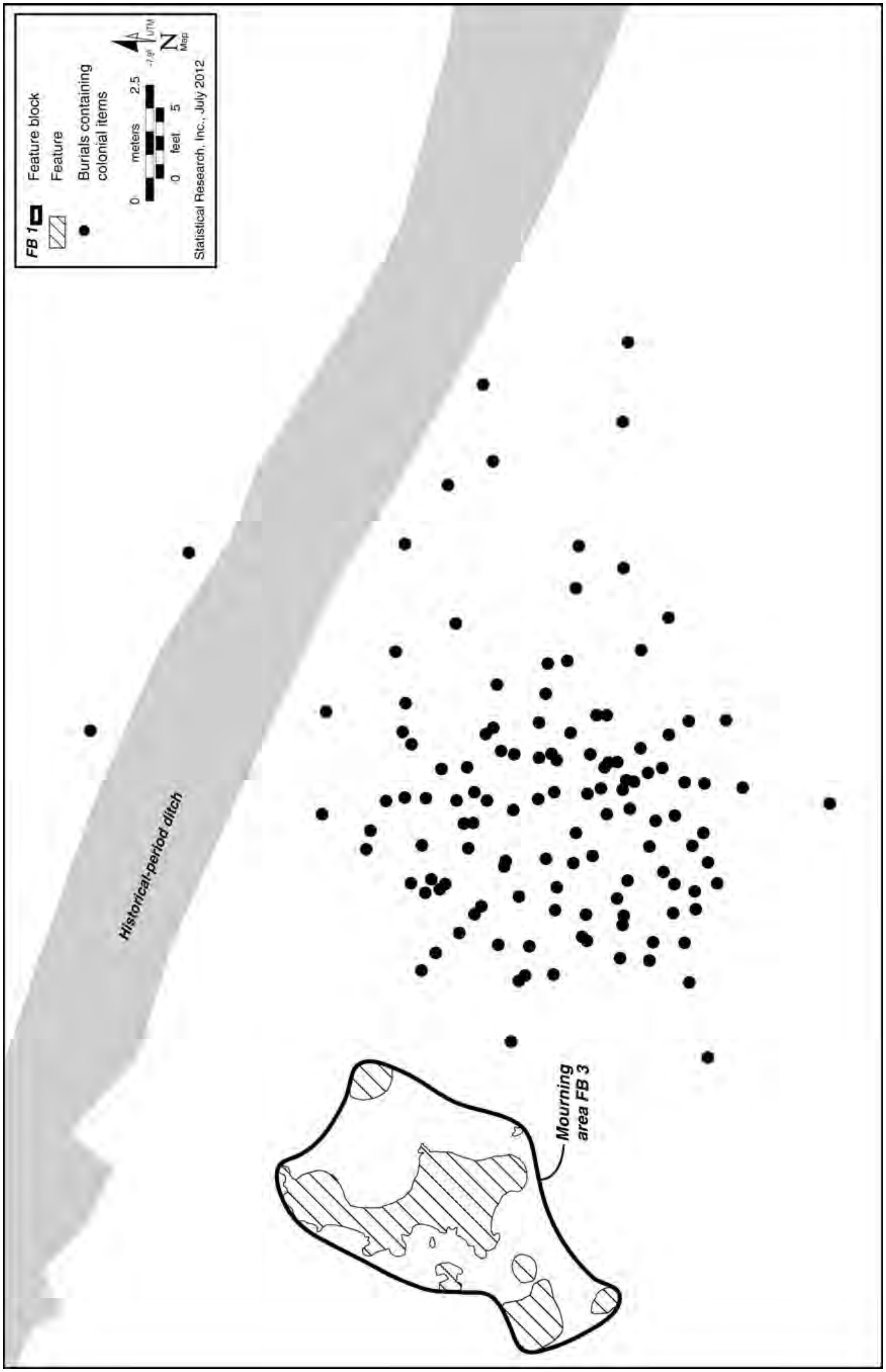

Figure 95. Distribution of 128 burials with colonial items, LAN-62.

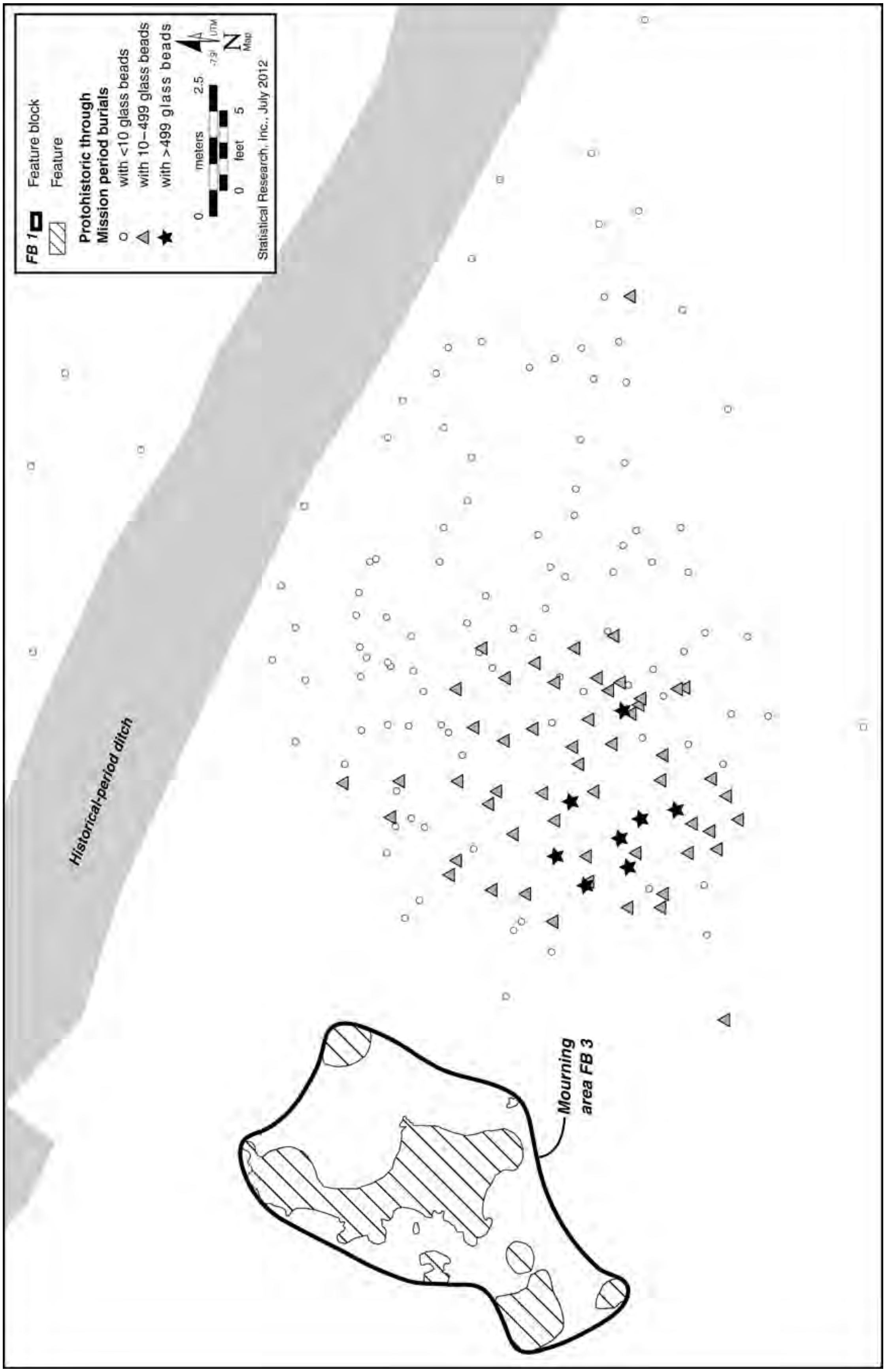

Figure 96. Distribution of glass beads in the Protohistoric through Mission period burials at LAN-62.

Table 46. Distribution of Glass Beads in Protohistoric through Mission Period Burial Features at LAN-62

Sex and Age of Primary Individual[a]	0 Beads	1–9 Beads	10–499 Beads	>499 Beads	Total No. of Burials with Beads	Percentage of All Burials with Beads	Total No. of Burials	Percentage of All Burials
Adult female	28	18	23	4	45	38.8	73	42.0
Adult male	13	14	10	1	25	21.6	38	21.8
Adult, indeterminate sex	11	13	11	1	25	21.6	36	20.7
Subadult female	—	1	—	—	1	0.9	1	0.6
Subadult, indeterminate sex	1	1	2	—	3	2.6	4	2.3
Child	2	3	1	—	4	3.4	6	3.4
Fetus/infant	3	—	8	2	10	8.6	13	7.5
Indeterminate-age female	—	2	—	—	2	1.7	2	1.1
Indeterminate age and sex	—	1	—	—	1	0.9	1	0.6
Total	58	53	55	8	116	100	174	100.0

[a] Because of the way in which the data were tallied for counts of glass beads, the age-sex class of only one of the primary individuals is given for the few burial features with more than one primary individual. That is, counts are for burial features, not for individuals.

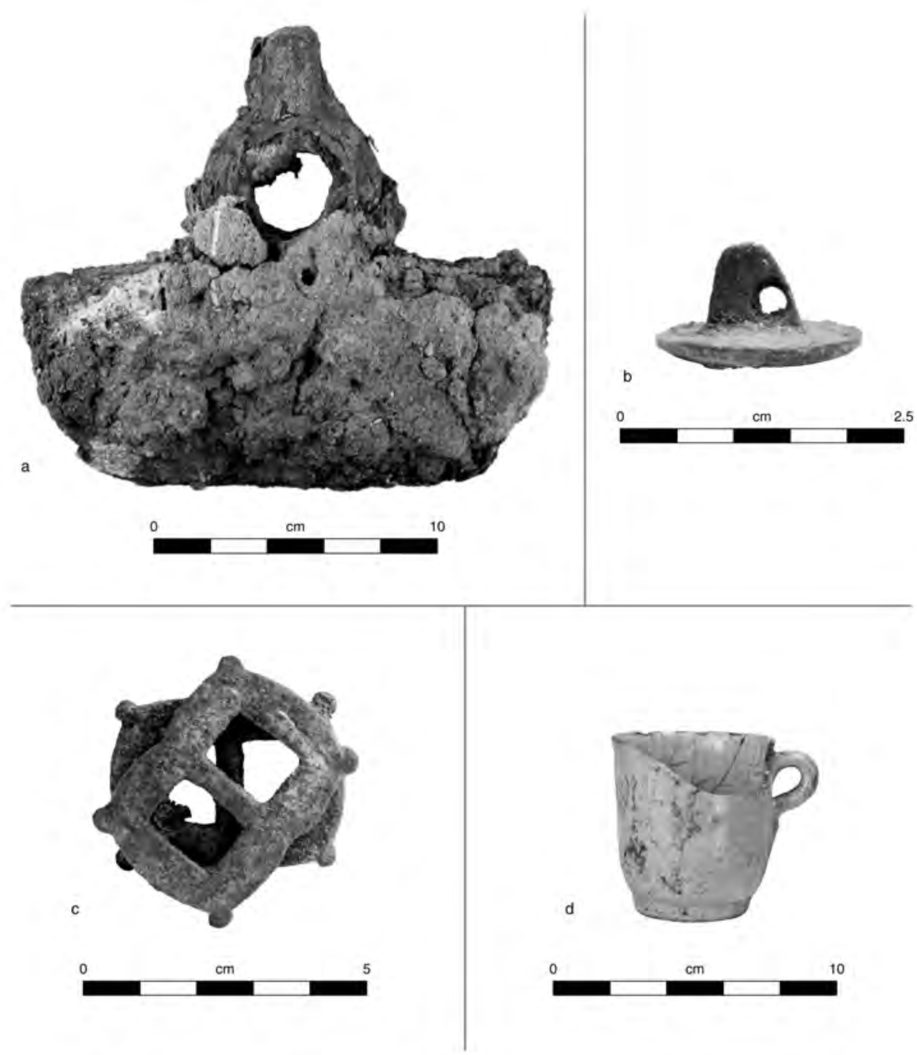

Figure 97. Colonial items recovered from burials at LAN-62: (*a*) iron hoe head from burial Feature 438; (*b*) copper button from burial Feature 313; (*c*) fused copper buckles from burial Feature 50; (*d*) demitasse cup from burial Feature 227.

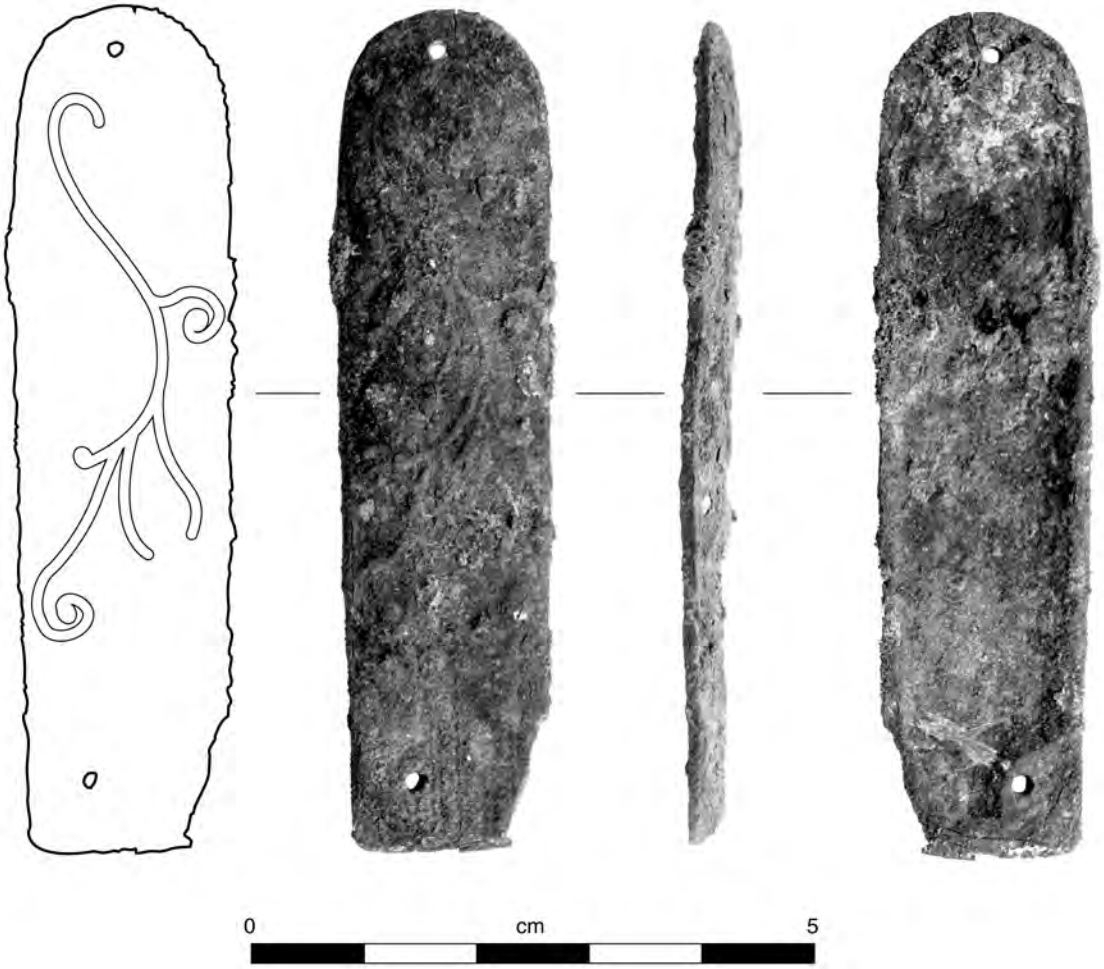

Figure 98. Pocketknife handle from LAN-62 burial area.

Figure 99. Copper chocolate pots from burial Features 50 (*left*) and 265 (*right*), LAN-62.

similar to one found in the Chumash burial area at the Ojai site (VEN-132) (Phillip Walker, personal communication 2004) and to those found in several burials on Santa Catalina Island (Daily 2008; see also Chapter 8, Volume 3 of this series). Burial Feature 50, that of an adult of indeterminate sex, had a high frequency of grave goods, including glass beads (n = 391) and large quantities of shell beads, but very few high-status shell beads. Burial Feature 265, that of an adult female, had a high frequency of grave goods, including glass beads (n = 63) and shell beads, but (like the adult of indeterminate sex in burial Feature 50) very few high-status shell beads. Neither burial had socioreligious artifacts. Although the two chocolate pots from these two burial features were Hispanic in origin, they were treated by Gabrielino/Tongva in traditional ways as grave goods, including damaging the bases of the vessels to destroy them, in much the same way in which they would have ritually destroyed a stone vessel. These chocolate pots were also wrapped in traditional weavings that contained shell and glass beads.

Three possible gun-barrel fragments were recovered from burial Feature 313, which also contained 3,030 glass beads (more than those with any other individual in the burial ground), a cast-copper button, an indeterminate metal fragment, and 2 seeds from introduced domesticated crops (Figure 100). The presence of a gun in a Native American burial is surprising. Although portions of guns and other Spanish or American weapons have been found in Chumash or Gabrielino/Tongva burials elsewhere (including at Malibu and on Santa Catalina Island), guns, swords, and other weapons were scarce in Alta California during the colonial era and were highly regulated (see Chapter 8, Volume 3 of this series). Even when broken or otherwise in disrepair, guns were important to Spanish colonists and soldiers for parts. As a result, the discovery of examples of these items in Native Californian burial contexts is curious. As indicated above, burial Feature 313 was the burial of an adult of indeterminate sex and a fetus; the burial feature had a high frequency of grave goods, including 1,594 non–high-status shell beads and hundreds of high-status shell beads, although all of these grave goods were associated with the adult, and none was found in association with the fetus. Other traditional grave offerings included 3 socioreligious artifacts, a biface, a *Datura* (jimsonweed) seed, and grass seeds. Clearly, the adult in burial Feature 313 was a wealthy person of high political and religious status and had strong ties to the colonial culture.

Burial Feature 565, in which the primary individual was a subadult of indeterminate sex, contained several artifacts that showed a similar integration of traditional and colonial items into mortuary practices. A small, open, flower-pot-shaped steatite vessel with a basal flange was placed next to the thorax of the primary individual. Much of the vessel was covered in ocher, and a very fine asphaltum spray covered the exterior and interior walls. An iron knife was also found in association with this individual, along with three steatite bowl fragments.

Burial Feature 222, that of a 1–2-year-old infant, was another example of integration of traditional and new materials. The grave goods included fragments of indeterminate corroded-iron artifacts, a possible horseshoe, an iron buckle, a possible copper bracelet, and glass beads, along with red ocher, shell beads (including high-status beads), and a concentration of botanical material. The concentration of botanical material, which measured 10 by 4.5 cm in area, consisted of a white, fibrous material that probably was seed chaff and husk. This material may have been used as bedding on which the body of the deceased was laid.

Four glass artifacts (other than beads) were recovered from 3 burials: an olive green bottle shard from burial Feature 223, a colorless-glass bottle shard with a pontil scar and an olive green wine-bottle shard from burial Feature 227, and a colorless-glass projectile point from burial Feature 6 (Figure 101). All 3 burial features were those of adult females. Although these colonial items usually were associated with glass beads in the burial ground at LAN-62, 12 burial features had colonial items but no glass beads. For example, in burial Feature 128, that of an adult of indeterminate sex, a single carbonized *Pisum sativum* (domesticated pea) seed was the only colonial item. Finally, in burial Features 32, 477, and 565 (those of 2 adult females and a subadult of indeterminate sex), a metal tool (utensil), a weapon (knife), and unidentified metal artifacts were the only colonial items. The association of metal weaponry and tools with females and a subadult was surprising, as such items would be expected to be associated with adult males.

Socioreligious Artifacts

Of the 174 Protohistoric through Mission period burials with primary individuals at LAN-62, 47 burial features had a total of 55 socioreligious artifacts (see Table 44). In determining which artifacts to categorize as related to socioreligious roles, ocher presented a challenge. Ocher has often been associated with socioreligious practices in Native American culture as body paint or as a powder that was used to coat burial artifacts and even bodies. At LAN-62, however, ocher was ubiquitous and not restricted to mortuary and other socioreligious contexts. Ocher was recovered from 127 contexts at LAN-62, including 51 excavation units (of which 34 were in the burial ground), 68 burial features (of which 43 dated to the Protohistoric through Mission period), and 8 nonburial features (of which 7 dated to the Protohistoric through Mission period). Of the 47 Protohistoric through Mission period burial features with other artifacts indicative of socioreligious activities, 24 included ocher, whereas 23 additional burial features with ocher contained no other socioreligious artifacts (Figure 102). Of the 24 burial features with both ocher and other socioreligious artifacts, 21 were located in the southwestern-concentration burial ground, and only 2 were on the periphery. The 23 burial features with ocher but no other socioreligious artifacts also were scattered throughout the burial ground. We propose that although ocher may have been important in ceremonial and religious activities,

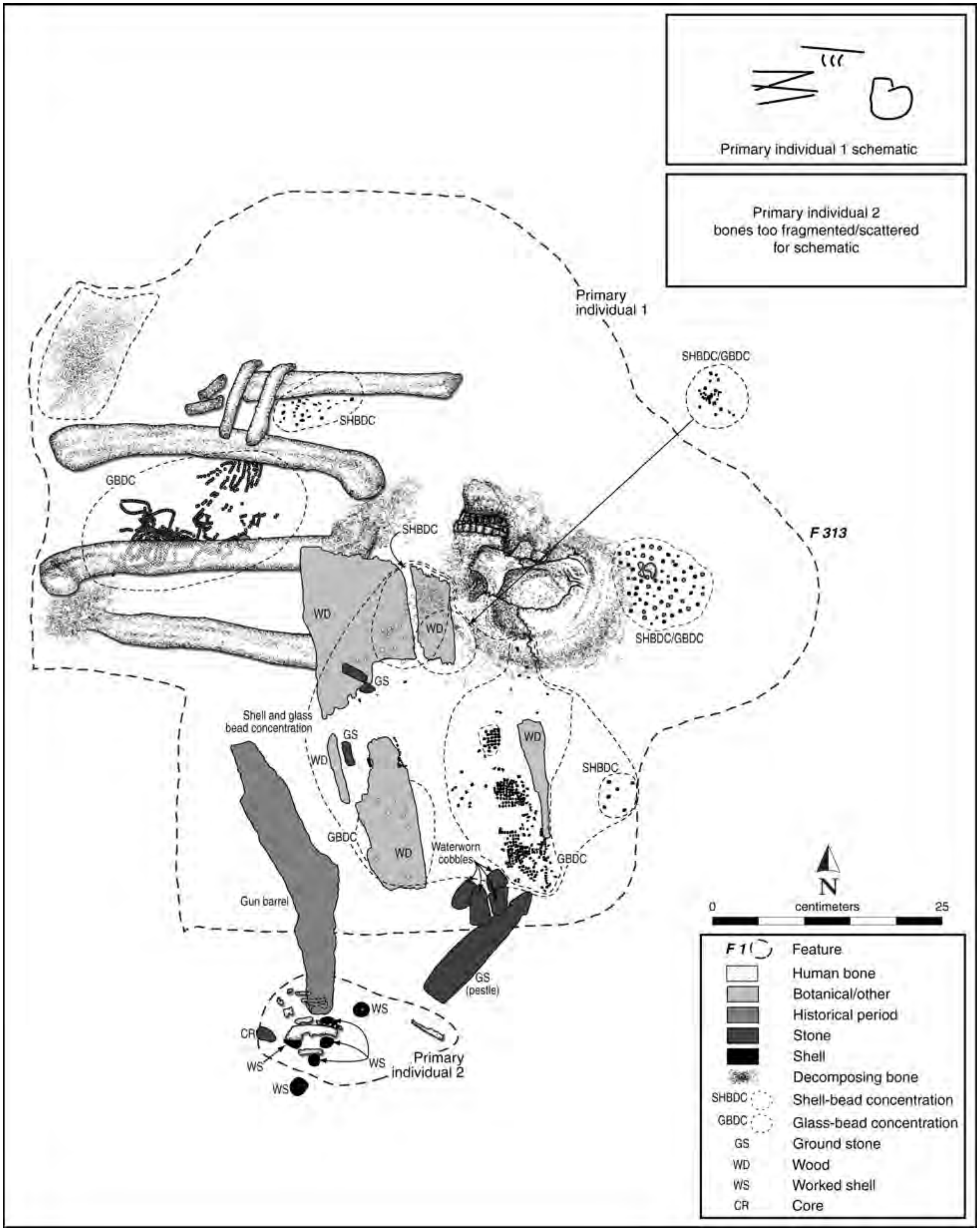

Figure 100. Burial Feature 313, LAN-62.

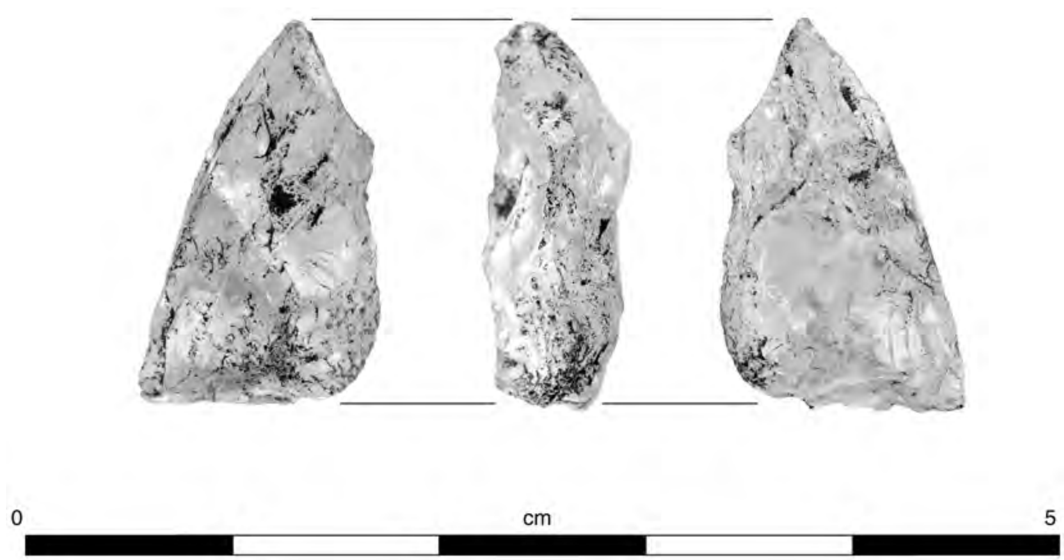

Figure 101. Glass projectile point from burial Feature 6, LAN-62.

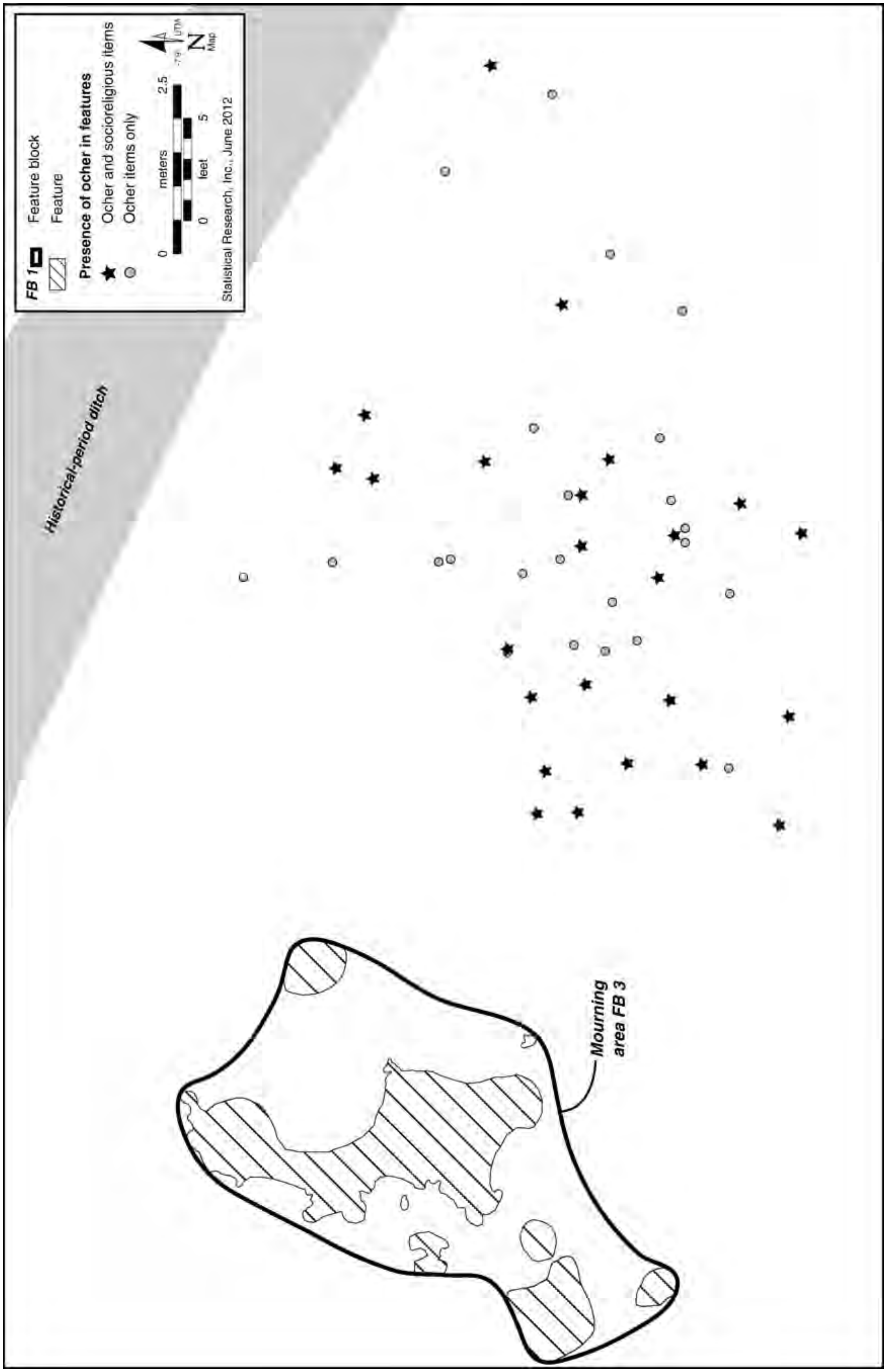

Figure 102. Protohistoric through Mission period burials with socioreligious artifacts and ocher at LAN-62.

it was not an important indicator of socioreligious roles, and including it in the analysis would only dilute the results.

Excluding ocher, 24 burial features yielded 55 socioreligious artifacts. These consisted of 2 burial features with more than 1 primary individual (1 adult of indeterminate sex with a fetus or infant and 1 adult female with an adult of indeterminate sex) and 8 burial features with adult males, 7 with adult females, 6 with adults of indeterminate sex, and 1 with a nonadult. Burial Feature 181, that of a child of indeterminate sex, located in the main concentration of burials, had a single stone pipe and a very low frequency of grave goods (n = 67).

Similarly, more than half of these 24 burials (n = 13, or 54 percent) had low to very low frequencies of grave goods. Burial Feature 253 had a charmstone and only five other artifacts: one worked-bone artifact, three fire-affected rocks, and one expedient-use lithic artifact. Similarly, burial Feature 63 had an incised stone along with two glass beads and a fire-affected ground stone fragment. Only 2 burial features with socioreligious artifacts had moderate frequencies of grave goods, and 9 had high frequencies. The frequency of socioreligious artifacts in these 24 Protohistoric through Mission period burials also varied: most of these burial features had only a single socioreligious artifact (n = 15, or 63 percent), but 9 burial features had two or more. The most common socioreligious-artifact type was musical instruments (21 percent), followed by pipes, incised stones, and waterworn pebbles (16 percent each).

The previously mentioned burial Feature 38, that of an adult female and an adult of indeterminate sex (Figure 103), contained the most socioreligious artifacts. Both individuals in this burial feature were associated with high frequencies of grave goods, most of which could be associated with one or the other primary individual. Of particular note was the association of 4 broken *comales* with the adult female (Figure 104). The fragments of these 4 *comales* were stacked or placed in 4 clusters from the head to the pelvis and lower legs of this female. Starting at the head, 1 cluster contained 2 pieces, another contained 7, a third contained 4, and the last, on the lower legs, contained 3. No fragments from a single *comal* (i.e., no conjoining pairs) were placed in the same cluster. It was clear that an attempt had been made by those who buried this individual to destroy and separate the fragments of the 4 *comales*. The sequence of breakage of the individual *comales* seemed remarkably uniform (i.e., latitudinal split first, in all but one case), although splits varied from three to five. The careful and deliberate separation of the broken fragments of the *comales* may have been an attempt to counteract "contagious magic" (or "contact magic") (Frazer 1911). (Note that we do not argue that *comales* as an artifact group are not considered to have socioreligious function. Instead, the careful disposal of these artifacts in this particular burial suggests that they had some socioreligious importance. *Comales* per se were not used as indicators of socioreligious position.) In addition to these *comales*, this individual had a large lump of red ocher near her hand. Thousands of shell beads (including semiground and rough disk beads and numerous high-status beads, including many Pismo clam tube beads) and 55 glass beads were directly associated with this individual.

The second primary individual in burial Feature 38 had a large, lanceolate biface (found broken into two pieces) that would have measured 76.9 by 37.9 mm when intact. The proximal portion was covered with red ocher that did not extend over the fractured surface. This practice is reminiscent of the ritual deposition of the large schist pestle in nonburial Feature 11 at LAN-63, which also was broken in half and had the proximal end covered with ocher (Douglass et al. 2005; Hull et al. 2006). An arrow-shaft straightener/grooved abrader (Figure 105a) and 2 steatite manuports, both broken into two pieces, were also found with this individual, along with 3 ground stone pendants shaped like miniature *comales*. In addition, a gently tapering and conical granite pestle, complete but broken into four pieces and measuring approximately 190 mm in length (when pieced together), was placed with the second primary individual (see Figure 105b). At least 2 broken ground stone vessels were also found associated with the second primary individual. One vessel had a restricted rim and soot staining on the exterior surface (see Figure 105c). The soot was thickest on the wall fragments but did not cover the entire base. This suggests that a fire was built around the vessel rather than that the vessel was set onto the fire. Some sherds of the vessel exhibited small (1–3 mm) drops of black liquid (presumably asphaltum) on the interior surface. Whether this vessel was ritually broken is unclear. A second vessel was a mortar or bowl that may have been intentionally broken into three nearly equal, conjoining fragments (see Figure 105d). An area of lustrous black residue (perhaps asphaltum) in a half-moon pattern was present on the exterior, at the center of the base. An iron wedge or hatchet was also recovered with this individual, along with 2 indeterminate metal fragments. In contrast to the artifacts with the female in this burial, few shell beads or glass beads were found in direct association with the second primary individual, although more than 1,000 shell beads were found in the fill nearby.

Burial Feature 76, that of an adult male, also had a number of socioreligious artifacts that, together with shell beads, glass beads, and wild-plant seeds, appeared to be covered with a thin layer of brown material, perhaps the remains of an animal hide. A steatite tablet had been placed on the lap of the individual in burial Feature 76 (Figure 106b), adjacent to 2 bone whistles parallel to each other and bound together with asphaltum. A waterworn pebble was found on the opposite side of the tablet, about 2–3 cm away. The tablet was barrel shaped with rounded edges; was 98 mm long, 50 mm wide, and 9 mm thick; and had incised patterns on both sides. A biconically drilled perforation indicated that it may have been suspended from a cord. One side depicted a lizardlike figure measuring 75.2 mm long and 28.2 mm wide, with a round head, a constricted neck, four jointed legs ending in three-toed feet, and a tail with eight "feather fletchings." Incised on the opposite face was a headless, lanceolate body measuring 52.3 mm long by 41.6 mm wide, with four jointed legs ending in three-toed feet and a curved tail. This iconography is reminiscent of Chumash rock art from Mutau Flat

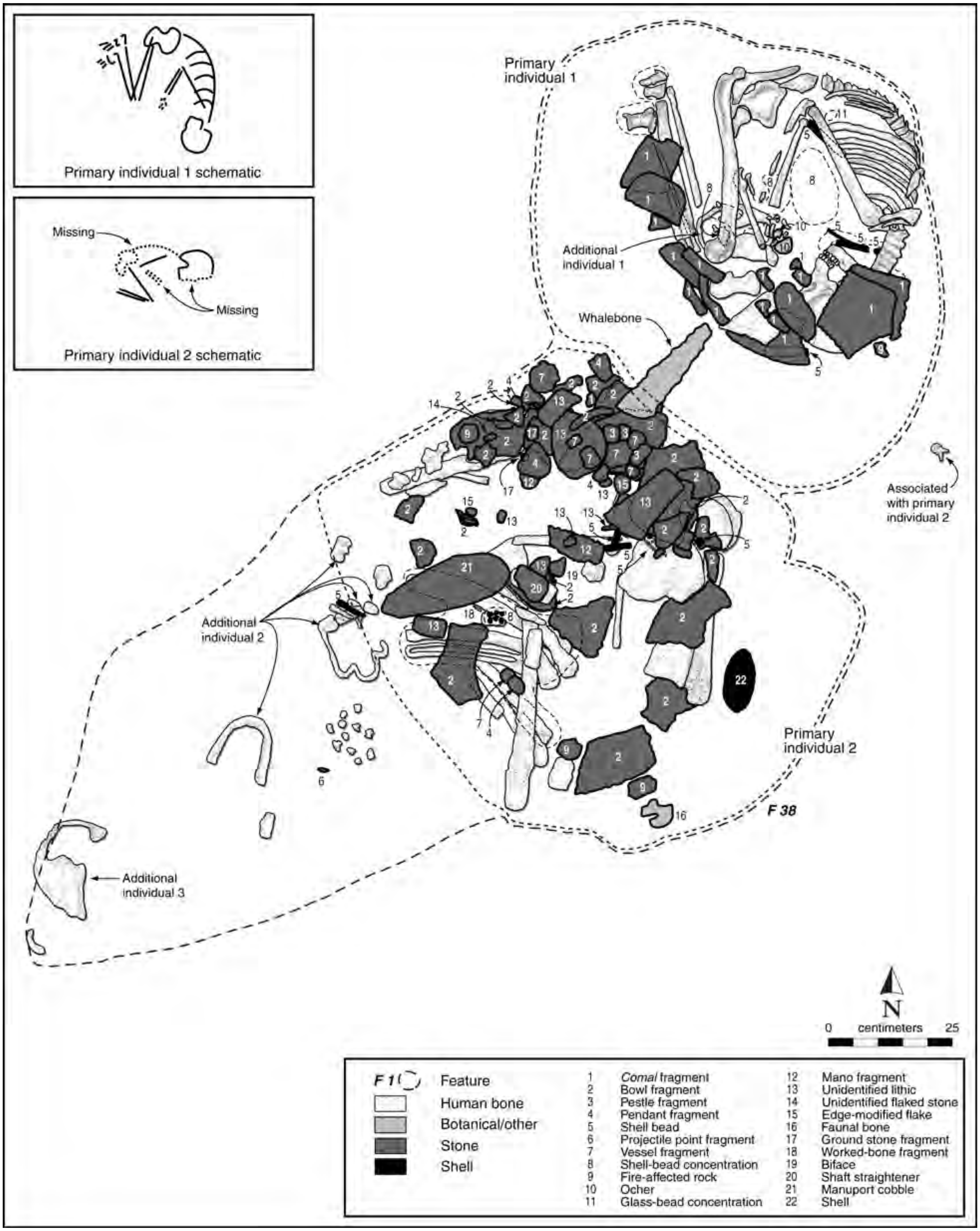

Figure 103. Burial Feature 38, LAN-62.

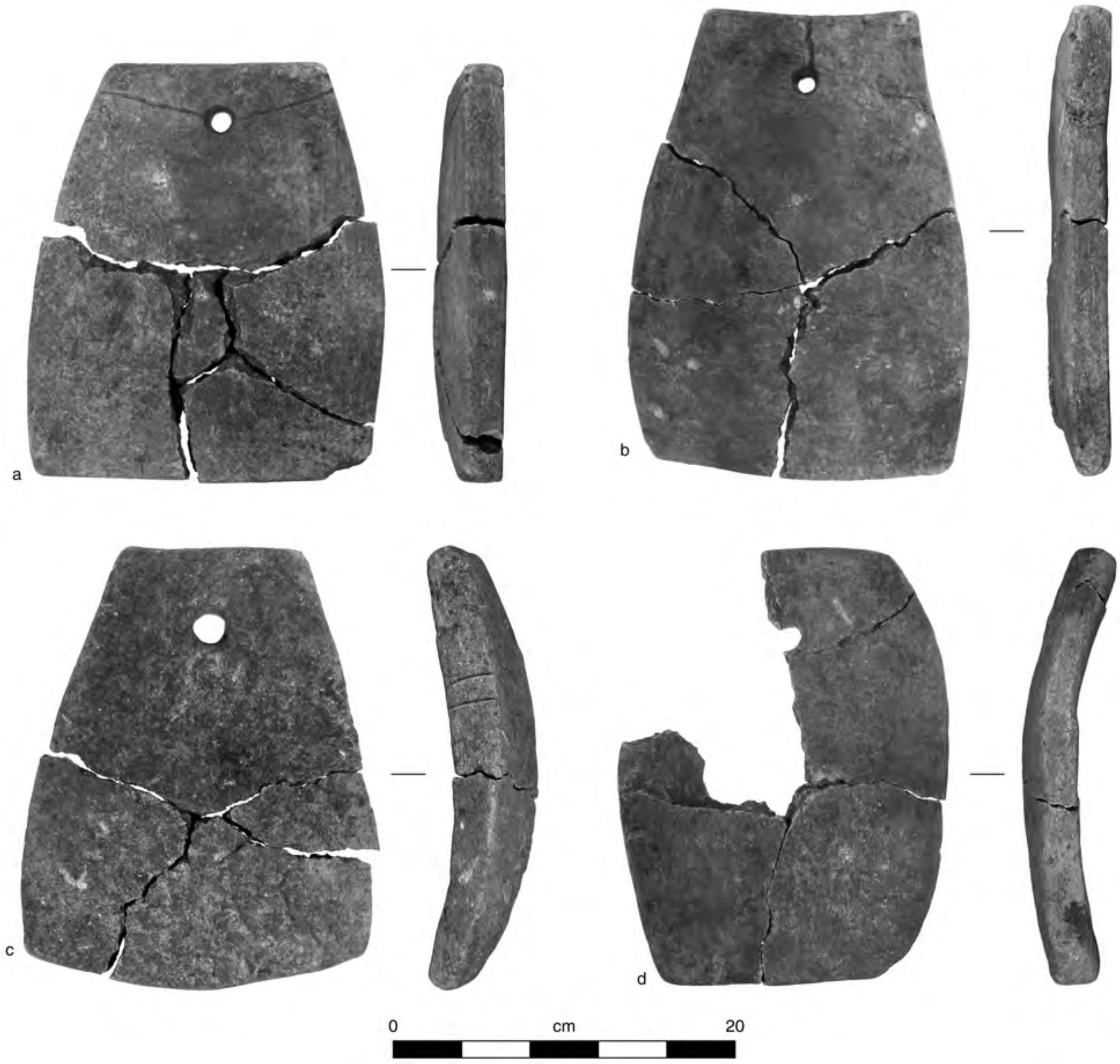

Figure 104. Four reconstructed comales from burial Feature 38, LAN-62.

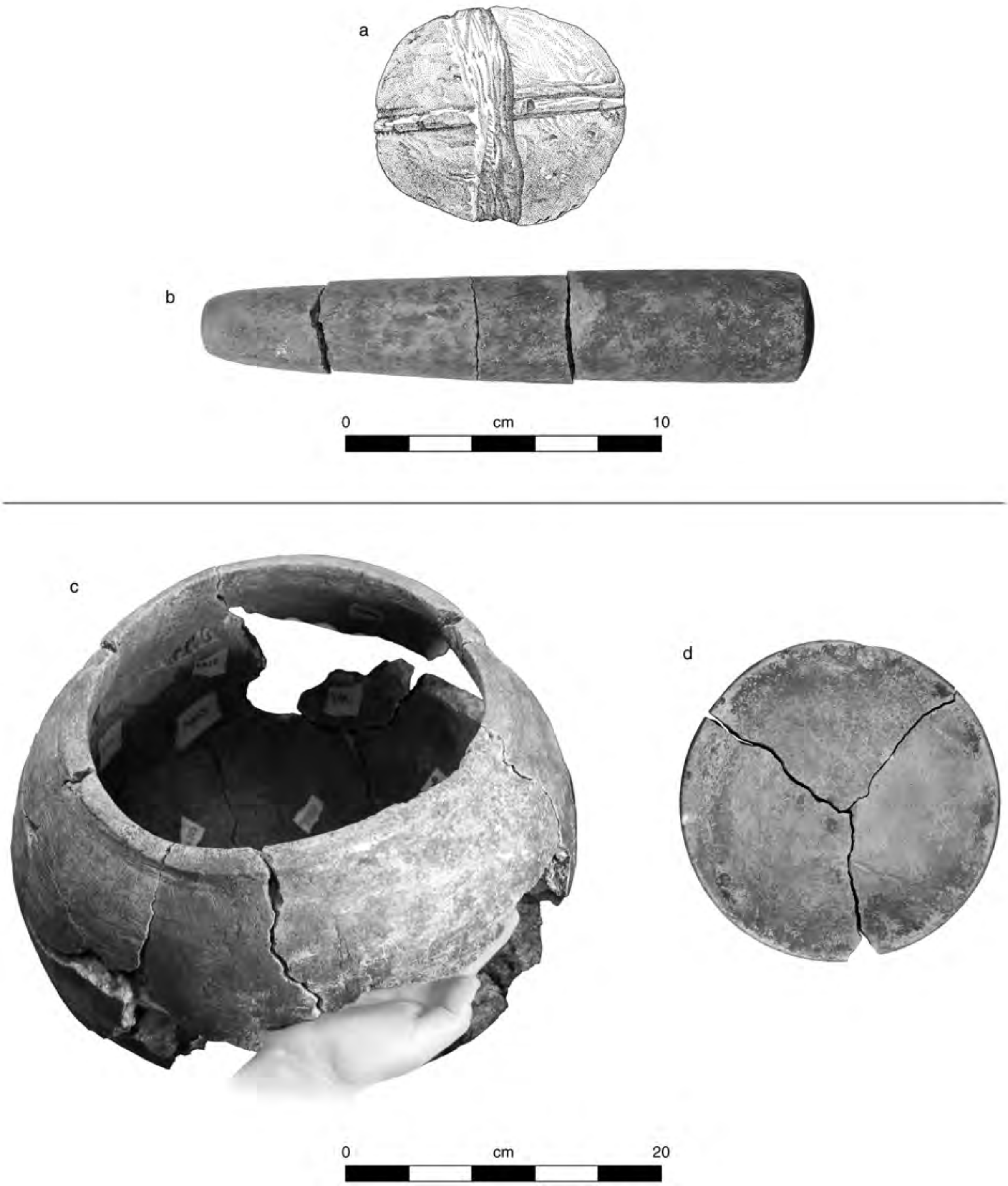

Figure 105. Some grave goods associated with the second primary individual in burial Feature 38, LAN-62: (*a*) shaft straightener; (*b*) intentionally broken miniature pestle; (*c*) granite bowl (possibly intentionally broken); (*d*) steatite bowl (possibly intentionally broken).

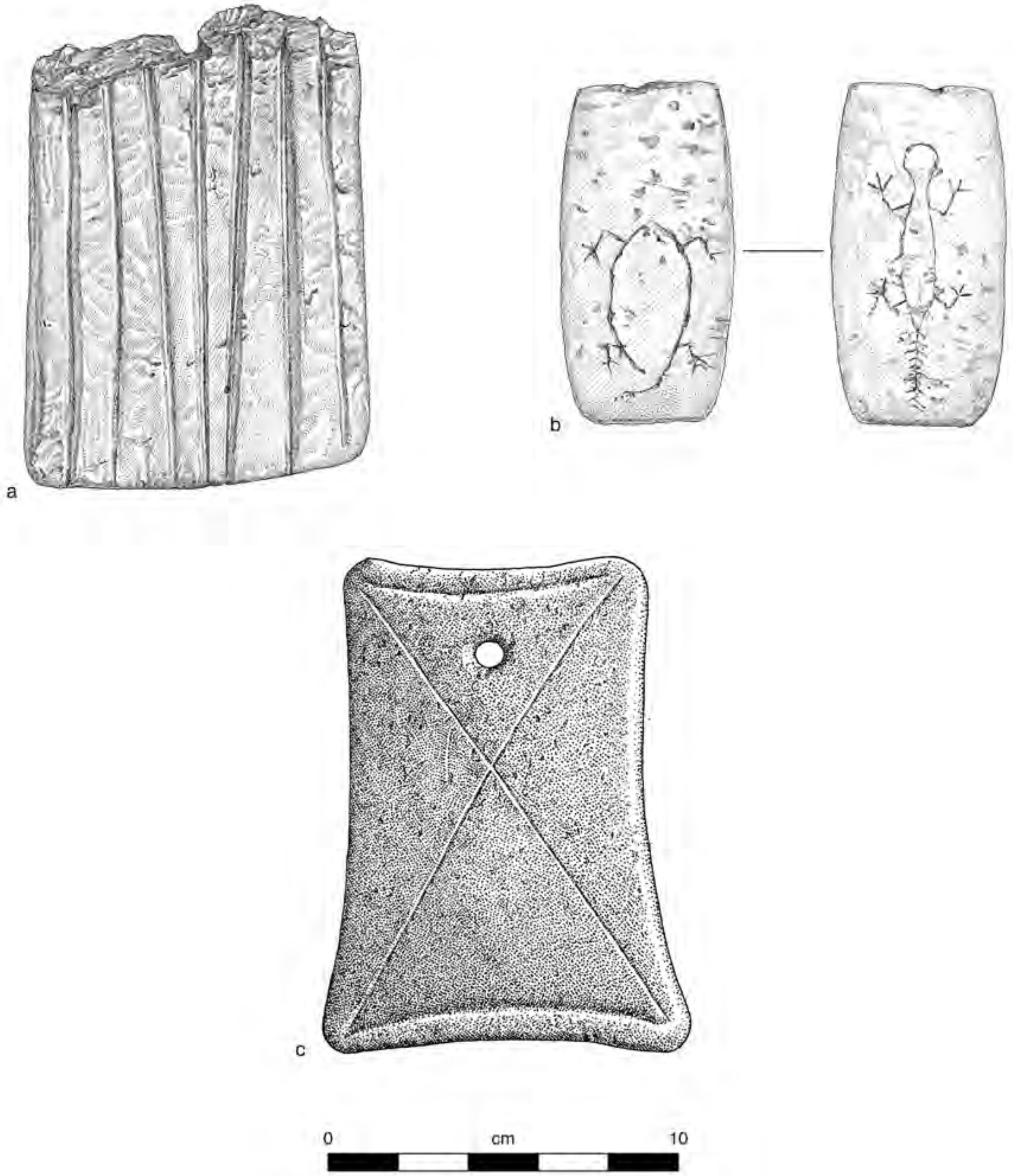

Figure 106. Steatite tablets recovered from burials at LAN-62: (*a*) from burial Feature 63; (*b*) from burial Feature 76; (*c*) from burial Feature 14.

(VEN-2 and VEN-3) (Eberhart and Babcock 1963:13–14, Figures 4 and 5) and Burro Flats (VEN-151). In addition to the incised lizard and headless-creature designs, the double parallel longitudinal lines were similar to those of several of the grooved abraders. Thousands of other artifacts were recovered from burial Feature 76, including more than 6,000 shell beads, 350 of which were high-status beads; 97 glass beads; and wild-plant seeds. Several fused shell beads were found piled in strands atop the cranium, shell beads and glass beads strung together were located above the chest, and other beads were concentrated near the left foot and the right femur, tibia, and fibula.

Other important socioreligious artifacts included 3 quartz crystals that were recovered from burial Features 155 and 176. Burial Feature 155, that of an adult female, had a high frequency of grave goods, including more than 2,100 glass beads and approximately 1,350 shell beads, only 89 of which were high status. By contrast, burial Feature 176, that of an adult of indeterminate sex with 2 quartz crystals, had low quantities of glass beads and shell beads and no high-status beads.

Three shaft straighteners were recovered, one each from burial Features 60 and 282 and one in association with the second primary individual in burial Feature 38, as noted above. A plano-convex gneiss shaft straightener with a black luster and fire spalls from repeated heating was recovered with burial Feature 60, that of an adult male. Burial Feature 60 also had a pipe but, in contrast to burial Feature 38, had a low frequency of artifacts, including numerous shell beads and asphaltum on his jaw. Burial Feature 282, also that of an adult male, had a shaft straightener made from a recycled steatite-vessel sherd. The broken edges of the sherd were dulled, the artifact had a U-shaped groove on the ventral face, and drops of asphaltum were noted on the ventral face. Burial Feature 282 had large quantities of glass beads but few other indicators of wealth and only a single high-status bead. Also present was a Cottonwood Triangular projectile point, an anvil with asphaltum, a chopper, and several other flake tools.

A single plummet made of porphyritic rhyolite was found in burial Feature 13, that of an adult female, who also had more than 2,000 shell beads (including more than 300 high-status beads) but only 57 glass beads. The bipointed plummet was pecked flat on both of its tapered ends, similar to "football-shaped" charmstones. A central biconical perforation drilled in one end would have allowed for suspension.

Three slablike steatite artifacts in all were recovered from burial Features 14, 63, and (as previously mentioned) 76 (see Figure 106). Burial Feature 14, that of an adult male, yielded a tablet that was curvilinear-trapezoidal with concave sides (143 mm in length, 106 mm in width, and 21 mm thick) and a biconically drilled perforation (see Figure 106c). This artifact may have functioned as a warming stone that would have been placed on the body of an ailing individual at the site of pain (Harrington 1928:87; see also Hudson and Blackburn 1986:275–277; Lee 1981:40–45). Strands of nearly 4,500 shell beads, including large numbers of high-status beads and more than 200 glass beads, also accompanied this individual (Figure 107). This individual also had an abalone shell containing numerous seeds (see below). Burial Feature 63, that of another adult male, located outside the main concentration of the burials, in the southwestern portion of the burial ground, yielded a micaceous silver gray steatite tablet with parallel, deep grooves that ran longitudinally on both faces (see Figure 106a). The artifact measured 150 mm in length, 97 mm in width, and 16 mm in thickness. A perforation centered near the edge of one end indicated that it probably had been suspended. In contrast to the artifacts in burial Features 14 and 76, only a few other artifacts (a fire-affected pestle fragment and 2 glass beads) were associated with burial Feature 63. The latter were unusual, inlaid and overlaid, decorated, wound beads.

Four stone pipes in all were recovered from burial Features 60, 149, 181, and 225, those of two adult males, an adult of indeterminate sex, and a child. Burial Feature 60 also had a shaft straightener; the other three burial features did not have any other socioreligious artifacts. None of these burials had many grave goods.

An effigy shaped like a rattlesnake (*Crotalus*) rattle (Figure 108) was recovered from burial Feature 498, that of an adult of indeterminate sex, located in the southwestern part of the main concentration of burials. Burial Feature 498 had low frequencies of grave goods (n = 69), including 49 glass beads, 13 shell beads (only 2 of which were high status), and debitage. The rattlesnake imagery/symbology figured prominently in the worldview of coastal southern California natives and of those beyond.

Deer-tibia whistles were the most common (n = 23) socioreligious artifacts found at LAN-62; 14 were recovered from burial features (Figure 109). A pair of Gifford Type FF 1c whistles was found in burial Feature 537. One of the pair retained an asphaltum plug and abalone-shell inlay. The distal portion of both whistles retained traces of asphaltum and a plant wrapping similar to *Juncus* (rush). Gifford (1940) suggested that Type FF 1c whistles were associated with the late Mission period. Burial Feature 537, however, did not have any late or terminal Mission period beads, but this may have been a product of the small number of beads (n = 14) recovered with this burial. Deer-tibia whistles (n = 7) were recovered from five burial features with primary individuals: four were those of females, and only one was that of a male (burial Feature 76). The other 7 whistles were recovered from burial features lacking primary individuals, including burial Feature 33, which had 3 whistles. All were inhumations, except for burial Feature 24, which was a partial cremation with three individuals (two primaries and an additional individual).

With the exception of burial Feature 24, all individuals with socioreligious artifacts were inhumations without evidence of burning. Most of the inhumations were fully flexed (67 percent); semiflexed (12 percent), indeterminate-flexed (4 percent), and indeterminate-treatment (17 percent) inhumations were less frequent. In terms of orientation, position, and head-facing direction of the primary individual, more burials were oriented to the southeast, with individuals on

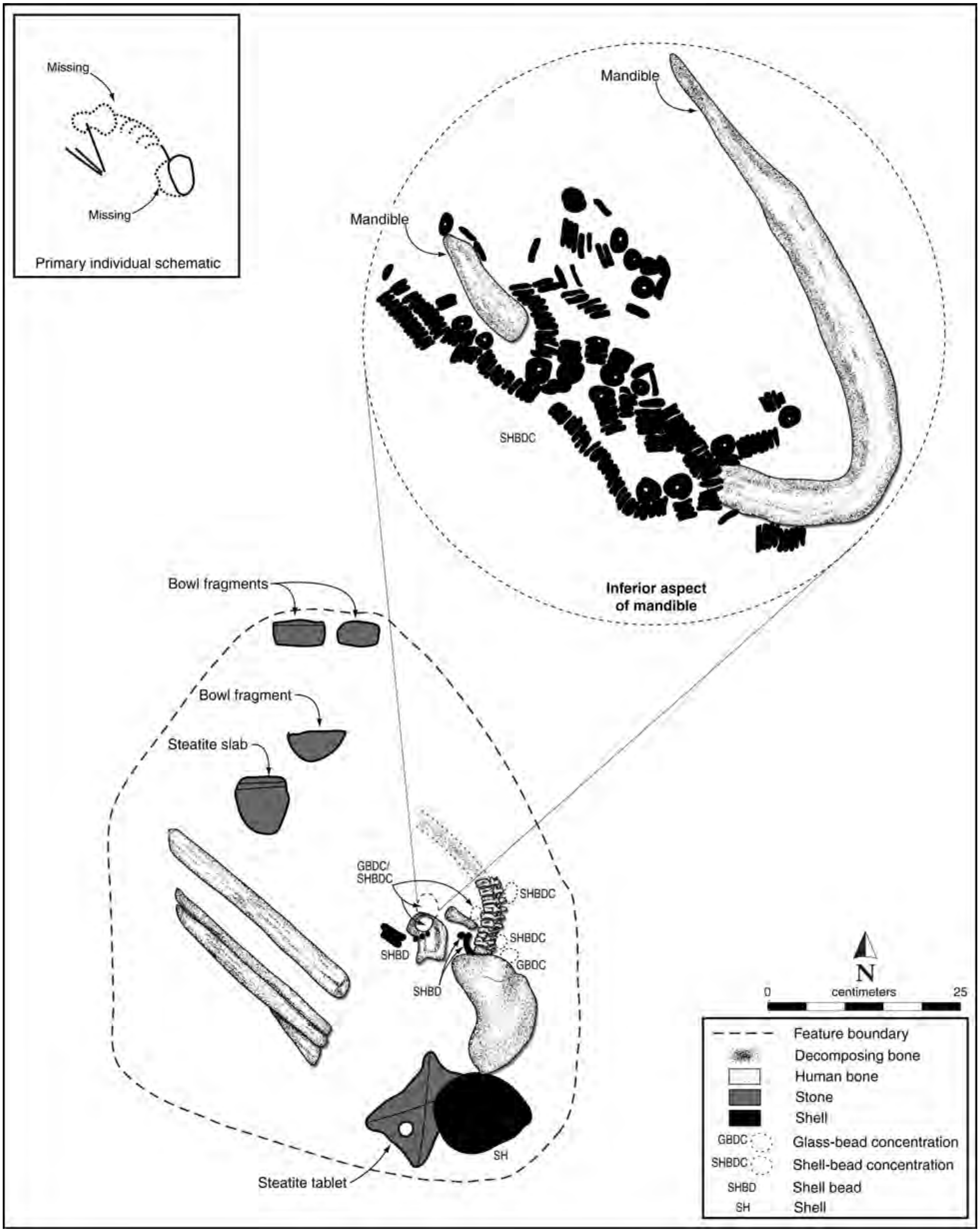

Figure 107. Burial Feature 14, LAN-62.

Figure 108. Rattlesnake-rattle effigy from LAN-62 burial area (Unit 155, level 55).

Figure 109. Deer-tibia whistle with abalone inlay from LAN-62.

their left sides and facing north, northwest, or west. In these respects, these burials fitted the most common pattern and did not appear to have received any special preparation. As might be expected, socioreligious artifacts usually were associated with adults; they were found with only one nonadult. On a final note, burial features with socioreligious artifacts probably were those of individuals who had important ritual roles in the society. They were not necessarily individuals of great wealth but primarily were adults of either sex. As determined from the associated socioreligious items, these individuals had unique powers that probably gave them special status and roles within the society.

Utilitarian Items

Utilitarian items, including stone tools, ground stone, bone tools, shell artifacts (not including shell beads or ornaments), basketry, and cordage, were recovered in relatively low frequencies from the Protohistoric through Mission period burials at LAN-62 (see Table 44). The utilitarian items constituted fewer than 1 percent of the burial artifacts from the Protohistoric through Mission period burials. The most common type of utilitarian item was flaked stone debitage, followed by ground stone artifacts. Stone tools constituted fewer than 1 percent of the grave goods in burial features with high or moderate frequencies of grave goods but more than 8 percent of the items in burial features with very low frequencies of grave goods. Similarly, organic remains constituted a much higher proportion of grave goods in burial features with fewer artifacts than they did in those with high frequencies of grave goods. Particular utilitarian artifacts had no apparent association with the age or sex of the primary individual in the burial feature, with the exception of the basket and cordage items, which were recovered mainly with adults.

The stone tools included projectile points, bifaces, cores, edge-modified flakes, choppers, hammerstones, drills, scrapers, and debitage. Forty-five projectile points were recovered from 35 burial features; typically, each of these burials had 1 projectile point, with the exception of 8 features that had 2 points each and burial Feature 587, which had 3 Cottonwood points. Burial Feature 587 contained a cremation of an individual of indeterminate age and sex located within the main concentration of burials within the burial ground. The 45 projectile points included 37 Cottonwood Triangular points, 5 leaf-shaped triangular points, 2 large contracting-stem points, and 1 obsidian Silver Lake point. The Silver Lake point dated to the early Millingstone period, and the contracting-stem points dated to the late Millingstone period (see Figure 29, Chapter 2, Volume 3 of this series, for the projectile point chronology used for the project). The presence of these projectile points from prior periods in the Protohistoric through Mission period burials suggests that these were curios that had been collected from a nearby site. The Silver Lake point was recovered from burial Feature 461, that of a subadult; the two contracting-stem points were recovered from burial Feature 96, that of an infant, and from the fill of burial Feature 38, the feature with two primary individuals discussed above. Overall, the 35 burial features with projectile points included more adults (n = 30) than nonadults (n = 4) and individuals of indeterminate age (n = 1). Females constituted most of these adults (n = 16); males were fewer (n = 8); the remaining adults were of indeterminate sex. We could not ascertain whether points recovered from burial features were embedded in the body, rather than purposefully placed in the grave as offerings. For this reason, we cannot comment definitively on whether the projectile points were grave goods or causes of death.

In all, 147 ground stone artifacts were recovered from 45 burial features. These included two specific types of ground stone artifacts—*comales* and vessels—as well as pestles, manos, metates, and numerous unidentifiable ground stone artifacts. Some of these artifacts appeared to have had more than one function, as both utilitarian and socioreligious objects (see above). Only 3 burial features had *comales*, which consisted of 18 fragments, most of which were the intentionally broken *comales* associated with the female in burial Feature 38. The other 2 fragments were found in burial Features 14 and 85, which were those of an adult male and an adult of indeterminate sex. Notably, all 3 individuals were associated with a high frequency and great variety of grave goods. A steatite olla broken into 3 fragments was associated with burial Feature 50 (that of an adult of indeterminate sex). All 3 olla fragments were covered with ocher after breakage, and the rim sherd exhibited rounding and dulling of one broken edge that may have been the result of an older break. The other body sherd, which conjoined with the rim, had a very thick layer of soot on the exterior. Obviously, this olla was used as a utilitarian object; then, perhaps, it was placed into a ritual context through breakage and ocher treatment.

Eight possible shell containers were found with seven burial features: those of five adult females (burial Features 7, 10, 11, 58, and 438), an adult male (burial Feature 14), and an adult of indeterminate sex (burial Feature 85). Burial Feature 7 contained both valves of a California venus (*Chione californiensis*) clamshell coated with asphaltum on the surface. Burial Feature 7 had a low frequency of artifacts, most of which were glass beads (n = 83), and included only 2 high-status beads. Burial Feature 10 contained a black abalone (*Haliotis cracherodii*) shell container with its siphon holes plugged with asphaltum. Burial Feature 10 had a higher frequency of glass beads (n = 272) but few other artifacts. The presence of 4 seeds of *Datura* was notable, however, and suggests a possible socioreligious role for this woman. Burial Feature 11 contained a Nuttall's cockle (*Clinocardium nuttallii*) container that had been ground on the dorsal side and slightly burned on the ventral side. The shell was found next to this woman's cranium. Given the charred state of the inside of the shell, it probably was used to hold offerings for burning and may have had a socioreligious function. Burial Feature 11 had a moderate frequency of grave goods, primarily shell beads and glass beads; these included a high frequency of high-status beads but no other notable artifacts. Burial Feature 58 contained another cockle (Cardiidae) shell container. Red ocher was smeared across the edge of the shell and along both the dorsal and the ventral surfaces. The shell was recovered from the matrix. However, the ocher staining may have been from a large piece of ocher found above the pelvis of the primary inhumation. Burial Feature 58 had a very low frequency of grave goods, most of which were shell beads. A piece of ocher and basketry were also found with the woman who was the primary individual in this burial feature. Burial Feature 438 had 2 black abalone shell containers. One of the black abalone shell containers had its siphon holes plugged with asphaltum and exhibited burning on the ventral surface. One whole black abalone shell that was perforated near the apex probably was ritually killed and placed above the chest of the woman who was the primary individual in this burial feature. In contrast to these other burials with shell containers, burial Feature 438 had large numbers of grave goods, almost all of which were glass beads. The woman in this burial feature also had a number of metal artifacts (a knife, a complete iron hoe head, 2 iron nail fragments, and fragments of a copper button), which, with the glass beads, indicated a high level of interaction with the colonial culture. In burial Feature 14, seeds of a mixture of native (*Salvia* [sage] and *Calandrinia*) and domesticated (*Triticum aestivum* [wheat]) plants were placed inside an abalone shell. As discussed above, this individual also had a very large and diverse collection of grave goods, including shell beads and glass beads, but no other colonial artifacts. Finally, a shell container derived from red abalone was found in burial Feature 85. The shell's siphon holes had been plugged with asphaltum, and the dorsal surface was ground. Burial Feature 85 also had a high frequency of grave goods, but these were almost equally split between shell beads and glass beads. The adult of indeterminate sex in this burial feature also had 4 *Datura* seeds and seeds from 10 domesticated plants.

Bone and shell tools were present in low frequencies in burial features in general but were relatively less common in burial features with high frequencies of grave goods than in burial features with moderate, low, or very low frequencies. Bone tools were recovered from 30 burial features, and shell tools were recovered from 19. Basket and cordage fragments were recovered from 20 burial features, of which all but 1 were those of adults. Burial features with moderate quantities of grave goods did not have any basketry or cordage.

Food Remains

Food offerings were recovered from 123 Protohistoric through Mission period burial features with primary individuals; these included plant remains, vertebrate remains, and shellfish (Figure 110). The 123 burial features consisted of 6 burial features with more than 1 primary individual (5 percent) and the following burial features with a single primary individual: 49 with adult females (40 percent), 27 with adult males (22 percent), 22 with adults of indeterminate sex (18 percent), 18 with nonadults (15 percent), and 1 with a female of indeterminate age (1 percent).

Plant-food remains in the form of carbonized seeds of wild and domesticated plants and carbonized nuts and nutshell were recovered from 24 burial features with primary individuals at LAN-62 (Table 47). In addition, 4 Protohistoric through Mission period burial features without primary individuals had carbonized plant remains. These burial features were located within the main concentration of Protohistoric through Mission period burials in the southwestern part of the burial area. There was no correlation among sex, age, and frequency of carbonized plant remains.

In all, 935 carbonized seeds were recovered from the 24 burial features with primary individuals; most were seeds of wild grasses. Although the mortuary food offerings were dominated by native grasses (66 percent) and other common local food resources, they also included other plants, such as *Calandrinia* and *Datura*, that have ritual powers and medicinal qualities (Timbrook 2007). *Hordeum pusillum* (little barley; 54 percent) appeared to have been preferred over other grasses, including *Phalaris* sp. (canarygrass; 46 percent). Not only were the ubiquity values for *H. pusillum* seeds higher; these seeds also were present in higher frequencies in the burial features than those of *Phalaris* sp. and other seeds. Only 2 of the 21 burial features with seeds did not have grass seeds. Thus, wild native seeds—*H. pusillum* and *Phalaris* sp., in particular—were the preferred plant-food remains placed in burials, and the former were preferred over the latter. In addition to seeds, other native wild-plant-food offerings included *Quercus* (acorns) and *Juglans* (wild walnuts), neither of which was available in the immediate local area. In all but 1 burial feature, plant foods were scattered indiscriminately over the burials. Five burial features had nut or nutshell fragments.

Seeds from introduced domesticated crops (*Pisum sativum* and *Triticum aestivum*) accounted for only 2.5 percent of the seeds and were recovered from only nine burial features. The data suggest an effort to exclude newly introduced agricultural products from direct offerings into burials. For the most part, wild, local resources were broadcast or offered directly onto the deceased during interment. Nonetheless, the fact that the aboriginal populations were including new foods into their ritual practices soon after these plant foods were incorporated into their diet indicates that they looked favorably on at least some of these new foods. The incorporation, into burial features, of *Pisum sativum* and *Triticum aestivum*, in particular (as opposed to *Zea mays* [maize], *Hordeum vulgare* [common barley], *Avena sativa* [oats], and *Cicer arietinum* [chickpea], which were also consumed by the group), suggests that either these two foods were culturally accepted for use in aboriginal rituals or they were the two introduced-crop seeds most readily available.

In terms of animal food, 745 vertebrate remains were recovered from 106 Protohistoric through Mission period burial features with primary individuals. The vertebrate remains were dominated by those of mammals (83 percent);

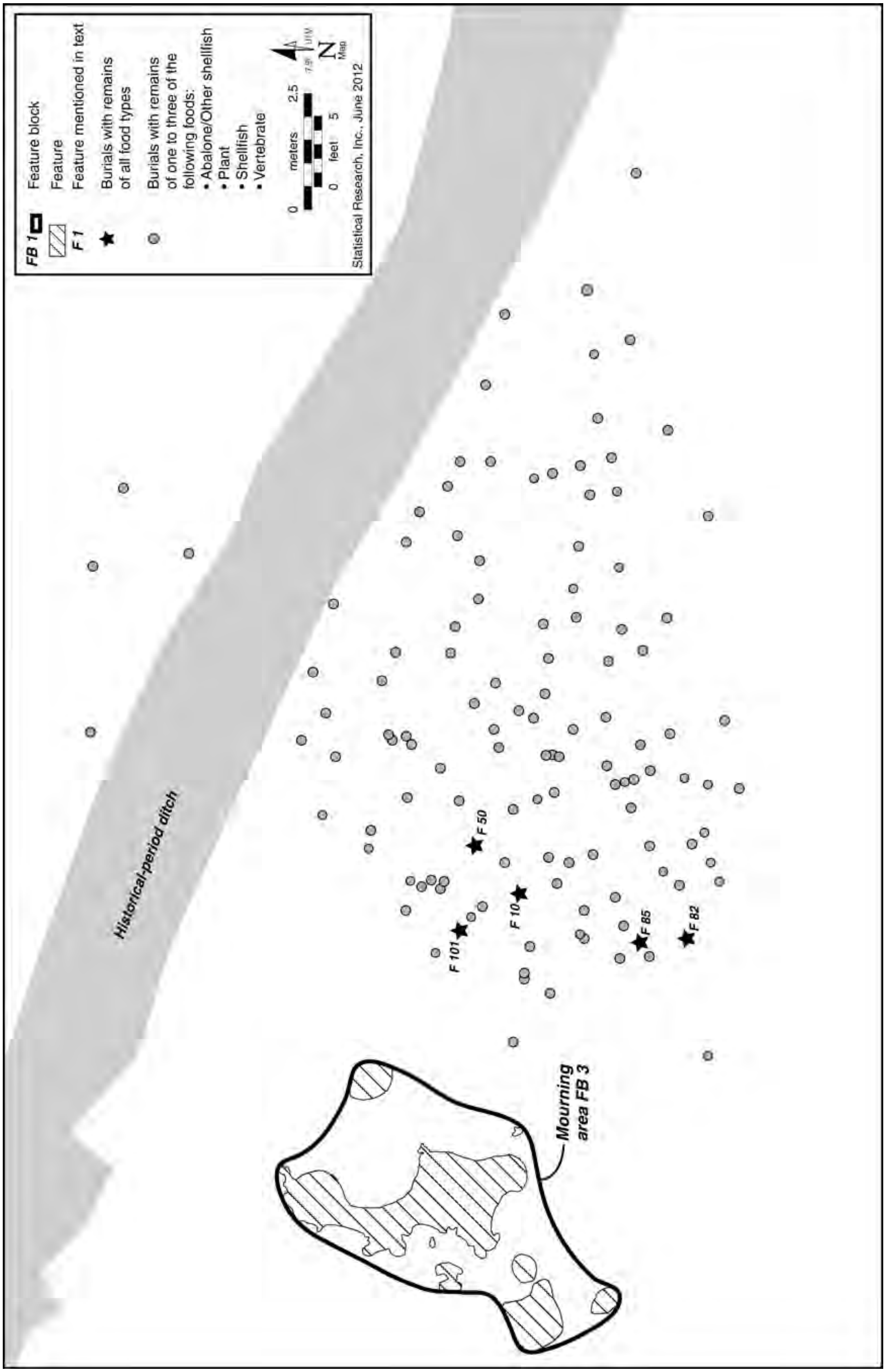

Figure 110. Protohistoric through Mission period burials with food remains at LAN-62.

Table 47. Carbonized Plant Remains Recovered from Protohistoric through Mission Period Burials at LAN-62

Burial Feature No.	Age and Sex of Primary Individual(s)	Sediment (L)	Seeds (n)	Seed Density (n/L)
10	adult female	2.43	413	170
14	adult male	0.32	92	288
50	adult, indeterminate sex	0.2	32	160
76	adult male	0.02	14	700
82	adult, indeterminate sex	0.16	10	63
85	adult, indeterminate sex	1.87	76	41
96	infant	0.02	1	50
101	adult female	0.08	25	313
128	adult, indeterminate sex		1	
149	adult male	0.2	4	20
164	indeterminate-age female		1	
172	child	0.45	19	42
196	adult female and fetus		(nuts)	
237	adult male		29	
289	adult female	0.33	9	27
313	adult, indeterminate sex, and fetus	0.35	91	260
334	adult, indeterminate sex		(nuts)	
341	adult female	0.3	7	23
423	adult, indeterminate sex		(nuts)	
430	adult, indeterminate sex	0.6	85	142
438	adult female	0.06	9	150
512	adult female		(nuts)	
565	subadult, indeterminate sex		(nuts)	
601	adult, indeterminate sex		17	
Total			935	

fewer remains were those of birds (11 percent), fishes (5 percent), and reptiles (1 percent). The mammals were represented by unidentified fragments, primarily, but included deer, rabbits/hares, canids (Canidae), and a range of small rodents. Low frequencies of marine-mammal bones were also recovered, including those of dolphins/porpoises/whales (Cetacea), sea otter (*Enhydra lutris*), and seals/sea lions (Phocidae/Otariidae). With the exception of a single element of a domestic goat (*Capra hircus*) recovered from burial Feature 38, no remains of introduced domesticated animals were recovered from the burials. The bird remains consisted mainly of unidentified bird bone, with a few remains of aquatic birds (pelicans, geese and ducks [Anatidae], herons [Ardeidae], and cormorants [Phalacrocoracidae]) and perching birds (Passeriformes). Bony fishes (Osteichthyes) and cartilaginous fishes (Chondrichthyes) were represented in similar frequencies. The 6 reptile remains were all those of turtles (probably western pond turtle [*Actinemys marmorata*]). Most vertebrate remains probably were placed purposefully into burial features, rather than simply tossed into the grave, although because of both (1) disturbance of earlier burials by later ones and (2) the creation of the burial area within midden, some mixing of contents may have taken place.

Shellfish (including abalone) were recovered from 49 burial features; abalone was recovered from 22 of these features. The sex and age distribution of the individuals in the burial features with abalone was similar to the overall demographic profile of the Protohistoric through Mission period burials at LAN-62 and suggested that no single demographic group received burial offerings of abalone.

The distribution of food remains among Protohistoric through Mission period burials varied considerably. Only five burial features (burial Features 10, 50, 82, 85, and 101) had all three groups of foods (plants, vertebrates, and shellfish). Most of the burial features with food remains had vertebrate remains only (n = 72). Overall, animal foods were more common than plant foods as grave offerings. Seven burial features had plant foods only (however, note that plant remains were not recovered systematically from burial features). Food rarely was the only type of grave goods; nonetheless, given that almost three-quarters (71 percent) of the Protohistoric through Mission period burials had food remains, food was an important type of offering.

Secondary Inhumations and Mortuary-Related Features and Artifacts

As indicated above, 374 burial features were identified in the burial ground at LAN-62; so far, we have discussed the burial features that included primary individuals. As was true for the Late and Mission period Chumash burial grounds, where burials were packed into a small and tightly bounded area, many burials at LAN-62 were greatly disturbed by later inhumations. This resulted in a pattern of fragmented burials, scattered human remains, and concentrations of redeposited human remains and associated grave goods. More than half of the burials with primary individuals described in this chapter (for all Ballona sites) also contained the fragmented remains of 1 or more other individuals that were disturbed by the burial of the primary individual (Table 48). We have not included these "additional individuals" in this analysis because, by definition, they were recovered from disturbed and mixed contexts and therefore do not inform accurately on mortuary practices. In contrast to burial features with both primary individuals and additional individuals, some burial features (e.g., n = 75 at LAN-62) had no primary individuals. Of these latter burials at LAN-62, we discuss 4 (burial Features 9, 112, 220, and 352) that contained discrete deposits of unusual grave goods not represented in the burial features with primary individuals. The first 3 were a concentration of redeposited or secondary inhumations of 16 individuals who were not associated with any particular primary individual. These 3 burial features dated to the Mission period and were also located in the center of the burial ground. The discussion illustrates that significant numbers and types of artifacts have been removed from primary contexts and redeposited.

Burial Feature 9 contained one adult male, one adult female, one adult of indeterminate sex, one child, and one fetus. In all, 520 artifacts were recovered; these consisted primarily of glass beads (n = 303) and shell beads (n = 211), 21 of which were high-status beads. Also present were a shell ornament, a whole abalone shell, a stone pipe (Figure 111), a piece of ocher, and a stone flowerpot olla (Figure 112). The base of the olla was found in an adjoining excavation unit. Most of the beads were not identifiable to type, but those that could be identified included a tiny saucer, a Pismo clam tube and cylinder, a red abalone nacreous, and rough large-lipped, ground, and semiground disk beads. The identifiable beads suggested a late Mission period age for at least some of these individuals.

Burial Feature 112 contained two adult females, one adult of indeterminate sex, one subadult of indeterminate sex, and two children. In all, 2,634 artifacts were recovered from this burial; most of these were glass beads (n = 2,348). In addition, 168 shell beads (of which 14 were high status), 2 worked-shell artifacts, a single projectile point, a shaft straightener, a *comal*, a perforated disk, and a ground stone vessel were found.

Burial Feature 220 consisted of three adults of indeterminate sex and one infant. Only 241 artifacts (208 glass beads and 32 shell beads, as well as 1 flaked stone artifact) were associated with burial Feature 220; none of the beads was high status.

Burial Feature 352, another Protohistoric through Mission period burial feature in the southern portion of the main burial area, included one adult of indeterminate sex and a nonadult. In total, 327 grave goods were associated with these individuals and consisted of 324 glass beads, 1 high-status shell bead, a piece of fire-affected rock, and an incised and perforated steatite disk (about 5 cm in diameter) that may have been a sun effigy (Figure 113). Such effigies often were hafted to a stick and were used in Gabrielino/Tongva and Chumash solstice ceremonies (Henry Koerper, personal communication 2006). The disks mounted on ritual staffs are sometimes called sunsticks, and Saint-Onge et al. (2009) have suggested that the Ventureño Chumash name for these disks refers to the North Star. Saint-Onge et al. (2009) further suggested that at least some of the disklike symbols appearing in Chumash rock (and tree) art may be depictions of the North Star, which is also imbued with ritual importance by the Luiseño and the Gabrielino (Saint-Onge and Johnson 2009:199).

In addition to these burials without primary individuals, we identified at least 10 nonburial mortuary features within the burial

Table 48. Burial Features with Primary Individuals and Additional Individuals from All Ballona Sites, by Period

Cultural Period	No. of Burial Features with Primary Individuals	No. of Burial Features with Primary Individuals and Additional Individuals	No. of Primary Individuals	No. of Additional Individuals	Total No. of Individuals in Burial Features
Protohistoric through Mission	176	122	183	267	450
Late through Mission	64	41	64	97	161
Late	3	2	3	5	8
Intermediate through Mission	53	25	55	52	107
Intermediate	26	—	29	—	29
Unknown	1	—	1	—	1
Total	323	190	335	421	756

Figure 111. Pipe with nose reed from burial Feature 9, LAN-62.

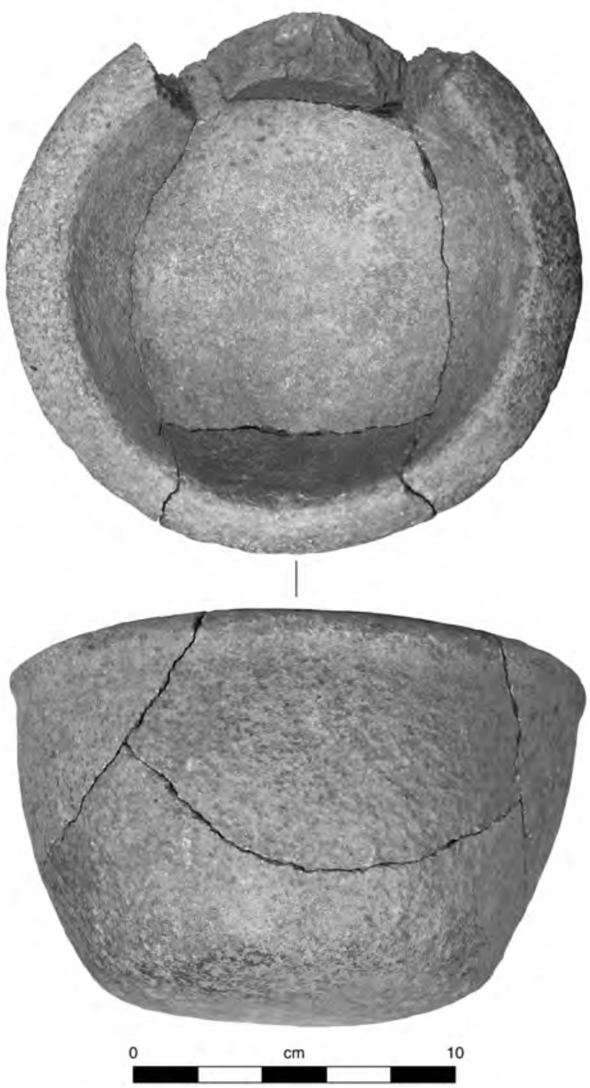

Figure 112. Reconstructed flowerpot mortar/olla from burial Feature 9 and burial-area Excavation Units 144 and 155, LAN-62.

Figure 113. Incised and perforated steatite disk: possible sun effigy from burial Feature 352, LAN-62.

area at LAN-62, consisting of a pit (nonburial Feature 122), a rock cluster (nonburial Feature 29), and 8 artifact concentrations (nonburial Features 35, 68, 70, 75, 78, 127, 224, and 252) (Figure 114). Although all 10 nonburial features were associated to varying degrees with burials, a definitive association with individual burials could not be made. A range of artifacts was recovered from these nonburial features (Table 49). Nonburial Feature 122 was distinct from the other 9 nonburial features in that it consisted primarily of a concentration of charcoal and had the lowest artifact frequency (n = 69). Most of the 69 artifacts were glass beads (n = 57) and shell beads (n = 10); faunal remains (NISP = 70) were also recovered from this pit feature. Given the proximity of this nonburial feature to burial Feature 171, which was located immediately to the northwest, and to burial Feature 569, which was approximately 40 cm and 6 cm below nonburial Feature 122, the contents of this feature probably were offerings associated either with 1 of these burials or with a burial that was removed when these burials were inhumed.

Most of the artifacts in nonburial Feature 29 were debitage (n = 101); however, it also had a large stone bowl; 2 ground stone fragments, including a pestle fragment; and a bone musical instrument. Nonburial Feature 35 had 2 large fragments of basketry lined with asphaltum; 56 shell beads and 48 glass beads were found with the basket, some of them embedded in the asphaltum. Other artifacts recovered from this nonburial feature were 1 ground stone artifact, 1 projectile point, 1 worked-bone artifact, and 17 pieces of debitage. Given the location of this nonburial feature immediately above burial Features 171 and 223 and near burial Feature 39, the contents of this nonburial feature probably are remnants of mortuary offerings associated with a burial removed by one of these burial features. Nonburial Feature 68 consisted of a concentration of glass beads (n = 1,408) and a small number of shell beads, ground and flaked stone tools, and other artifacts found in the southwestern corner of burial Feature 50 and may have been associated with this burial. Nonburial Feature 252, located below nonburial Feature 68, was an artifact concentration with a variety of shell beads and glass beads, abalone shell, at least 1 ceremonially “killed” ground stone bowl, a flaked core, a drill point, red ocher, and 2 steatite tablets (*comales*), 1 of which was incised with what appears to be a four-legged-animal motif (see Figure 15). The remaining nonburial features appeared to have been caches of beads that had, at one time, been strung together in strands. Nonburial Feature 75 may have spilled out from a nearby abalone shell in burial Feature 516. In summary, these 10 nonburial features located within the burial ground are very likely to have been remnants of mortuary offerings or displaced grave goods from 1 or more burials, as determined from the proximity of numerous burials and the recovery of human bone from 7 of the 10 nonburial features (nonburial Features 75, 78, and 122 did not have human-bone fragments).

The midden area into which the burials were placed also yielded isolated artifacts that originally may have been associated with burials but had been displaced over time through the excavation of new burials or bioturbation. Other artifacts may have been scattered over the burial(s) during interment or as part of mourning ceremonies. These artifacts were similar to those in the collections obtained from burials and the 10 nonburial features discussed above. Noteworthy items recovered from the southwestern part of the burial area (within the main concentration of burials) included a possible anthropomorphic serpentine figure (Excavation Unit 161) (Figure 115b), a zoomorphic serpentine figurine (Excavation Unit 166) (see Figure 115a), a rattlesnake effigy (Excavation Unit 155), a steatite shaft straightener (Excavation Unit 174) (Figure 116),

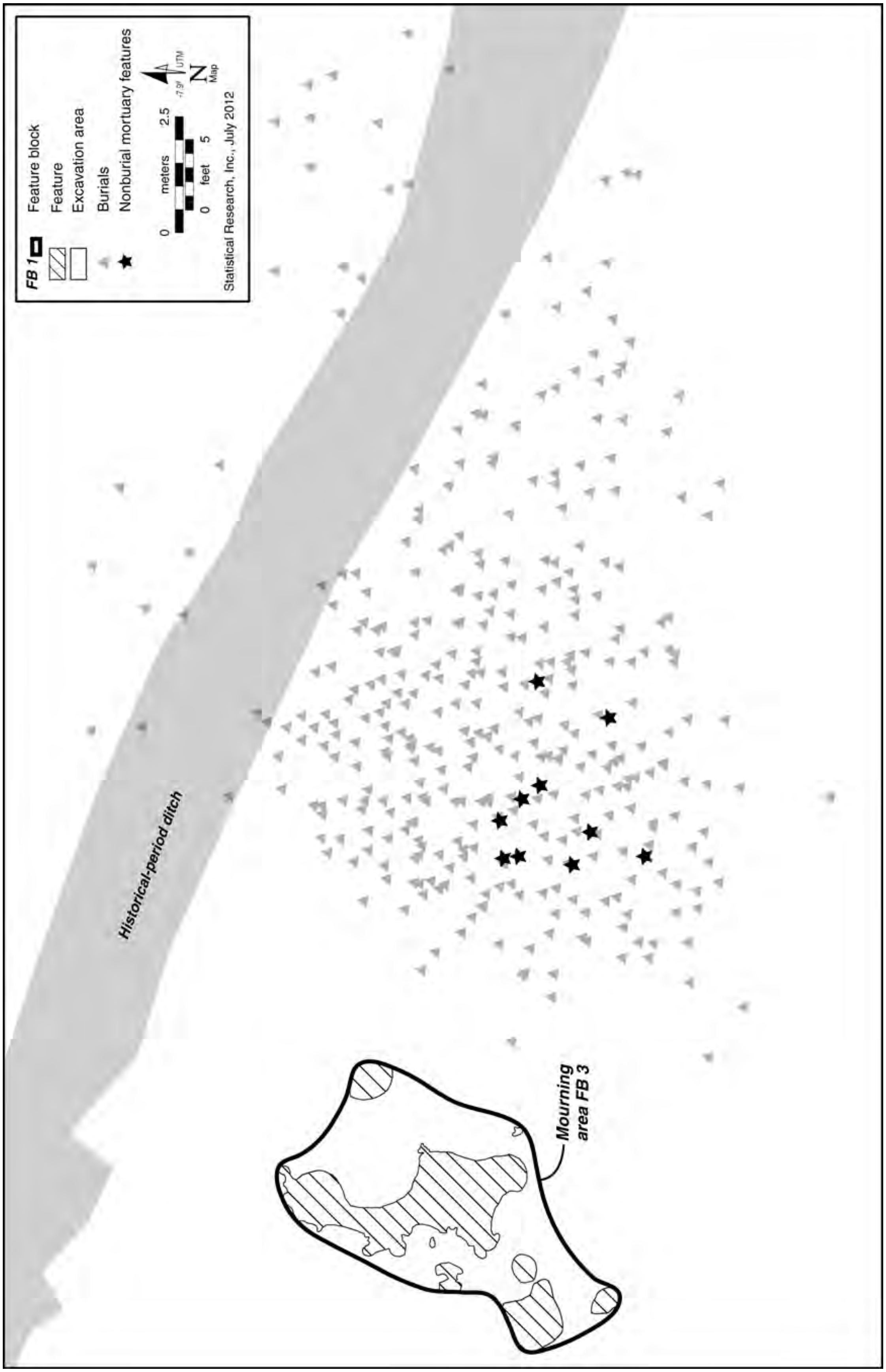

Figure 114. Nonburial mortuary features within the burial ground at LAN-62.

Table 49. Artifacts Recovered from Nonburial Mortuary Features in the Burial Area at LAN-62

Artifact Type	Feature No.										Total	Percent
	29	35	68	70	75	78	122	127	224	252		
	RC	AC	AC	AC	AC	AC	Pit	AC	AC	AC		
Shell beads	3	56	32	243	425	—	10	154	739	13	1,675	28.8
Asphaltum-covered shell	—	—	1	—	—	—	—	—	—	—	1	0.02
Worked-bone artifacts	—	1	—	—	—	—	—	—	—	—	1	0.02
Projectile points	—	1	—	—	—	—	—	—	—	1	2	0.03
Flaked stone artifacts	101	17	38	8	2	—	1	—	1	34	202	3.5
Stone beads	—	—	1	—	—	—	—	—	—	8	9	0.2
Ground stone artifacts	3	1	26	—	—	—	—	—	—	27	57	1.0
Comales[a]	—	—	—	—	—	—	—	—	—	2	2	0.03
Glass beads	1	48	1,408	69	1,416	200	57	—	—	545	3,744	64.5
Religious artifacts	1	—	—	—	—	—	—	—	—	2	3	0.05
Basketry and cordage	—	2	1	—	—	—	—	—	—	1	4	0.07
Other artifacts	11	4	6	2	—	—	1	—	—	78	102	1.8
Total	120	130	1,513	322	1,843	200	69	154	740	711	5,802	
Percent	2.1	2.2	26.1	5.6	31.8	3.4	1.2	2.6	12.8	12.2		

Key: AC = artifact concentration; RC = rock cluster.
[a] Steatite tablets.

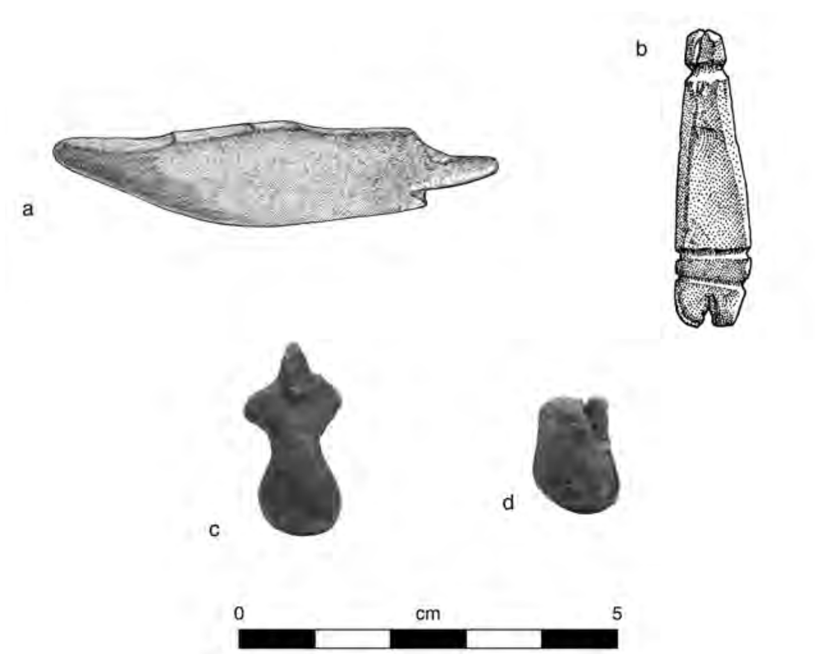

Figure 115. Artifacts recovered from a burial-area midden at LAN-62: (*a*) zoomorphic figurine from Excavation Unit 166; (*b*) possible anthropomorphic figurine from Excavation Unit 161; (*c*) possible anthropomorphic clay figurine from burial Feature 443; (*d*) possible anthropomorphic-figurine fragment from burial Feature 285.

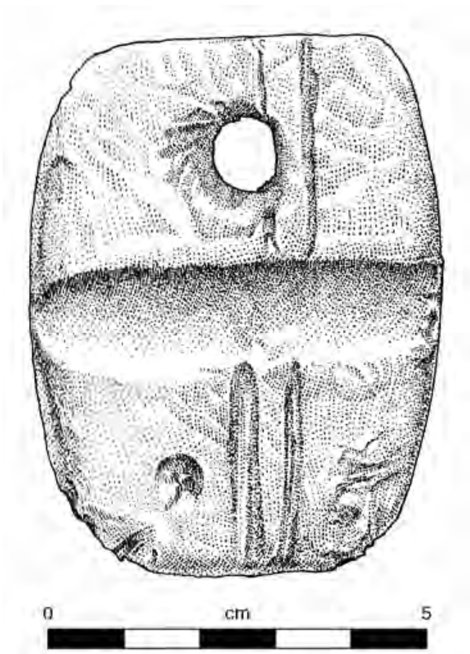

Figure 116. Shaft straightener with biconical hole from burial-area Excavation Unit 174, LAN-62.

steatite rim-sherd pendants (Excavation Unit 146), a *comal* (Excavation Unit 181), horse tack (Excavation Unit 143), a pocketknife (Excavation Unit 138), a cast-brass button (Excavation Unit 144), a copper or brass bell (Excavation Unit 164), an iron fishing weight (Excavation Unit 164), and scissors (Excavation Unit 154). The serpentine possible anthropomorphic figurine (see Figure 115b) was an armless human form (3.9 cm in height) with a 0.13-cm-wide, V-shaped groove that served as the neck, creating a "head" 0.56 cm in length. Two parallel, 0.14-cm-wide and 0.05-cm-deep, V-shaped grooves encircled the body just above the cleft "legs" formed by a 0.18-cm-deep groove. A light ocher staining covered the figurine. The zoomorphic figurine, made from a waterworn serpentine pebble, also had light ocher staining and was a possible dolphin effigy with a notched mouth but, overall, exhibited little to no evidence of shaping (see Figure 115a). The steatite shaft straightener had 3.9-mm-wide and 0.6-mm-deep, V-shaped, longitudinal incisions that ran parallel to each other and perpendicular to the central transverse groove (see Figure 116). Probably made from a recycled *comal* fragment, it had a biconical hole drilled near the midline of one end. The large size of the hole (9.8–16.5 mm in diameter) suggested that it was more than purely decorative.

Two ceramic effigies were also found. One was recovered from burial Feature 443, which had no primary individual and could not be dated. The effigy, recovered from the feature matrix and not directly associated with any burial, was an intact, three-dimensional effigy or figurine in the shape of a humanoid that has been interpreted as a "Venus" effigy that may have functioned as a female fertility effigy (see Appendix G.1 [CD-ROM], Volume 3 of this series) (see Figure 115c). The object measured 2.8 cm in maximum length and 2.2 cm in maximum width and had a flat base. A second intact, three-dimensional ceramic artifact was recovered from burial Feature 285, another undated feature without a primary individual. Other artifacts recovered from this feature included approximately 170 shell beads (including 120 that were high status), 15 glass beads, a Cottonwood Triangular projectile point, fragments of basketry, 3 pieces of debitage, a fire-affected-cobble fragment, a hammer chopper, and fragments of cordage, a 12-by-9-cm concentration of a white, fibrous botanical material. This material was located beneath the cranium of one of the individuals found in this feature and may have been the remnants of an article of clothing, a pit liner, or a mortuary offering. The ceramic effigy recovered from the feature matrix and not in direct association with any specific individual had no formal representation but was conical in shape, had been truncated on the narrow end of the cone, and had a ceramic appliqué piece of indeterminate design (see Figure 115d). Notably, this object closely resembled a number of similar ceramic "tapered cylinders" recovered from Millingstone period contexts at ORA-64 in upper Newport Bay (Drover 1971; Drover et al. 1979; Drover et al. 1983:20–21; Macko 1998). Macko (1998:63) speculated that the objects could be composite doll or figurine parts (with twigs or sticks attached as appendages), earplugs or labrets, or simple adornments. The composite figurines may have been used in witchcraft or ritual incantations (Drover et al. 1979). Another possibility is that they were used as gaming pieces. Notably, both three-dimensional effigies were in mortuary contexts, and no other ceramic artifacts were recovered from the burial ground.

Interpreting the Social Order

To define the implications and meaning of mortuary offerings in the Ballona burials as they pertain to social organization among the Gabrielino/Tongva, it is first necessary to define the cultural symbols of social differentiation in the Ballona. Like Martz (1984), we begin by dividing the social world of the Ballona into economic, political, and religious realms. We distinguish different types of social status associated with each of these realms: wealth, prestige (i.e., social or political status), and socioreligious roles. On the basis of ethnohistorical and ethnographic knowledge about Gabrielino/Tongva practices and previous archaeological research, we have identified five categories of mortuary offerings as the primary symbols of social differentiation in the Ballona burials: number of grave goods, number of shell beads, number of high-status shell beads, number of glass beads, and number of socioreligious artifacts (Table 50). The overall frequencies of grave goods and frequencies of beads used as currency are the primary symbols of wealth. Frequencies of glass beads

Table 50. Distribution of Status Goods in Protohistoric through Mission Period Burial Features at LAN-62, by Phase

Category	Late Mission Period		Terminal Mission Period		Other Protohistoric through Mission Period		Total Protohistoric through Mission Period
	n	%	n	%	n	%	n
Number of burials	46	26	3	2	125	72	174
Total grave goods	48,545	56	15,603	18	22,538	26	86,686
Average number of grave goods, by burial	1,055		5,201		180		498
All shell beads	36,437	58	15,078	24	11,308	18	62,823
High-status shell beads	2,153	44	1,027	21	1,712	35	4,892
Glass beads	11,652	53	416	2	9,735	45	21,803
Socioreligious artifacts	15	28	15	28	25	44	55

and other European-introduced artifacts are additional indicators of wealth but also indicate individuals who interacted with European ranchers, missionaries, and traders and obtained their wealth from nontraditional sources. As defined by King (1974), beads that require high labor investment or are particularly showy are the primary indicators of prestige, whereas unusual items with symbolic or ritual functions are indicators of individuals with socioreligious roles. We have also examined mortuary preparations—cremation vs. inhumation, placement of the body in the grave, orientation, and the direction of head facing—but found little patterning that might reflect social differentiation. Fully flexed inhumations, placed on their sides, oriented to the southeast, with the head facing between the southwest and the northwest, were the most-common burial preparations. Individuals with indicators of high status in the economic, the political, or the religious realm were not prepared differently. Similarly, little difference was apparent in the preparation of different sex or age groups, once the demographic profile of the burial ground was considered.

The distribution of these material symbols among the Protohistoric through Mission period burials was pyramidal, as, on the surface, one might expect in a society with distinct social ranking. That is, a few individuals (presumed to be wealthy or otherwise high ranking) had most of the grave offerings, whereas most individuals (presumed to be less wealthy or otherwise lower ranking) had very few grave offerings. If frequencies of grave goods are considered indications of wealth or social standing, then the Protohistoric through Mission period burials at LAN-62 showed obvious differentiation. Twenty-two burials (13 percent of the Protohistoric through Mission period burials) contained more than 82 percent of the grave goods recovered from Protohistoric through Mission period burial features with primary individuals (see Table 44). By contrast, the bulk of the Protohistoric through Mission period burials with primary individuals (i.e., those in the category of very low frequency of grave goods; 69 percent of all burials) had a little more than 3 percent of all the grave goods. Although burials with large quantities of grave goods and those with very few were generally commingled, burial features with high frequencies of grave goods were concentrated within the southwestern portion of the burial ground (Figure 117). These burials included those of nine adult females, three adult males, four adults of indeterminate sex, and six nonadults, including two fetuses or infants. When nonadults were compared to adults in the four grave-goods groups, nonadults fell into the groups with higher frequencies of grave goods to a greater extent than expected from their representation in the burial population (Table 51), indicating that nonadults had disproportionately higher numbers of grave goods than the burial population in general. Such evidence of differential distribution of grave goods, higher concentrations of grave goods in burials of nonadults, and concentration of burials with large frequencies of grave goods in selected areas of a burial ground have often been seen as prima facie evidence of a hereditary, hierarchically organized society (Gamble et al. 2001; Martz 1984).

A more careful examination of the data, however, suggests that the situation is far more complicated: many of the differences observed in mortuary preparations are the product of temporal factors rather than social differentiation. Furthermore, dividing the social world into economic, political, and socioreligious realms provides a much clearer picture of the structure of Gabrielino/Tongva society in the Protohistoric through Mission period.

Insights into the Evolution of the Burial Ground

The burial ground at LAN-62 was established near the end of the Late period. Peck (1947) found approximately 15 burials in Locus B, about 125 m east of the Locus A burial area investigated by SRI. Additional burials were undoubtedly present in the space between SRI's and Peck's excavations before

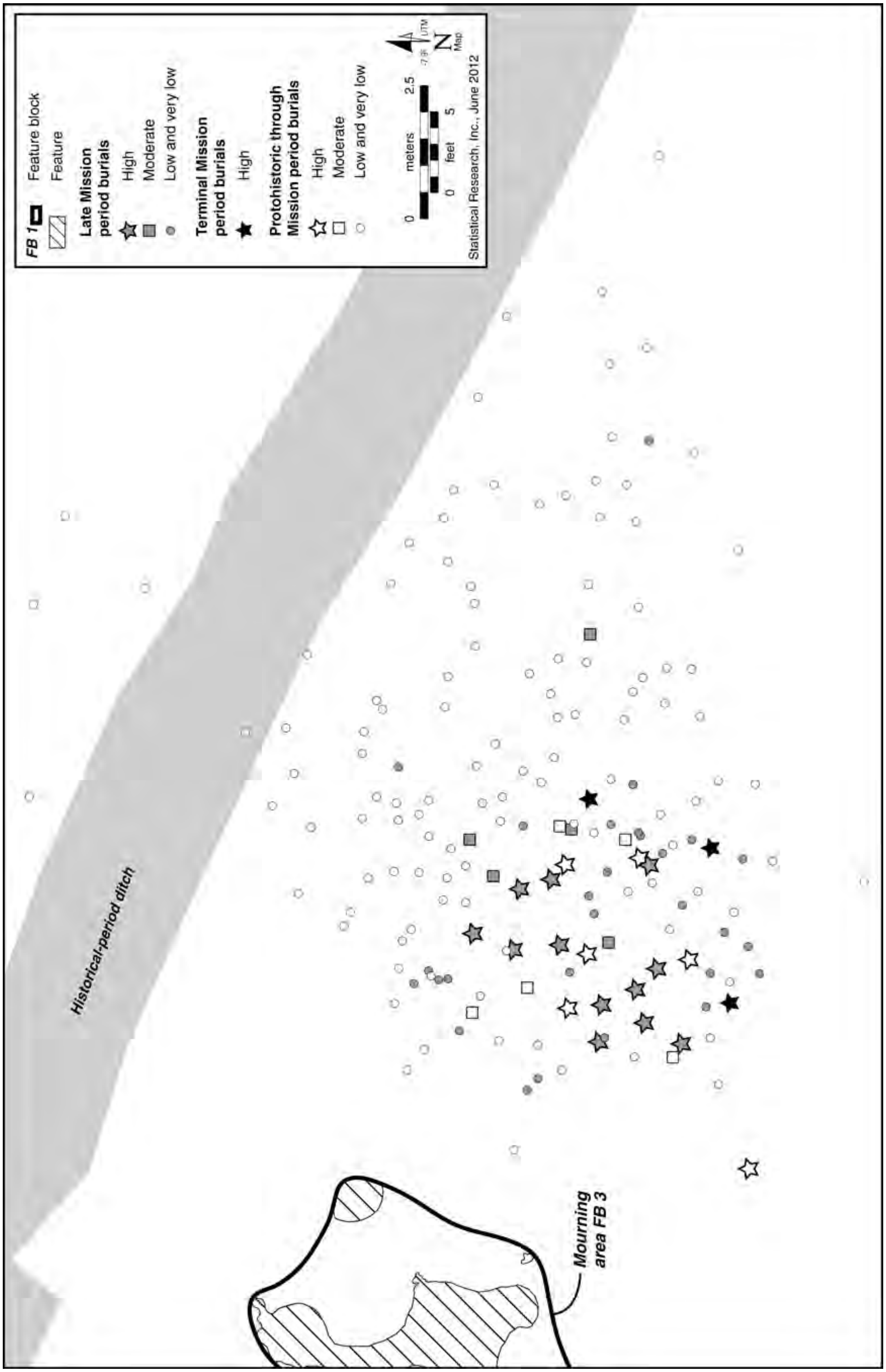

Figure 117. Distribution of burial groups by phase and grave-goods frequencies during the Protohistoric through Mission period at LAN-62.

Table 51. Protohistoric through Mission Period Burials at LAN-62, by Grave-Goods Frequency, Age, and Sex

Age and Sex of Primary Individual[a]	Frequency of Grave Goods: High (>1,000)	Moderate (500–1,000)	Low (100–500)	Very Low (<100)	Total
Adult female	9	6	6	52	73
Adult male	3	1	5	29	38
Adult, indeterminate sex	4	2	5	23	34
Subadult female	—	—	—	1	1
Subadult, indeterminate sex	—	—	2	4	6
Child, indeterminate sex	1	—	—	5	6
Fetus/infant, indeterminate sex	5	3	2	3	13
Indeterminate-age female	—	—	—	2	2
Indeterminate age and sex	—	—	—	1	1
Total	22	12	20	120	174

[a] Because of the way in which the data were tallied for counts of grave goods, the age-sex class of only one of the primary individuals is given for the few burial features with more than one primary individual. That is, counts are for burial features, not for individuals.

Hughes Aircraft Company removed this part of the site to construct its runway. This is corroborated by Shulene's (Thiel 1953) excavation of an unknown number of additional burials throughout Locus B. Although the reports are very limited, all evidence suggests that these burials were prehistoric and that burial density was relatively low. The burial area investigated by SRI in Locus A extended over a distance of approximately 20 m north–south by 30 m east–west, to the western edge of Locus B. The eastern two-thirds of this area contained a low density of burials. Virtually none of the burials that could be dated to the Protohistoric through Mission period was found in this eastern part of the burial area, suggesting that this is an extension of the prehistoric burial ground excavated by Peck and Shulene in Locus B. However, probable Late period burials extended all the way to the western edge of the Locus A burial ground. Thus, at a minimum, the Late period burial ground extended over 150 m along the base of the bluff, from the westernmost burial in Locus A through Locus B (Figure 118).

By contrast, Protohistoric through Mission period burials were concentrated in a much smaller area, measuring about 9 m north–south by 11 m east–west, in the southwestern part of this larger burial ground, and late Mission period burials were concentrated in an even smaller, 6-m-diameter area in the southwestern portion of the Protohistoric through Mission period burial area. This appears to have been the area of the burial ground that was the latest to be used. The dense concentration of burials within this smaller, tightly bounded Protohistoric through Mission period burial area suggests that it may have been fenced, as reported in ethnohistorical accounts of Gabrielino/Tongva and Chumash burial grounds (Grant 1978) (Figure 119). Furthermore, there is a pattern of a gradual but long-term southwestward shift in the location of the burial ground and an increasingly smaller area in which burials were placed.

Only 46 of the Protohistoric through Mission period burial features contained semiground disk beads indicative of the late Mission period, and 3 burial features contained these as well as terminal Mission period rough disk beads. Only 4 burial features had early Mission period ground disk beads but no later disk beads; however, ground disk beads were present in frequencies of fewer than 10 per burial feature (Table 52). Therefore, as noted earlier, no burial features were assigned to the early Mission period. All of the 4 burial features with ground disk beads but no later disk beads also were located within the southwestern part of the burial concentration.

As determined from the argument of *terminus post quem*, and according to a conservative approach of assigning periods by frequencies of Mission period disk shell beads, all of the burials with semiground or rough disk beads probably were placed in the ground after A.D. 1800 (if the bead chronology suggested by King [1981] and Gibson et al. [2003] is presumed accurate). Thus, almost 30 percent of the Protohistoric through Mission period burials could be relatively securely dated to the late Mission period. Although the remaining Protohistoric through Mission period burials contained shell beads or glass beads or other associations that placed them firmly in the Protohistoric through Mission period, none of them had temporal indicators with the fine temporal resolution necessary to place them in a particular time within the Protohistoric through Mission period. Although some or many of these burial features may also have been late or terminal Mission period burials, as suggested by stratigraphic relationships, all that we can conclude at this time is that they dated to sometime in the Mission period but probably before the terminal Mission period, as determined from the absence of rough disk beads (*terminus ante quem*).

These data provide important insights into the evolution of the burial ground as well as the social order of those who used it. The concentration of wealthy and high-status burials in the extreme southwestern part of the burial ground was strongly influenced by temporal factors. It is significant that 3 of the burial features assigned to the terminal Mission period (because each contained more than 10 rough disk beads)

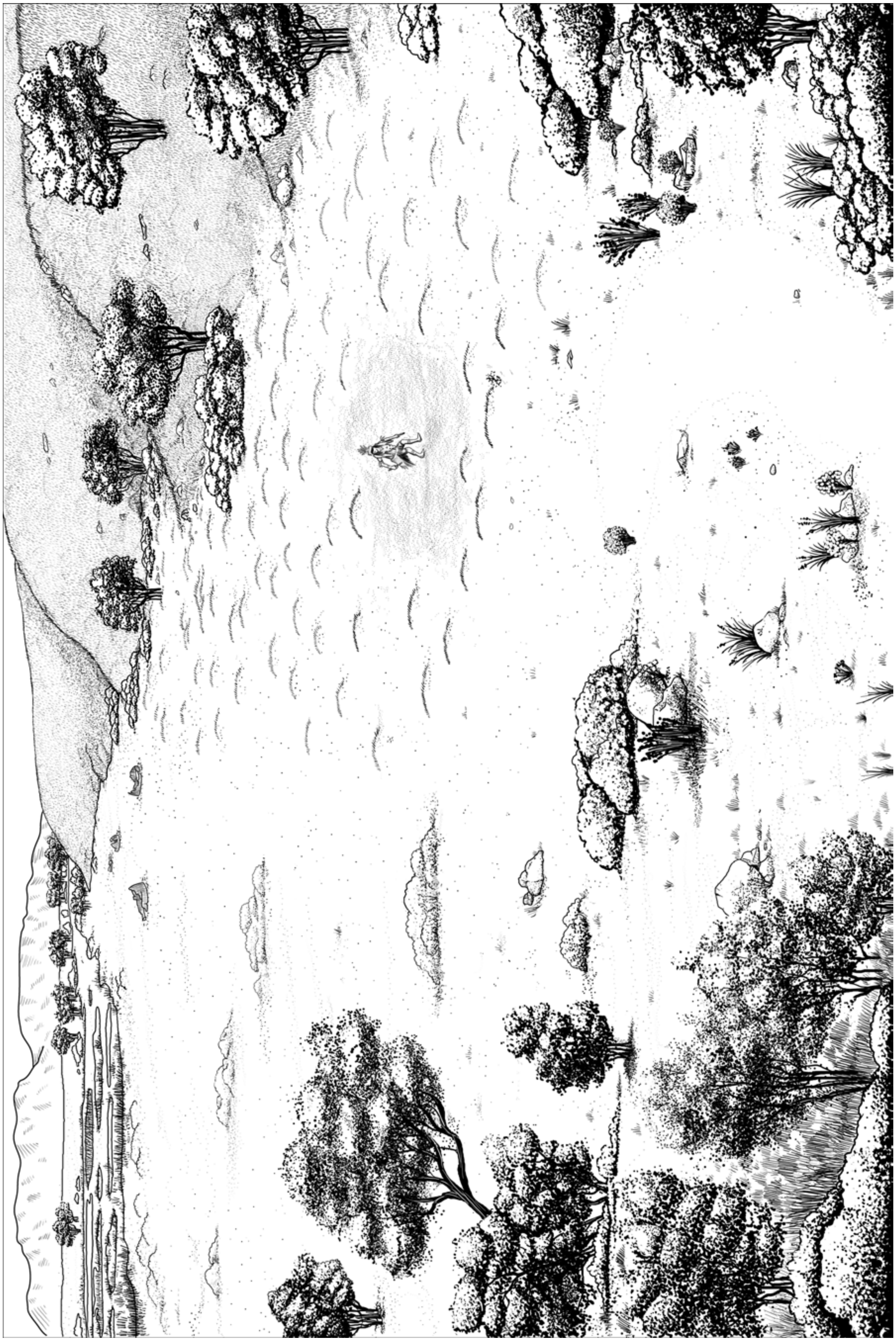

Figure 118. Reconstruction of the burial ground at LAN-62 dating to the Late period; view from the east.

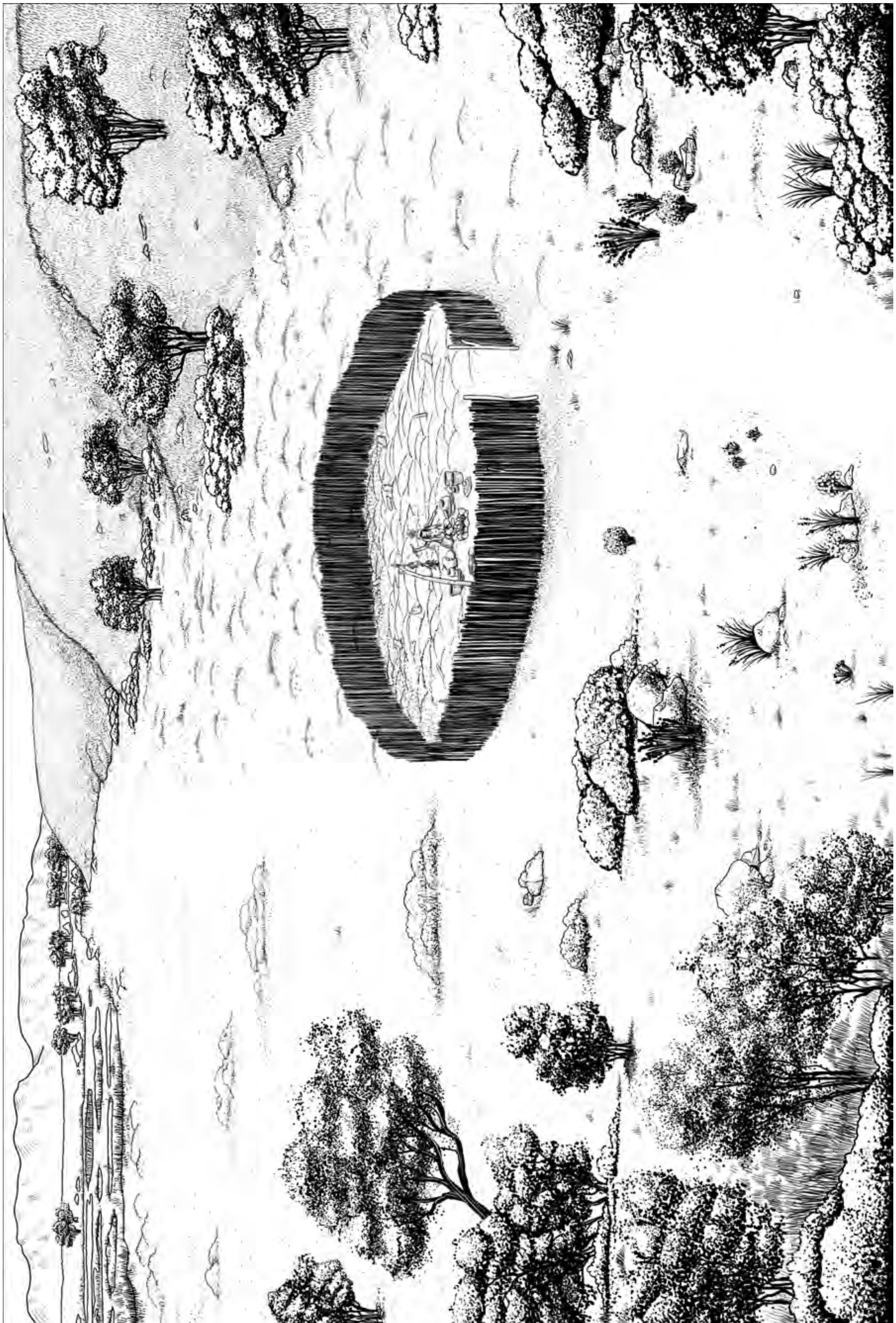

Figure 119. Reconstruction of the burial ground at LAN-62 during the Protohistoric through Mission period; view from the east.

Table 52. Protohistoric through Mission Period Burial Features at LAN-62 with Time-Sensitive Shell Beads

Shell-Bead Type	n	Percent
No disk shell beads (but has colonial items)	55	33
Ground disk only—early Mission period[a, b]	4	2
Ground disk (in any quantities)[c]	15	9
Semiground disk only—late Mission period	46	27
Semiground disk (in any quantities)[a]	108	64
Rough disk only—terminal Mission period[a]	1	1
Rough disk[d]	10	6

[a] Includes burials with 1 bead each (i.e., in very low frequencies).
[b] Despite having ground disk beads, these burial features were not assigned to the early Mission period; see text for explanation.
[c] Range is 1–197 beads each.
[d] Range is 1–108 beads each.

and 43 of the burial features assigned to the late Mission period (because each contained more than 10 semiground disk beads) were found in this area (see Figure 117). Although glass beads were distributed throughout the Protohistoric through Mission period burial area, all the burials with large numbers of glass beads were found in the southwesternmost part, as well (see Figure 96), but burial features with other Historical period artifacts were not (see Figure 95). These data are consistent with ethnohistorical accounts that indicate little interaction between the inhabitants of the Ballona and the Spanish before the establishment of Rancho de los Quintos in 1803 (see Chapter 8, this volume). Thus, large numbers of artifacts of European production should not have entered the burial ground before 1800. On the basis of this evidence, we conclude the following.

If we assume that burial features without grave goods dated mostly to the Late and Protohistoric periods (see above) and that those without semiground and rough disk beads dated mostly to the early Mission period, a general trend in the growth and formation of the burial ground can be discerned. Before the Mission period, most burials were placed in the northern and eastern parts of the burial ground. Although we do not know how many burials were removed by the early-twentieth-century ditch along the northeastern boundary of the burial area, the number probably was not large, as determined from the distribution of burials on both sides of the ditch. The main concentration of Late, Late through Mission, and Protohistoric through Mission period and early Mission period burials was on the west side of the ditch and the northern end of the burial ground. By contrast, relatively few burials dating to the Late, Late through Mission, and Protohistoric through Mission periods were present in the southwestern part of the burial ground. At this earlier time, this part of the burial ground was occupied by a hard-packed surface that we interpret as a dance floor (nonburial Feature 50) that may have been used in rituals and other ceremonies associated with the use of the burial ground. As of some time in the late Mission period, burials were placed into this feature, and the area was incorporated into the burial ground. The mourning area (FB 3), also dating to the late and terminal Mission period (see below), was only 2 m to the west-northwest of this late Mission period burial area. Significantly, no late or terminal Mission period burials intruded into FB 3, suggesting that its use for mourning ceremonies continued at this time, and no burials were located to the west, north, or south of FB 3 or beneath it. This further suggests that the mourning area was always located outside the burial ground.

If King's (1981) bead chronology for the Mission period is accurate, then most of the indicators of wealth, prestige, and socioreligious roles were buried in the late through terminal Mission period burials, and few or no earlier burials contained many grave goods. Of the 22 Protohistoric through Mission period burial features that had the highest frequencies of grave goods, 15 dated to the late through terminal Mission period, and all were located in the southwestern corner of the burial ground. By contrast, only 7 burial features with high frequencies of grave goods (burial Features 85, 155, 165, 204, 244, 438, and 516) could not be dated more precisely than the Mission period. Six of these were located in this southwestern corner of the burial ground, whereas the seventh was an isolated burial feature located 2 m farther southwest. The 6 burial features in the southwestern corner may have dated to the early Mission period, but we cannot preclude the possibility that these burial features dated to the late or terminal Mission period but lacked semiground and rough disk beads. Significantly, glass beads constituted the bulk of the grave goods in 3 of these 6 Mission period burials and a large proportion of the grave goods in a third. Thus, these 3 individuals (in burial Features 155, 244, and 438) may not have acquired many shell beads of any type. In contrast to the late and terminal Mission period burials, virtually all (109 of the 119) indeterminate-phase Mission period burials had low or very low frequencies of grave goods. A chi-square statistic was calculated for the distribution of the four burial groups (high, moderate, low, and very low frequencies of grave goods) by time, combining the late and terminal Mission period groups. The difference is extremely significant ($\chi^2 = 34.01$, $df = 3$, $p < .0001$), and the strength of association is moderate (Cramér's $V = 0.45$) (Table 53).

Table 53. Distribution of Time-Sensitive Protohistoric through Mission Period Shell Beads at LAN-62

Shell-Bead Type	Burials with High Frequencies of Grave Goods		Burials with Moderate Frequencies of Grave Goods		Burials with Low Frequencies of Grave Goods		Burials with Very Low Frequencies of Grave Goods		Total	
	n	%	n	%	n	%	n	%	n	%
Ground disk (early Mission period, A.D. 1771–1800)	623	1.2	112	2.2	2	0.1	2	0.1	739	1.2
Semiground disk (late Mission period, A.D. 1800–1816)	31,855	59.0	2,765	53.3	1,207	55.4	446	30.1	36,273	57.7
Rough disk (terminal Mission period, A.D. 1816–1834)	170	0.3	1	0.02	1	0.05	2	0.1	174	0.3
Other shell beads[a]	21,320	39.5	2,310	44.5	970	44.5	1,033	69.7	25,633	40.8
Total	53,968	100.0	5,188	100.0	2,180	100.0	1,483	100.0	62,819	100.0

Note: $\chi^2 = 34.01$, $df = 3$, $p < .0015$. Cramér's $V = 0.45$.

[a] "Other shell beads" indicates beads that spanned the entire Protohistoric through Mission period.

Gabrielino/Tongva Society in the Ballona

At these Ballona sites, for the most part, the three measures of an individual's position within the social order—wealth, prestige (i.e., social or political status), and socioreligious role—appeared to have been independent of one another. The distribution of high-status beads was different from those of other shell beads, of glass beads, and of frequency of grave goods overall. For example, burial features with high frequencies of grave goods and shell beads did not necessarily have high frequencies of high-status beads; in fact, some burial features had high frequencies of shell beads but only a small number of high-status beads, whereas others had few shell beads but most of these were high-status beads (Pearson's correlation coefficient $r = 0.649$ for association between grave goods and high-status shell beads) (Figure 120). Overall, the correlation between the number of high-status beads and the number of all shell beads was moderate (Pearson's $r = 0.639$ for high-status beads and other beads) (Figure 121). The strength of the Pearson's r values is exaggerated when compared to Figure 120 (which suggests only weak correlation). The reason for the apparent strength of the correlation indicated by Pearson's r is the large number of points at or near the origin in the graphs depicted in Figures 120 and 121. The inclusion of what essentially are 0-0 points makes the correlation based on Pearson's r look stronger than it actually is.

The correlation between numbers of glass beads and of high-status shell beads was weak (Pearson's $r = 0.325$) (Figure 122). A closer look at the relationship between number of high-status shell beads and frequency of grave goods indicates that 10 burial features had high frequencies (more than 250) of high-status shell beads (Table 54), and 8 of those 10 were wealthy, with more than 1,000 grave goods each. However, an almost equal number (n = 7) of wealthy burials (with more than 1,000 grave goods each) had fewer than 20 high-status shell beads each. Overall, fewer than 20 percent of the shell beads in wealthy burials were high status, whereas 0–100 percent of shell beads in burial features with low wealth were high status.

A weak positive correlation appeared to exist between the frequencies of high-status beads and of semiground disk beads (the most common form used as money in the Mission period) (Pearson's $r = 0.484$) (Figure 123). However, 8 of the 10 individuals with more than 250 high-status shell beads each had 1,000 or more disk shell beads each, whereas only 5 individuals with fewer than 50 high-status shell beads each had more than 1,000 disk shell beads each. Equally significant, all the disk beads dated to the late or terminal Mission period, according to King's (1990) bead chronology, suggesting that the association between wealth and prestige may have increased by the end of the Mission period, when the residents of the Ballona were interacting most intensively with the Spanish (see Chapter 8, this volume). Martz (1984:109) argued that in burials, the presence of Historical period artifacts produced by Europeans reflected high status. The correlation between number of glass beads and number of semiground disk shell beads was very weak (Pearson's $r = 0.248$) (Figure 124). Only 2 of the individuals with more than 1,000 disk beads each had more than 1,000 glass beads each, and those 2 had only 1,000–1,500 disk beads each. This result suggests the possibility that the 7 individuals who had more than 1,000 grave goods, fewer than 20 high-status

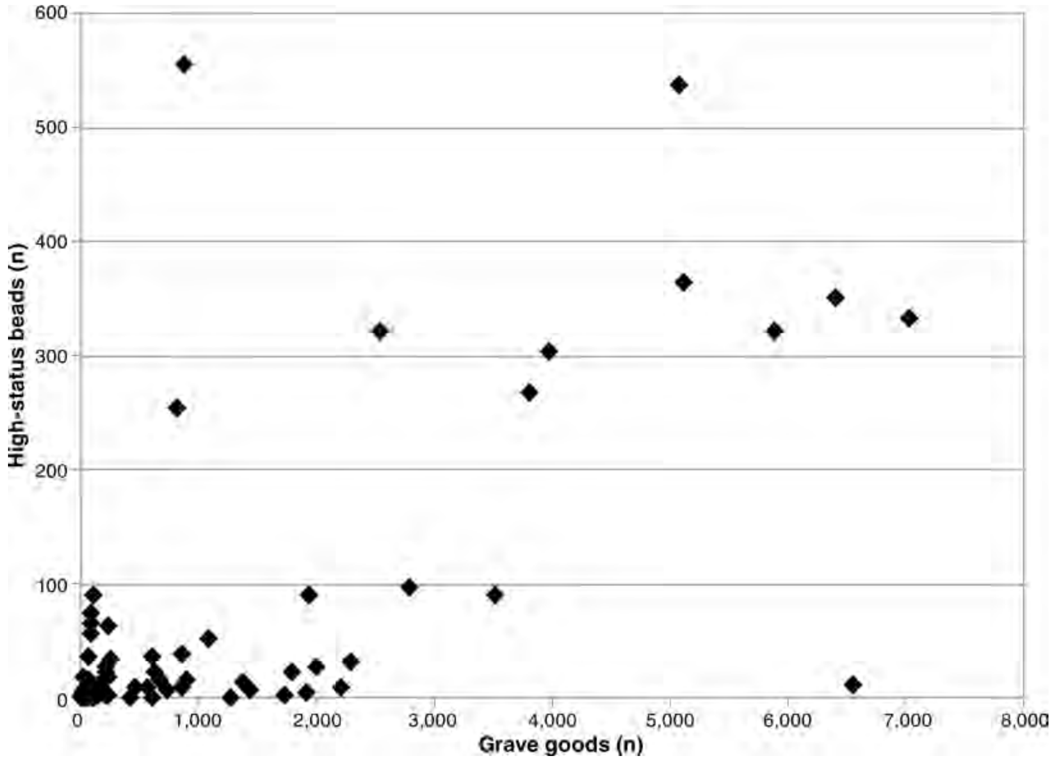

Figure 120. Relationship between number of high-status beads and number of grave goods in Protohistoric through Mission period burials at LAN-62.

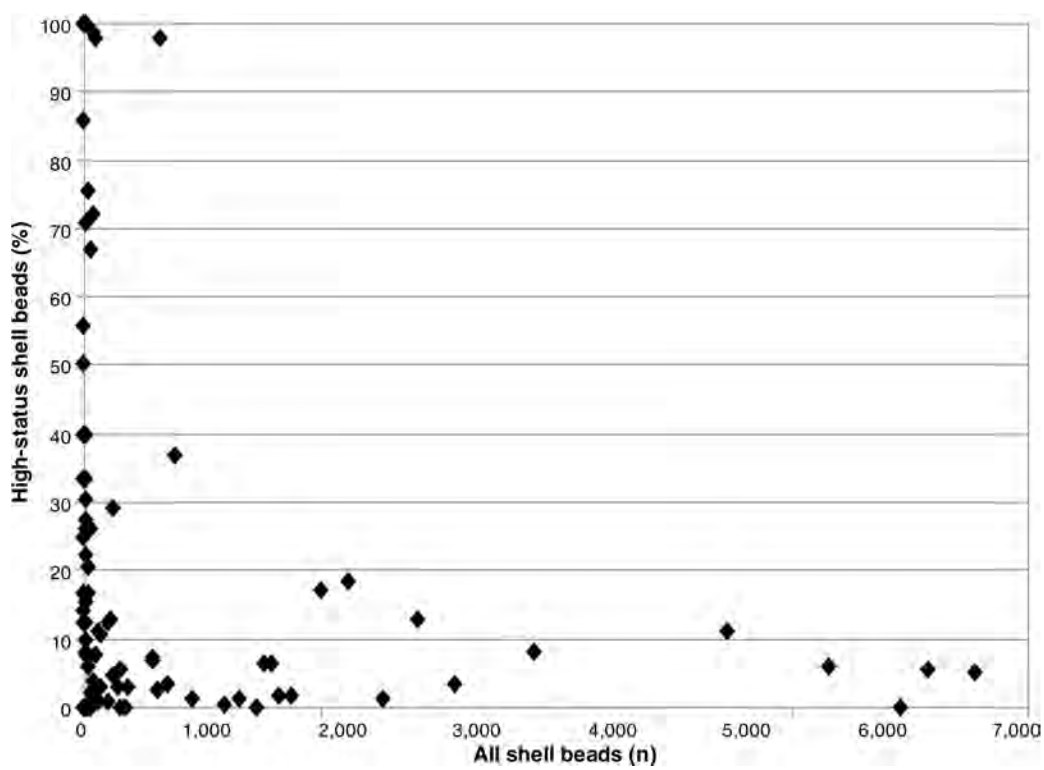

Figure 121. Relationship between percentage of high-status shell beads and total number of shell beads in Protohistoric through Mission period burials at LAN-62.

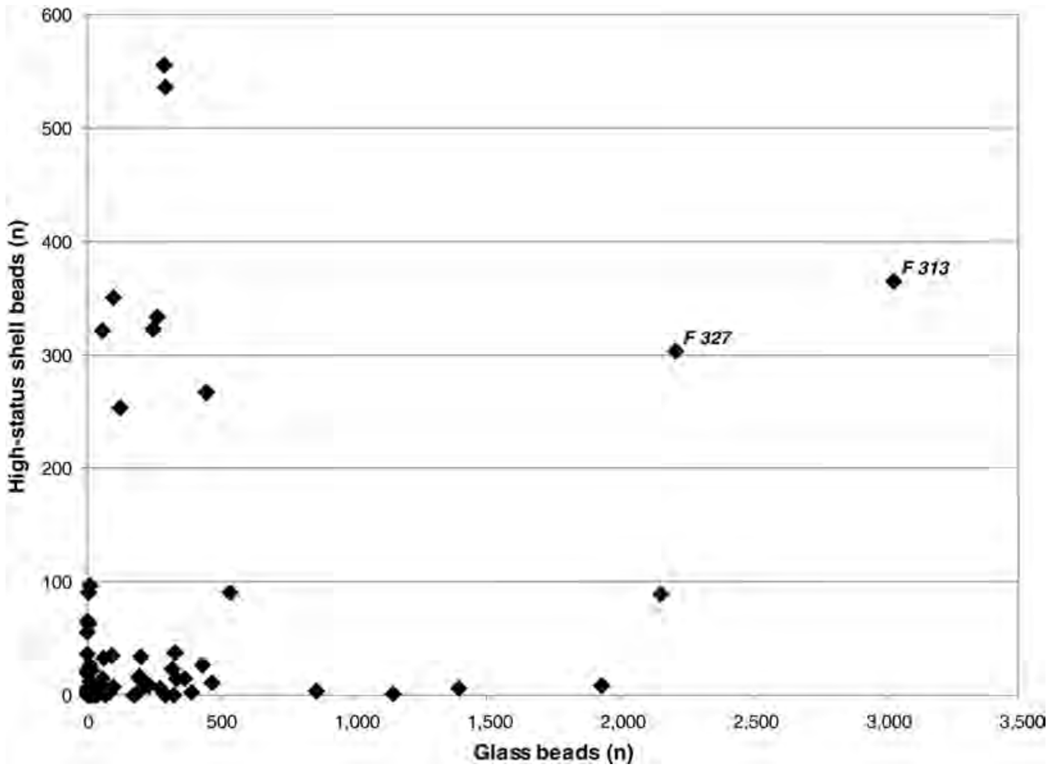

Figure 122. Relationship between number of high-status shell beads and number of glass beads in Protohistoric through Mission period burials at LAN-62.

Table 54. Protohistoric through Mission Period Burial Features at LAN-62 with High-Status Beads, by Overall Frequency of Grave Goods

Grave-Goods Frequency	No. of Burials	Burials with High-Status Beads[a]	Percent of Burials with High-Status Beads	Percent of Protohistoric through Mission Period Burials
Very low (<100 artifacts)	120	47	49	27
Low (100–500 artifacts)	20	17	18	10
Moderate (500–1,000 artifacts)	12	10	10	6
High (>1,000 artifacts)	22	22	23	13
Total	174	96	100	55

[a] Fused and unfused high-status beads.

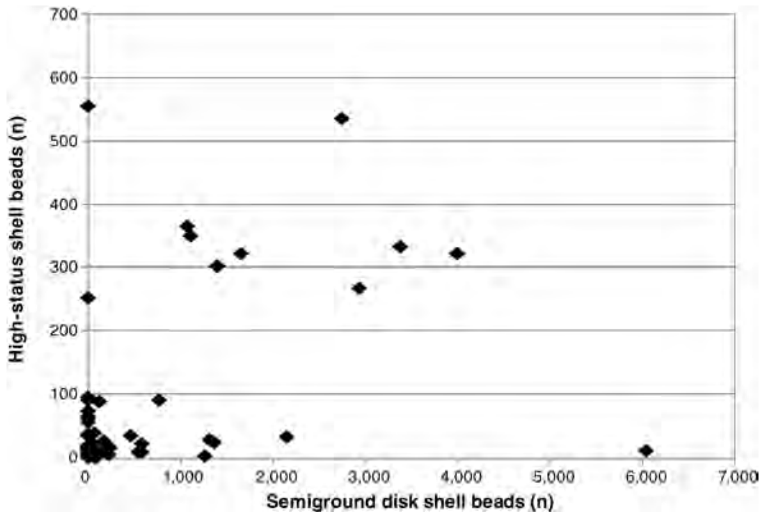

Figure 123. Relationship between number of high-status shell beads and number of semiground shell disk beads in Protohistoric through Mission period burials at LAN-62.

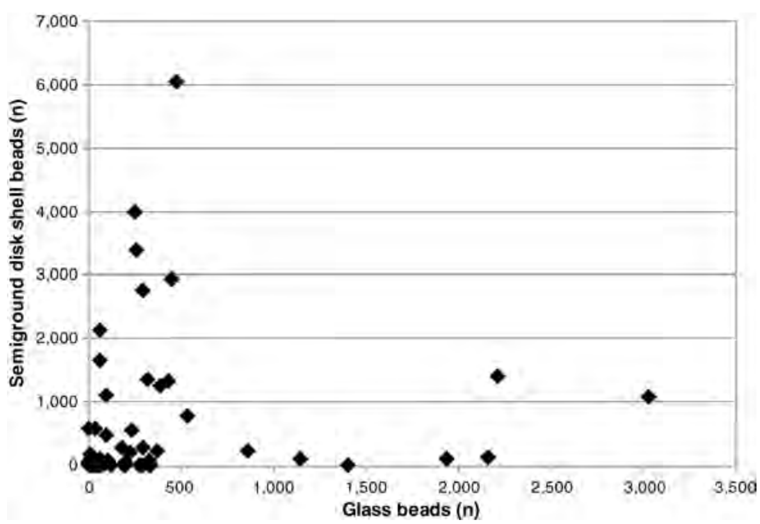

Figure 124. Relationship between number of semiground disk shell beads and number of glass beads in Protohistoric through Mission period burials at LAN-62.

shell beads, and large numbers of glass beads operated in a different economic sphere from that of individuals with large numbers of disk beads. The individuals with large numbers of glass beads may have been commoners (i.e., individuals who lacked prestige, wealth, and socioreligious roles) who acquired wealth by working for, or otherwise interacting with, the ranchers and the pueblo, and the individuals with large numbers of disk beads may have been the traditional leaders following traditional economic practices.

According to Spanish observers, glass beads were more desirable and of higher value to the Chumash than were the common type of needle-drilled disk shell beads, called *'altaqash* (John Johnson, personal communication 2014). In the Ballona, however, glass beads do not appear to have been held in higher esteem than shell beads, and people buried with large quantities of glass beads did not stand out in the burial population in any other way. This difference between the Gabrielino/Tongva and the Chumash is not surprising: their geographic proximity does not necessarily mean that they shared the same economic values. For example, shell beads were "local" items for the Chumash and had been available for generations. Thus, when glass beads were introduced to the Chumash, they were an exotic item and may have been more desirable for this reason. By contrast, shell beads were not locally produced and were rare in Ballona assemblages until the Mission period. Thus, both glass beads and shell beads were new and exotic, and they appear to have been equally valued by the Mission period population of the Ballona.

Six of the burial features with more than 1,000 glass beads each—those of 4 adult females, 1 adult of indeterminate sex, and 1 infant—were clustered within the southwestern part of the burial ground, suggesting that these individuals may have been related. Overall, individuals with glass beads were also the individuals with colonial items, and of 128 burial features with colonial items (including glass beads), only 12 had colonial items and no glass beads. Furthermore, most (n = 120) of these 128 burial features had semiground disk shell beads in high frequencies and were late Mission period burials (a.d. 1800–1816); only 3 burial features (located in the core area of the burial concentration) had colonial items and rough disk shell beads (terminal Mission period). In terms of glass-bead frequencies, individuals with more than 1,000 glass beads each had late Mission period semiground disk shell beads in higher frequencies (more than 90 beads each), with the exception of the adult female in burial Feature 438, who had more than 1,000 glass beads and 9 metal artifacts related to clothing, weaponry, and tools but only 1 semiground disk shell bead. Although, in general, individuals with other colonial items were those who also had glass beads, no strong correlation existed between frequencies of glass beads and of other colonial items (Figure 125).

Little association between indicators of socioreligious roles and prestige was apparent (Figure 126). Burial features with the artifacts that are indicative of socioreligious roles were concentrated largely in the southwestern part of the Protohistoric through Mission period burial ground (Figure 127). Pipes and musical instruments, such as whistles, flutes, and turtle rattles, have been identified as the most important material indicators of important religious roles in Chumash society, and they may have been associated with socioreligious roles in the Ballona (Green 1999; Martz 1984:72, 106). Deer-tibia whistles were used by the *'antap* at the sacred enclosure and at dances and ceremonies, and bone flutes were associated with shamanistic and magical activities (Blackburn 1975:106, 108; King 1969:61; Librado 1977:42). Turtle-shell rattles were used in mourning ceremonies, curing rites, and dances (Martz 1984:107). The burial features with bone whistles, rattles, and pipes in the Ballona were rarely associated with wealth or prestige. Nine burial features with primary individuals had these paraphernalia, albeit in low frequencies; they consisted of the burials of three adult females, three adult males, two adults of indeterminate sex, and one child. Eight of these burial features were located within the southwestern concentration, although burial Feature 120, that of an adult of indeterminate sex, was located on the eastern edge of this area. However, only burial Feature 76, that of an adult male, had a high frequency of grave goods. Burial Feature 10, that of an adult female, had a moderate frequency, and the remainder had low or very low frequencies. Again, with the exception of burial Feature 76, these burial features also had low frequencies of high-status shell beads; three had no high-status shell beads at all. Thus, these important ritual artifacts that have been associated with the *'antap* cult apparently did not exhibit such an association in the Ballona during the Mission period. Instead, their placement in graves seems to be incidental, and the individuals were not associated with either wealth or prestige.

The Protohistoric through Mission period burials with primary individuals at LAN-62 were grouped in terms of wealth, prestige, and socioreligious roles (Table 55). The criteria for assignment to these groups were as follows: for wealth, high frequencies (more than 1,000) of grave goods, including shell beads and glass beads; for prestige, more than 100 high-status beads; and for a socioreligious role, the presence of socioreligious artifacts (as described earlier in this chapter). On the basis of these three attributes, these burials were divided into six status groups (Table 56). Overall, 39 burials (22 percent of the Protohistoric through Mission period burials, including 41 primary individuals) had evidence of wealth, prestige, or socioreligious roles. The remaining 135 burials (78 percent) had no indicators of these realms of the social order. The six status groups were defined by the interplay of the three primary social realms—socioeconomic, sociopolitical, and socioreligious—which, in turn, were represented by wealth, prestige, and socioreligious roles, or combinations thereof (Figure 128; Table 57). These six status groups were as follows: (1) individuals with evidence of wealth, prestige, and a socioreligious role; (2) individuals with evidence of wealth and prestige only; (3) individuals with evidence of wealth and a socioreligious role only; (4) individuals with evidence of wealth only; (5) individuals with evidence of prestige only;

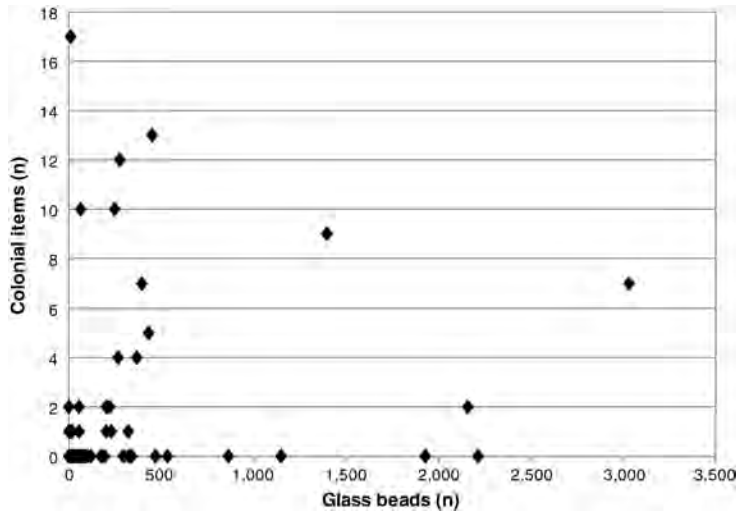

Figure 125. Relationship between number of colonial items other than glass beads and number of glass beads in Protohistoric through Mission period burials at LAN-62.

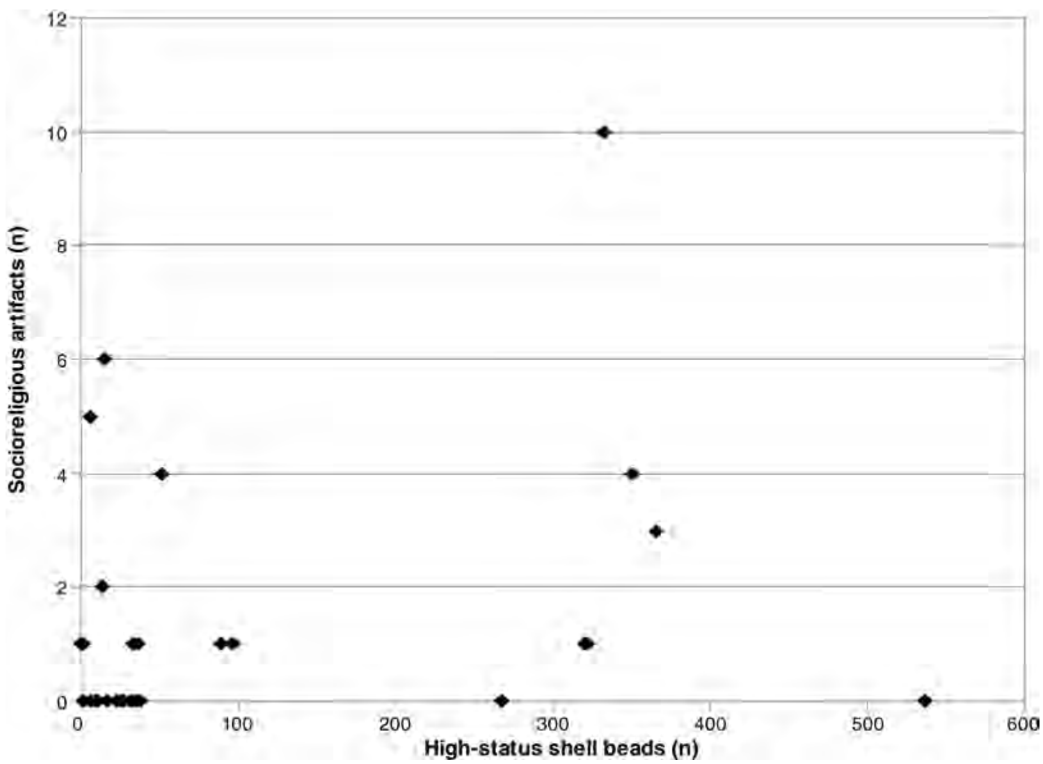

Figure 126. Relationship between number of socioreligious artifacts and number of high-status shell beads in Protohistoric through Mission period burials at LAN-62.

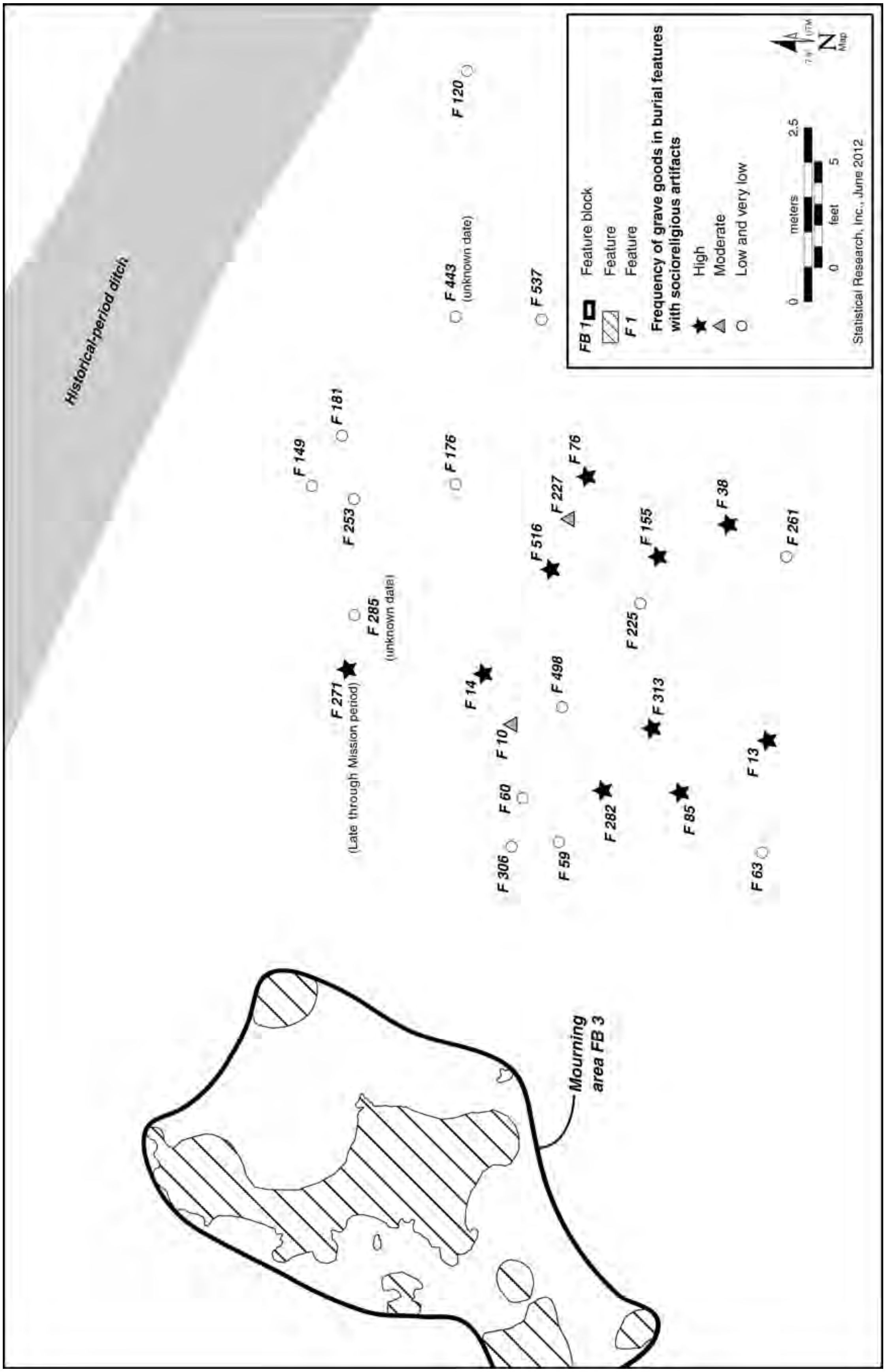

Figure 127. Distribution of all burials with socioreligious artifacts, by frequency of grave goods, LAN-62. All mapped burial features are Protohistoric through Mission period except as noted. Burial features without primary individuals are included.

Table 55. Burial Features with Indicators of Wealth, Prestige, and Socioreligious Roles in Each Age/Sex Category for the Protohistoric through Mission Period Burial Population at LAN-62

Age/Sex Category	Burial Features		Wealth[a]		Prestige[a]		Socioreligious Role[a]	
	n	%[b]	n	%[c]	n	%[c]	n	%[c]
Adult female	71	41	8	36	2	20	7	29
Adult female (P1) and adult female (P2)	1	1	—		—		—	
Adult female (P1) and adult, indeterminate sex (P2)	1	1	1	5	1	10	1	4
Adult female (P1) and fetus (P2)	1	1	—		—		—	
Adult male	37	21	3	14	2	20	8	33
Adult male (P1), adult male (P2), and child (P3)	1	1	—		—		—	
Adult, indeterminate sex	33	19	3	14	—		6	25
Adult, indeterminate sex (P1), and fetus (P2)	1	1	1	5	1	10	1	4
Subadult female	1	1	—		—		—	
Subadult, indeterminate sex	6	3	—		—		—	
Child	4	2	1	5	—		1	4
Child (P1) and adult, indeterminate sex (P2)	1	1	—		—		—	
Fetus/infant	13	7	5	23	4	40	—	
Indeterminate-age female	2	1	—		—		—	
Indeterminate age and sex	1	1	—		—		—	
Total	174	100	22	100	10	100	24	100

Note: Wealth = burials with indicators of wealth; Prestige = burials with indicators of prestige; Socioreligious Role = burials with indicators of a socioreligious role (see text for criteria). For burials with more than one primary individual, age and sex are listed in order for primary individuals 1 and 2 or for primary individuals 1–3.

[a] Includes any burial that had one or more indicators of the category.

[b] Percent of all burials.

[c] Percent of burials within status group.

Table 56. Protohistoric through Mission Period Burials with Material Indicators of Wealth, Prestige, or Socioreligious Roles at LAN-62

Burial Feature No.	Age and Sex	Wealth[a]	Prestige[b]	Socioreligious Role[c]	Wealth and Prestige	Wealth and Socioreligious Role	Wealth, Prestige, and Socioreligious Role
10	adult female	—	—	1	—	—	—
11	adult female	—	1	—	—	—	—
13	adult female	—	—	—	—	—	1
14	adult male	—	—	—	—	—	1
38	adult female (P1) and adult, indeterminate sex (P2)	—	—	—	—	—	1
50	adult, indeterminate sex	1	—	—	—	—	—
59	adult female	—	—	1	—	—	—
60	adult male	—	—	1	—	—	—
63	adult male	—	—	1	—	—	—
76	adult male	—	—	—	—	—	1
85	adult, indeterminate sex	—	—	—	—	1	—
90	infant	1	—	—	—	—	—
105	fetus	—	—	—	1	—	—
120	adult, indeterminate sex	—	—	1	—	—	—
149	adult male	—	—	1	—	—	—
155	adult female	—	—	—	—	1	—
165	fetus	1	—	—	—	—	—
170	infant	—	1	—	—	—	—
176	adult, indeterminate sex	—	—	1	—	—	—
181	child	—	—	1	—	—	—
204	adult female	1	—	—	—	—	—
222	infant	—	—	—	1	—	—
223	adult female	1	—	—	—	—	—
225	adult, indeterminate sex	—	—	1	—	—	—
227	adult female	—	—	1	—	—	—
244	adult female	1	—	—	—	—	—
253	adult male	—	—	1	—	—	—
261	adult male	—	—	1	—	—	—
265	adult female	1	—	—	—	—	—
276	child	1	—	—	—	—	—
282	adult male	—	—	—	—	1	—
306	adult female	—	—	1	—	—	—
313	adult, indeterminate sex (P1), and fetus (P2)	—	—	—	—	—	1
327	infant	—	—	—	1	—	—
408	adult female	1	—	—	—	—	—
438	adult female	1	—	—	—	—	—
498	adult, indeterminate sex	—	—	1	—	—	—
516	adult, indeterminate sex	—	—	—	—	1	—
537	adult female	—	—	1	—	—	—
Total		10	2	15	3	4	5
Percent		25.6	5.1	38.5	7.7	10.3	12.8

Key: P1 = primary individual 1; P2 = primary individual 2.
[a] High frequencies (>1,000) of grave goods, including shell beads and glass beads.
[b] More than 100 high-status beads.
[c] Presence of socioreligious artifacts.

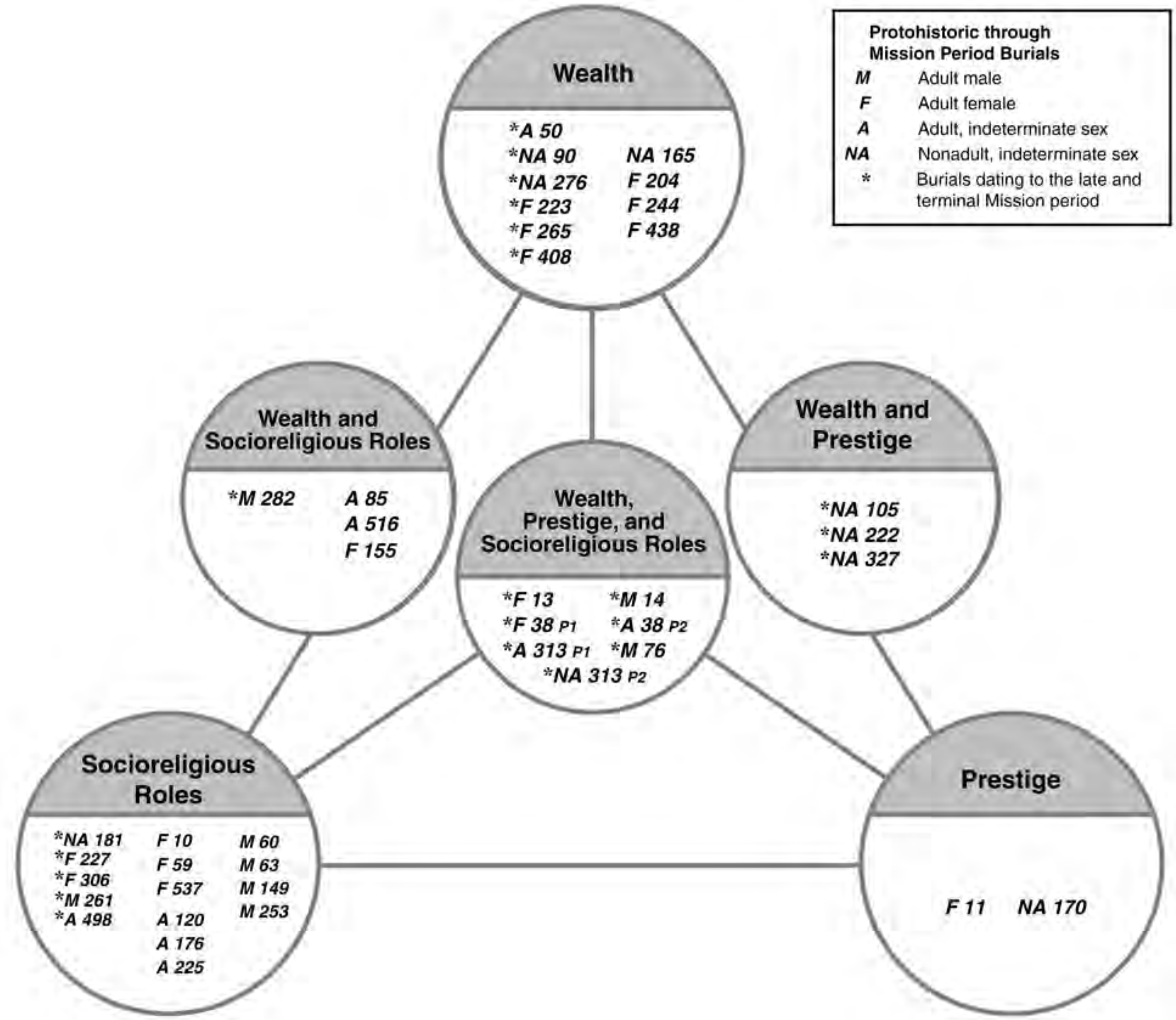

Figure 128. Protohistoric through Mission period status groups identified in the burial ground at LAN-62.

Table 57. Distribution of Indicators of Wealth, Prestige, and Socioreligious Roles, by Status Category

Burial Feature No.	Total No. of Grave Goods	Shell Beads[a]	Glass Beads	High-Status Shell Beads
	Wealth, Prestige, and Socioreligious Role			
13	2,538	2,157	57	321
14	5,883	5,214	249	322
38	7,021	6,290	262	333
76	6,391	5,922	97	350
313	5,108	1,594	3,030	365
Subtotal	26,941	21,177	3,695	1,691
Average	5,388	4,235	739	338
	Wealth and Prestige			
105	5,073	4,244	292	536
222	3,810	3,079	446	267
327	3,976	1,459	2,213	303
Subtotal	12,859	8,782	2,951	1,106
Average	4,286	2,927	984	369
	Wealth and Socioreligious Role			
85	1,088	522	425	52
155	3,518	1,256	2,157	89
282	1,261	103	1,147	1
516	2,785	2,668	8	96
Subtotal	8,652	4,549	3,737	238
Average	2,163	1,137	934	60
	Wealth			
50	1,718	1,277	391	2
90	1,926	1,302	534	90
165	1,365	1,144	198	14
204	1,916	1,046	860	4
223	2,001	1,518	434	27
244	2,203	258	1,933	8
265	2,293	2,184	63	32
276	1,777	1,428	321	23
408	6,540	6,050	470	11
438	1,441	1	1,399	6
Subtotal	23,180	16,208	6,603	217
Average	2,318	1,621	660	22
	Prestige			
11	811	434	122	253
170	870	14	291	555
Subtotal	1,681	448	413	808
Average	840	224	206	404
	Socioreligious Role			
10	723	17	272	6
59	62	18	26	9
60	191	116	55	14
63	4	—	2	—
120	70	18	1	36
149	18	3	—	—
176	13	3	6	—

Burial Feature No.	Total No. of Grave Goods	Shell Beads[a]	Glass Beads	High-Status Shell Beads
181	67	56	7	—
225	249	11	201	34
227	665	264	368	15
253	6	—	—	—
261	86	71	1	3
306	23	7	3	1
498	69	11	49	2
537	27	14	—	—
Subtotal	2,273	609	991	120
Average	152	41	66	8

[a] Excludes high-status shell beads.

and (6) individuals with evidence of a socioreligious role only. No individuals in these burial features showed evidence of prestige and a socioreligious role only (see Tables 56 and 57).

Wealth, Prestige, and Socioreligious Role

Individuals who showed evidence of all three types of status may have been the most important individuals (the *tomyaar*s) in the burial ground, as they were prominent in all three sociocultural realms. Overall, members of this group had the highest average frequency of grave goods and of non–high-status shell beads, a moderate to high average frequency of glass beads and high-status shell beads, and a diversity of socioreligious artifacts (see Table 57). Burial Features 13, 14, 38, 76, and 313 had evidence of wealth, prestige, and socioreligious roles. This group included the only burial features dated to the terminal Mission period (burial Features 13, 38, and 76).

Among these five burial features, burial Feature 38 stood out with the highest frequency of grave goods (n = 7,021) and socioreligious artifacts (n = 10). Burial Feature 38 was also unique in that both of the primary individuals in this feature individually fitted this group, but they had different combinations of artifacts reflecting different specific roles or identities. Both burials contained semiground and rough disk beads, indicating that they were contemporary late to terminal Mission period burials. The adult female was associated with an unusual arrangement of fragmented *comales* reflecting a particular socioreligious role, thousands of shell beads, a small number of glass beads representing wealth, and numerous Pismo clam tube beads and other high-status beads. By contrast, the second primary individual, an adult of indeterminate sex, had a large number and wide variety of socioreligious artifacts, including a shaft straightener and three ground stone pendants shaped like miniature *comales*. Also associated with the second individual were broken ground stone vessels, a carefully broken pestle, three metal artifacts, a bone pin, and a broken, ocher-covered biface. Only a few shell beads and no glass beads were directly associated with the second individual, but numerous beads were found in the fill nearby. Overall, the second individual appeared to have had less wealth but a much wider array of social identities than the first (the female). The small number of colonial artifacts found with both individuals suggests that both followed largely traditional lifestyles and probably had limited interaction with Europeans.

Burial Feature 13, that of an adult female, had more than 2,000 shell beads, including more than 300 high-status beads, but only 57 glass beads. A plummet and some ocher were the only possible socioreligious artifacts found in this burial feature. This individual appeared to have followed a traditional lifestyle with very limited interaction with European culture. The presence of semiground and rough disk beads indicated that this individual was buried in the terminal Mission period.

Burial Feature 14, that of an adult male, had a possible steatite warming stone that may have been symbolic of a shaman role, more than 5,200 shell beads, more than 200 glass beads indicative of wealth, and large numbers of high-status beads. This individual also had an abalone shell containing *Triticum aestivum*, *Salvia*, and *Calandrinia* seeds and one of the few *comales* buried with and clearly associated with an individual. The presence of numerous semiground disk beads indicated that this individual was buried in the late Mission period. A relatively high frequency of glass beads and the presence of *Triticum aestivum* in the abalone shell indicated that this individual may have participated to some degree in European culture, although most of his status was derived from traditional sources.

Burial Feature 76, that of another adult male, had several items associated with socioreligious roles; they appeared to have been bundled together under an animal hide. This individual also had perhaps the largest single collection of grave goods (burial Feature 38 had more, but they were divided between two individuals), including more than 6,000 shell beads, 350 of which were high-status beads. Significantly, this individual had only 97 glass beads and no other colonial items, indicating that he probably derived his wealth, prestige, and socioreligious status from traditional sources and interacted little with European culture. Large numbers of semiground disk beads indicated that this individual was buried in the late or terminal Mission period.

Burial Feature 313, that of an adult of indeterminate sex and a fetus, stood out from the others in this group with respect to the high frequency of colonial items. Although this burial feature had more than 1,500 shell beads, of which 365 were high-status beads, it contained more than 3,000 glass beads, 2 possible gun barrels rusted together, 1 probable gun barrel with glass and shell beads inside and wood adhering to the outside, and a copper button. All artifacts were associated with the adult. The numerous glass beads suggested that much of this individual's wealth was derived from European sources. The button further suggested that this individual may even have worn some articles of European clothing. A decomposed reed bundle and 3 large fragments of wood planks—1 of which had a hole that may have been drilled—recovered from this burial feature were the only items found at these Ballona sites that are possibly indicative of watercraft. As discussed earlier in this chapter, Gamble et al. (2001) argued that Chumash individuals buried with canoe parts were part of the elite social group known as the Brotherhood of the *Tomol*, which controlled canoes and the goods transported between the mainland and the northern Channel Islands. Control over goods and canoes allowed members of this group to amass wealth and prestige (see also Gamble 2008:235–236). Indicators of the possible socioreligious roles of this individual were 4 waterworn cobbles, a *Datura* seed, and 7 nonbead ornaments. The 4 cobbles were broken into 7 pieces and covered with ocher. Also found were 2 steatite disk beads, 1 biface fragment, a large amount of ocher, and a phallus-shaped pestle. Although many of the artifacts associated with this individual would be expected with an adult male, a fetus was also associated with this burial feature. None of the artifacts was associated with this second primary individual, but its presence was more consistent with the other primary's being a female. Associated with this burial was a pattern of glass and shell beads embroidered to an unknown textile that may have been a woman's beaded skirt. Most of the shell beads associated with burial Feature 313 were semiground disk beads, indicating that this individual was buried in the late Mission period.

Wealth and Prestige

Three burial features (burial Features 105, 222, and 327) exhibited evidence of wealth and prestige only. As a group, the individuals in these burial features had the second-highest average frequency of grave goods and of non–high-status shell beads but slightly higher average frequencies of glass beads and high-status shell beads than the five individuals in the group combining wealth, prestige, and a socioreligious role. In contrast to those five individuals, none of the three individuals in this group had any possible socioreligious artifacts. The most important difference between these two groups was that all three individuals in the group with evidence of wealth and prestige only were nonadults.

Significantly, burial Feature 105, that of a fetus, was one of the richest burials in the Ballona, and the 536 high-status beads found in this burial were, among Protohistoric through Mission period burials, second in frequency only to those in burial Feature 170 (see below). Furthermore, much of the wealth found in these three burial features appeared to have been derived from European sources. Glass beads constituted more than half of the grave goods in burial Feature 327, that of an infant; burial Feature 222, that of another infant, had 13 metal artifacts, including tools and horse trappings. The glass beads and other colonial items found in these graves had to have been obtained either through direct contact with Europeans or indirectly, through exchange with natives who were in contact with Europeans. Regardless, the individuals were exposed to nontraditional items and what they may represent. By contrast, individuals who lacked colonial items probably interacted to a much lower degree with the colonial entities. The colonial artifacts found with these fetus/infants, however, were highly unlikely to have been obtained or used by them and do not indicate their role in Ballona society, because as fetuses or 1–2-year-old infants, they could not have had any economic interaction with the colonial entities. Instead, these items were more likely to have been obtained from the ranchers, missionaries, or European traders by an adult or adults related to the deceased. These grave offerings may have been expressions of the great grief for these very young individuals experienced by their relatives, friends, and other community members. But the sheer amount of wealth and frequencies of high-status items in these collections of grave goods were more indicative of the wealth and prestige of the immediate relatives of the deceased. It is telling that socioreligious artifacts, which, as sacred or powerful objects, probably were reserved for adults with religious or ritual roles, were not placed in the graves of these fetus/infants.

Given that the only group with similar wealth and prestige consisted of the individuals in the group associated with wealth, prestige, and a socioreligious role combined, these fetus/infants may have been the offspring of the *tomyaar*s, the wealthiest and most powerful individuals in Ballona society. But as the wealth/prestige/socioreligious-role group appears to have developed only in the final two decades of native occupation of the Ballona, the association of wealth and prestige items with fetus/infant burials is unlikely to represent an entrenched system of ascribed status. The relatives of the deceased fetus/infants were more likely to have achieved their wealth and prestige relatively late in the occupation of the Ballona and to have placed offerings representing this wealth and this prestige in the graves of their children as expressions of their individual grief. Furthermore, the wealth/prestige/socioreligious-role group probably was the only one with sufficient wealth to allow disposal in this fashion.

Wealth and Socioreligious Role

Four burial features (burial Features 85, 155, 282, and 516) exhibited evidence of wealth and a socioreligious role only. On average, members of this group had fewer than half of the grave goods of the wealth/prestige/socioreligious-role and wealth/prestige groups and only small numbers of high-status beads. Compared to the wealth of both previous groups, a higher proportion of the wealth of members of the wealth/socioreligious-role group was made up of glass beads, suggesting greater European interaction, although European artifacts other than glass beads were less common in this group than in the wealth/prestige/socioreligious-role and wealth/prestige groups. On average, members of the wealth/socioreligious-role group had more than three socioreligious artifacts per burial feature, only slightly fewer than the five or more per burial feature in the wealth/prestige/socioreligious-role group. No palettes were found in this group; the only other *comal* found associated with burials was found with burial Feature 85.

Only one of the individuals in this group, an adult male in burial Feature 282, could be dated to the late Mission period. The other three, a female and two adults of indeterminate sex, lacked semiground and rough disk beads. Like the wealth/prestige/socioreligious-role group and in contrast to the wealth/socioreligious-role group, these individuals were all adults. The wealth/socioreligious-role group was distinguished from the wealth/prestige/socioreligious-role and wealth/prestige groups by its paucity of high-status beads—on average, burials in this group contained one-sixth of the number of high-status beads associated with burials in the other two groups. Although burial Feature 155 did not have a high frequency of high-status beads, it had some unusual items and grave associations suggestive of high status. These included a strand of Pismo clam tube beads recovered from the neck region, a copper-brass eyelet for jewelry, a fragment of worked whalebone, and a worked Pismo clam ornament. Also present were nine short glass-bead strands located around the head, face, neck, chest, and arms and between the legs. These strands all had alternating red and blue glass beads (with an occasional purple). A concentration of woven fibrous botanical material was recovered near the legs and may have been the remains of a lining for the grave.

This group was unusual in not fitting the ethnohistorical model of Gabrielino/Tongva and Chumash society. Members of this group may have had important traditional religious roles, but much of their wealth was derived from nontraditional sources. Members of this group may have been individuals associated with the *'antap* cult. Gamble et al. (2001) and Martz (1984) have argued that religious specialists, who had little wealth or political status in early Chumash culture, began to acquire wealth in the Late and Mission periods. Thus, it may not be surprising that much of this wealth was from new and nontraditional sources.

Wealth

Ten burial features exhibited evidence of wealth alone. Six could be dated to the late Mission period. Six of the 10 individuals in these burials were adult females, 3 were nonadults (1 fetus, 1 infant, and 1 child), and the remaining individual was an adult of indeterminate sex. No relationship among age, sex, and period was apparent in this group. No members of this group, however, could be identified as males.

On average, individuals in this group had frequencies of grave goods similar to those of individuals in the wealth/socioreligious-role group. Differences among individuals were considerable, however. Burial Features 244 and 438, both of which were burials of adult females, had many more glass beads than shell beads, whereas burial Feature 204 had roughly equivalent numbers, and the rest had many more shell beads than glass beads. The frequency of glass beads was unrelated to the frequency of other colonial items associated with members of this group. Individuals with relatively low frequencies of glass beads had most of the other colonial items. Burial Feature 244, with the highest frequency of glass beads, had no other colonial items, but burial Feature 438, with the second-highest glass-bead frequency, had more colonial items (n = 9). Burial Features 50 (that of an adult of indeterminate sex) and 265 (that of an adult female), both of which contained comparatively low frequencies of glass beads, had some of the most distinctive colonial items—two complete copper chocolate pots—and burial Feature 50 also had a tin container and a pair of fused-metal buckles.

This group was also distinguished by very low frequencies of high-status beads: the average frequency was approximately one-fifteenth of the average frequency of individuals in the wealth/prestige/socioreligious-role and wealth/prestige groups and about one-third of the average frequency of individuals in the wealth/socioreligious-role group. The absence of prestige indicators may have been related to age and sex, as nine of the identified individuals in this group were adult females, fetuses, infants, or children, although females and children were well represented in the three groups discussed previously.

Prestige

Only two burial features, burial Features 11 and 170, exhibited evidence of prestige alone. These two burials were characterized by moderate frequencies of grave goods and equal average proportions of glass beads and non–high-status shell beads but the highest average frequency of high-status beads among all burials. Burial Feature 170, that of an infant, had the highest frequency of high-status beads among individuals in the Protohistoric through Mission period burials, as well as seven nonbead ornaments. Thus, the two individuals with the highest frequencies of high-status beads at LAN-62 were an infant and a fetus (see burial Feature 105, above). Burial Feature 170 also had many more glass beads than non–high-status shell beads, suggesting that much of this infant's wealth was derived from nontraditional, European sources. By contrast, burial Feature 11, that of an adult female, had many more shell beads than glass beads. Given the small size of this group, interpreting its significance is difficult. Neither individual, however, was dated to the late Mission period, the time when, according to our inference, the Ballona population achieved its highest degree of social differentiation.

The primary individual in burial Feature 174, an adult female who was dated to the Late through Mission period, also fitted the characteristics of this group. This individual, located on the southeastern edge of the main burial concentration, had a high frequency of grave goods, including the highest frequency of high-status beads of any individual, from any period, found in the burial ground. Although we could not date this individual precisely, the absence of Mission period and glass beads in a burial feature with such a high frequency of grave goods suggests a pre–Mission period age. Furthermore, the high frequency of stone beads and the location of this burial on the periphery of the burial ground were consistent with a pre–Mission period age. The female in burial Feature 174 was the only primary individual found in the burial ground with evidence of prestige who dated to a time earlier than the Mission period. However, given the imprecision of dating this burial feature, this individual could have been buried at any time between the end of the Late period, when the burial ground was established at LAN-62, and the arrival of the Spanish missionaries as early as 1769 (and the establishment of Mission San Gabriel in 1771). This burial may date to as late as 1800, as the residents of the Ballona had relatively little interaction with Europeans before that year. Given the frequency of grave goods associated with burial Feature 174, however, we would have expected a few glass beads or other European items. Historical documents indicate that, compared to those in other areas nearby, native people of the Ballona had less direct interaction with the colonizers before 1800.

Socioreligious Role

The single largest status group consisted of 15 individuals who exhibited evidence of socioreligious roles only. Prestige (indicated by high-status shell beads) and socioreligious roles (indicated by socioreligious artifacts) were not notably correlated (Pearson's $r = 0.322$) (see Figure 126).

Most members of this group had low to very low frequencies of grave goods and extremely low frequencies of high-status beads. On average, colonial items, especially glass beads, were slightly more common than traditional native artifacts, although, once again, differences among individuals in the group were considerable. Burial Feature 227, that of an adult female, had the highest frequency of glass beads in this group, as well as two glass-bottle fragments and one metal clothing-related artifact. Burial Feature 227 also had the only ceramic artifacts recovered from a burial feature: a porcelain four-seasons Chinese rice-bowl sherd and a complete salt-glazed stoneware demitasse cup (see Figure 97d). The ages and sexes represented in this group were as follows: five adult females, five adult males, four adults of indeterminate sex, and one child. All that separated the members of this group from the general population was the presence of one or more socioreligious artifacts.

The association of particular artifacts appeared to differ by age and sex. For example, all of the four musical instruments recovered from these burials were associated with females (the two other musical instruments found in the burial ground were associated with burial Feature 76, that of an adult male in the wealth/prestige/socioreligious-role group). By contrast, the four pipes were found with two males, the child, and an adult of indeterminate sex.

Five other individuals (those in burial Features 271, 316, 368, 398, and 476, all assigned to the Late through Mission period) also had artifacts suggestive of socioreligious roles. As mentioned above, burial Feature 271, that of an adult of indeterminate sex, had a shaft straightener, found among almost 90,000 *Calandrinia* seeds, as well as a bone wand. Otherwise, burial Feature 271 had very few grave goods (n = 30), of which 21 were high-status beads; surprisingly, no other beads were present. Each of the four other individuals also had at least 1 bone wand. In burial Feature 316, additional individual 1 (an adult male) was distinguished by 2 bone wands; this burial feature was the only Late through Mission period burial with a moderate frequency of grave goods (n = 644), including 639 shell beads, of which only 4 were high-status beads. The remaining three individuals had very low frequencies of grave goods (fewer than 50) and no high-status beads, except for the primary individual in burial Feature 476, an infant who had 10 high-status beads. Burial Feature 398, that of an adult female, had a waterworn pebble in addition to the wand. All the individuals with wands were assigned to this temporal category; wands were not found in Protohistoric through Mission period burials. By contrast, all deer-tibia whistles and stone pipes found in burial features dated to the Protohistoric through Mission period. Shaft straighteners and waterworn pebbles were present in burial features dated to both periods. These data suggest possible changes in ritual activities or religious identities between the Late and Mission periods. Burial preparations for these individuals, however, were not unusual, except for the preparation of the primary individual in burial Feature 271, who was oriented to the northeast, facing up, in a semiflexed position, on the right side.

Two other Late through Mission period individuals had a single waterworn pebble each. Burial Feature 219, that of a child, had only 2 other artifacts (2 shell beads). Burial Feature 426, a partial cremation of an adult of indeterminate sex, was more unusual. This individual had 94 fragments of basketry and cordage along with a possible wood plank, 12 shell beads, a piece of asphaltum, 2 bifaces, 3 projectile points (Cottonwood Triangular), 6 other flaked stone tools, and a ground stone tool. Neither of these two individuals fitted the socioreligious-role-only category well; in fact, the individual in burial Feature 426 may have been an occupational specialist.

Discussion

Ethnohistorical documentation of Gabrielino/Tongva mortuary practices indicates that the frequency and value of grave goods included with a burial depended on the social status of the deceased (McCawley 1996). The members of the elite class typically were buried with the most elaborate and extensive grave goods (Finnerty et al. 1970:15–21; Geiger and Meighan 1976:97; McCawley 1996; Reid 1968:31; Winterbourne 1967:43). However, a simple equation of higher frequency of grave goods with higher social status cannot be applied unilaterally to the Protohistoric through Mission period Ballona populations, because economic, sociopolitical, and religious roles all played important parts in how the deceased were remembered through mortuary offerings. That is, people of wealth were not necessarily the individuals who controlled the sociopolitical life of society or those with access to ceremonial/ritual objects (Gamble et al. 2001:203; Martz 1984). In the analysis of the Protohistoric through Mission period burials in the Ballona, the associations and distributions of unique mortuary offerings indicated that some individuals had special status that was unrelated to wealth. As discussed in the previous section, burial features with these special (socioreligious) items were not necessarily those with the highest frequencies of grave offerings, and the presence of socioreligious items was not associated with the presence of high-status beads. In other words, these socioreligious artifacts were not necessarily indicative of higher social or political status; rather, they indicated special status of the individuals with whom they were associated. These individuals with special status were not necessarily members of the wealthier families or the chiefly lineage but, instead, were individuals who inherited important religious or ritual roles. McCawley (1996) noted that when a person of social importance died, the instrument denoting his office was included in his burial. Therefore, it is reasonable to deduce that the "personhood" of these individuals with socioreligious items was being recognized in their deaths.

Thus, as was true for the Chumash burial populations investigated by Martz (1984), the burial ground at LAN-62 included groups of wealthy people who lacked prestige and socioreligious roles, people with prestige, people with socioreligious roles, and people with overlapping wealth, prestige, and socioreligious roles. No individuals exhibited evidence of a combination of prestige and a socioreligious role but no wealth. In contrast to the nearby Chumash Mission period burial ground at Malibu, among Protohistoric through Mission period burials at LAN-62, people with socioreligious roles (n = 26) and wealth (n = 24) were roughly equal in number, but both outnumbered those with prestige (n = 12). (*Note*: In contrast to the data in Table 55 [for burial features], these counts are for primary individuals.)

Although, as demonstrated above, little to no association existed among the distributions of indicators of wealth, prestige, and socioreligious roles, important patterns emerged for individuals whose burials showed combinations of these indicators. For example, all but one of the wealthy individuals, including those with large quantities of shell beads and glass beads, were buried in the concentrated area in the southwestern part of the burial ground (Figure 129). The exception, a fetus (burial Feature 165), was located farther southwest of this concentration. This burial had 1,365 grave goods, including 14 high-status beads, but no socioreligious artifacts. The other wealthy individuals consisted of nine adult females, three adult males, five adults of indeterminate sex, one child, three infants, and two fetuses. This area also included all the individuals with more than 250 high-status beads each and all the individuals with combined indicators of wealth, prestige, and socioreligious roles. Burial Features 11 (that of an adult female) and 170 (that of an infant) had high frequencies of high-status beads but no indicators of wealth or socioreligious roles and were located near the western edge of this concentration. Slightly more than half of the individuals with indicators of socioreligious roles only also were buried in this area, but the remainder were scattered throughout the Protohistoric through Mission period burial area. Given our understanding of the chronological development of the burial ground, the wider spatial distribution of burials with socioreligious indicators suggests a greater time depth for the display of religious roles in death and, presumably, in life. By contrast, the material display of prestige and wealth appears to have been restricted to the late and terminal Mission periods.

Examining the relationships among these social indicators and age and sex provides further insights into the social order in the Ballona. As noted above, the 24 primary individuals buried in the 22 burial features with indicators of wealth consisted of 9 adult females, 3 adult males, 5 adults of indeterminate sex, 1 child, 3 infants, and 3 fetuses. The proportion of nonadults in this group of "wealthy burial features" (7 of 24, or 29 percent) was greater than their representation in the demographic profile of the Protohistoric through Mission period burial population as a whole (31 of 181, or 17 percent) (see Table 27), although this difference is not statistically significant ($\chi^2 = 2.7$, $df = 1$, $p = .1$). Furthermore, the 3 individuals with a combination of wealth and prestige were all nonadults (1 fetus and 2 infants). The numerous grave goods in these nonadult burials may have been offerings associated with grief for the deceased. If higher frequencies of grave goods in burials of fetuses and infants were associated with grief rather than with the wealth of the family, then such expressions should have been more widespread among these interments. This is not true, however. Instead, 8 of the 13 fetus/infant burials that were buried individually and that dated to the Protohistoric through Mission period did not have indicators of wealth. This pattern does not necessarily indicate that status was ascribed to infants (that is, that infants of wealthy families were given larger quantities of grave goods because of their position in society) but, rather, may indicate that wealthy families had the ability to offer larger quantities of grave goods to their deceased offspring and, in their grief, did so. Significantly, not all fetuses in the part of the burial ground with all the high-status individuals

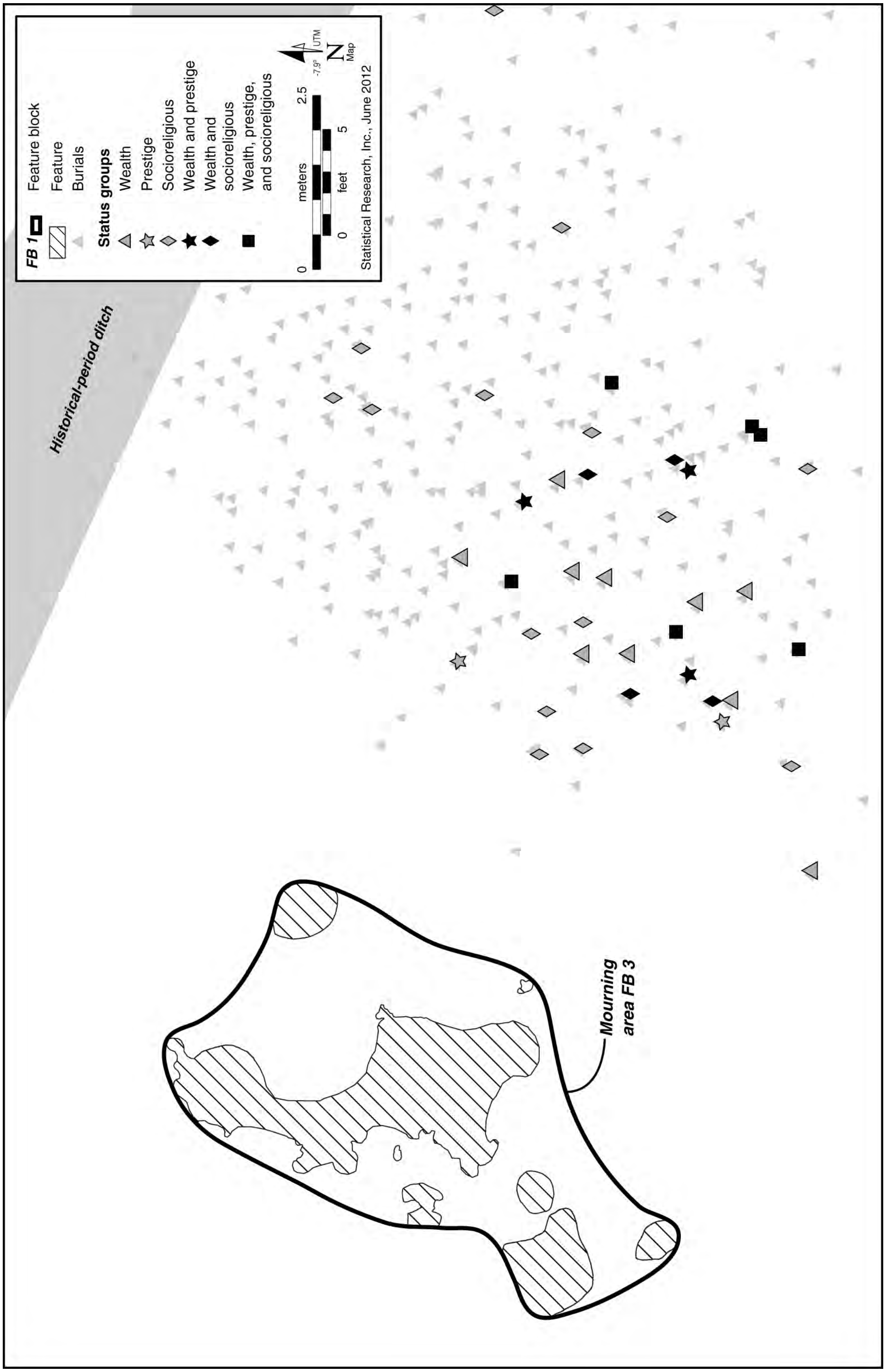

Figure 129. Distribution of burials by wealth, prestige, and socioreligious-role categories.

received large quantities of grave goods. Notably, the second primary individual in burial Feature 313 received no grave goods, despite having been buried only a few centimeters from the first primary, who had one the highest frequencies of grave goods. Whether these two individuals were associated, however, is unclear.

Although grave goods provide insight into the social identity of the deceased, one cannot discern whether these artifacts were placed as offerings by the community or were the belongings of the deceased or family members. Furthermore, items placed in graves not only reflected the position of the dead within society but also showed the relationships of those who made the offerings to the deceased. The burials of children, infants, and fetuses provide valuable insights into the emotional nature of mortuary offerings as well as the perception of the group of the social standing of these deceased nonadults. Thus, the high frequencies of grave goods and high-status beads in some burials may be more indicative of the grief experienced by the family of the deceased (Gamble et al. 2001) and could be viewed as emotive offerings related to mourning and loss but unrelated to the individual's status or sociopolitical position (Green 1999).

A simplistic interpretation of the evidence suggests a pattern of ascribed status and the same type of hereditary, hierarchically structured social system that, according to archaeologists, existed in the Chumash region. Tremendous differences existed in the wealth and prestige associated with burials in the Ballona. A few individuals controlled wealth, prestige, and socioreligious roles. A distinct group of wealthy individuals without prestige or socioreligious roles was also present, reflecting the variety of roles expected in a hierarchical society. The high proportion of fetus/infant burials exhibiting wealth and indicators of prestige suggests that wealth and prestige were inherited. Furthermore, almost all of these burials of individuals with wealth or prestige or both ("high-status" burials) were tightly concentrated in the southwestern corner of the Protohistoric through Mission period burial ground. Like its Chumash contemporaries, the Protohistoric through Mission period burial ground in the Ballona probably was well defined and may have been marked with whalebone markers, suggesting that its spatial arrangement was well known to those who used it. Thus, the restriction of high-status burials to this portion of the burial ground indicates a conscious attempt by high-status grievers to segregate their dead and to bury them in a special place.

Significantly, the high-status area of the burial ground overlapped what appears to have been an abandoned dance floor and was adjacent to the area devoted to Protohistoric through Mission period mourning ceremonies. The dance floor was a compact surface located within the Mission period concentration of burials. Many of the Protohistoric through Mission period burials were dug through this feature; thus, the dance floor predated them. This ephemeral feature was west of the main burial concentration and may have served as a ritual area during an earlier period of use of the burial ground. Martz (1984) and Gamble et al. (2001) argued that the burial preparations (including depths of burial) of Chumash individuals with political power were different from those of other individuals; such distinctive burial preparation for people with greater wealth and prestige was not observed in the Ballona, however. For example, of the individuals who have been identified as having wealth, prestige, or socioreligious roles, all were inhumations without evidence of burning. Most were fully flexed inhumations (58 percent); 10 percent were semiflexed, 7 percent were flexed but to an indeterminate degree, and for 24 percent, presence or absence of flexure could not be determined. In terms of body orientation, body position, and the direction of the head, these individuals were not distinct from the rest of the burial population (which showed no discernible pattern with respect to these mortuary attributes). Significantly, none of the individuals with wealth, prestige, or socioreligious roles exhibited unusual burial preparations, such as cremation and defleshing, and none showed evidence of violence or trauma. Those who did show evidence of such unusual preparations or of violence and trauma had few grave goods, and most were buried on the periphery of the burial ground.

By the late Mission period, Gabrielino/Tongva burial practices and, perhaps, social structure apparently had come to resemble patterns evident among their Chumash neighbors, as seen in the nearby contemporary burial ground at Humaliwo. Like that of the Chumash, Gabrielino/Tongva society in the Ballona had become hierarchically structured, composed of distinct economic, political, and socioreligious identities. Those with the greatest wealth and prestige were densely concentrated in specific areas of the burial grounds in the Ballona and at the Humaliwo burial grounds, whereas those lacking evidence of wealth or prestige were buried on the peripheries of these concentrations. This pattern suggests that these concentrated areas were reserved largely for the high-status burials. The burial grounds at Humaliwo and LAN-62 were also remarkably similar in size (approximately 10 m in diameter) and in density of burials. The tightly confined concentrations of burials suggest that the boundaries of both burial grounds were defined within a fenced area, as described in ethnohistorical accounts (Grant 1978; Librado 1981).

Important differences between the Chumash and Ballona burials exist, however. Perhaps one of the most important relates to the timing for the development of status differentiation. Differential preparation of burials may have begun as early as the Intermediate period (Middle Period) in the Chumash region (Gamble et al. 2001) but definitely had begun by the Late period (Martz 1984). By contrast, only a single high-status burial may have dated to the Late period in the Ballona, and only a few others may have dated to the early Mission period. Differential burial preparation did not become widespread in the Ballona until the late Mission period. Sixteen of the 23 individuals with considerable wealth dated to the late or terminal Mission period (Table 58). Four of the 6 individuals who achieved all three status categories (i.e., were in the wealth/prestige/socioreligious-role category) dated to the terminal phase, and the other 2 dated to the late

Table 58. Distribution of Wealth, Prestige, and Socioreligious-Role Indicators among Primary Individuals in Protohistoric through Mission Period Burials

Protohistoric through Mission Period Phase	No. of Burial Features	Wealth[a]	Prestige[a]	Socioreligious Role[a]
Late Mission period	46	12	5	6
Terminal Mission period	3	4	4	4
All other Protohistoric through Mission period	125	7	2	15
Total	174	23	11	25

Note: The two primary individuals from burial Feature 38 are treated separately. Burial 313 also contained two primary individuals, but indicators of wealth, prestige, and a socioreligious role were associated with only one.
[a] See text for criteria for wealth, prestige, and socioreligious roles.

phase. None dated earlier. A further indication of the concentration of wealth in the late and terminal Mission period is the fact that nearly 60 percent of all the Mission period beads dated to those phases.

A second important difference is in the structure of the two burial grounds, which reflects a major difference in how the areas were used. The concentration of burials in the southwestern part of the burial ground at LAN-62 represented a temporal shift, as late Mission period burials were placed in an area that once may have been used as a dance floor. Late Mission period burials were not placed in the rest of the burial ground. Burials on the periphery of this concentration probably were older. Thus, the spatial distribution of high-status burials at LAN-62 reflected a shift in the placement of burials rather than a social distinction. An area reserved for mourning ceremonies (see below) also was located at a short distance west of the late Mission period burials. By contrast, an area near the center of the burial area at Humaliwo contained few burials and was kept free of other features (Gamble et al. 2001:199, Figure 3). This central area may have been used for mourning ceremonies or mortuary rituals, but the absence of mourning features suggests that it functioned differently from the mourning-ceremony area at LAN-62.

We can conclude that the accumulation of wealth in the form of large quantities of shell beads and glass beads and the ostentatious display of political status and social roles did not emerge in the Ballona until after 1800. These patterns of mortuary display coincided with the arrival of the Spanish ranchers in the Ballona, suggesting that the emergence of wealth and social differentiation probably was directly related to interaction between the Gabrielino/Tongva and the ranchers and probably was a direct product of labor for the colonists in exchange for goods. The pattern that emerged after 1800 is broadly similar to the one that emerged earlier among neighboring Chumash populations and may reflect the late and very brief emergence of a complex social hierarchy involving political and ritual leaders who accumulated wealth and status (possibly representing membership in the ’*antap*) as well as an independent secular group of wealthy individuals. The lack of wealth or other evidence of high status or ritual roles in more than half of the late to terminal Mission period burials reinforces this picture of emerging social differentiation. Only 8 of the 49 burial features (9 primary individuals) dating to the late and terminal Mission period had evidence of prestige, 15 burial features (16 primary individuals) had evidence of great wealth, and only 9 (10 primary individuals) had socioreligious artifacts. However, other evidence suggests that all the trappings of a hereditary, hierarchical system had not developed in this short time. For example, the richly endowed late Mission period burials were commingled with common (i.e., nonelite) burials in the southwestern corner of the burial ground. The 5 fetus/infant burials with high frequencies of grave goods were all located within the southwestern concentration, but with the exception of 1 burial feature, all common fetus/infant burials were also located in this concentration. In other words, during the late Mission period, the locations of fetus/infant burials did not differ from those of the burials of any other individuals, with or without high frequencies of grave goods. Thus, unlike the burials at Humaliwo, where no attempt to segregate high-status individuals from commoners was evident, high-status individuals in the Ballona burials were concentrated in one area but were not segregated from commoners within that area. Furthermore, although a higher proportion of the burials of children and fetuses/infants had high frequencies of grave goods than might be expected by their numbers in the burial population, the difference was not significant. That this experiment in social complexity was very brief is revealed by the rapid depopulation of the Ballona during the first decade of the nineteenth century and its virtual abandonment by the Gabrielino/Tongva during the second decade.

In contrast to the Chumash burial grounds, the various burial areas of the Ballona showed little to no evidence for wealth or social differentiation before 1800. Most of the Protohistoric through Mission period burials had very few burial goods, and those from earlier periods had virtually none. The large mourning features of the Intermediate period occupation in the Ballona revealed the importance of mortuary-related rituals and ceremonialism; however, this was not directed toward the commemoration of single individuals but, probably, toward that of several deceased members of the community. Thus, before the late Mission period, Ballona society probably was largely egalitarian and had few high-status individuals. Socioreligious distinctions, however, may have been recognized.

Also, the appearance of wealth in late Mission period burials may not have been reflective of the wealth and social positions of the deceased alone; it may have been the product of the greater availability of glass beads and shell beads that resulted from increased interaction with ranchers and neighboring native groups. Gamble et al. (2001:208) argued that the tremendous increase in the number of beads buried with individuals in the late Mission period may have reflected the sudden availability of large quantities of glass trade beads and an increase in the indigenous production of olivella disk beads facilitated by the introduction of metal needles, which greatly sped up the previously slow and tedious process of drilling with stone drills (King 1990). Gamble et al. (2001) may have been incorrect, however, in attributing the expansion of indigenous production of shell beads to an attempt to counteract the inflation caused by the introduction of this extraneous source of wealth (glass beads). We can speculate that the burial of large numbers of shell beads with the deceased and the casting of vast quantities of additional beads as offerings to the dead were compensatory behaviors to counteract the inflation caused by the glut of both glass beads and disk beads. More recently, Gamble (2008) suggested that disposal of shell beads in burials was one way to keep the value of beads high. Removing beads from circulation by burial with the dead may have countered inflation. Destruction by burial of these new sources of wealth may have been viewed by the Gabrielino/Tongva and their neighbors as a means of maintaining existing social relationships and preventing the disruption of the long-standing social order by people with new sources of wealth.

Specific Ceremonies and Practices in Mortuary Rituals

During mortuary rituals, the lives of the deceased as well as the past and present life of the community are commemorated by invoking visions of the future. At the same time, these rituals connect the social memories of the past to the immediate future of the community in mourning (George 1996). For example, such social cohesion is nurtured during special annual mourning ceremonies associated with feasting (Bean 1975; Benedict 1924; Blackburn 1975; Boscana 1846; Strong 1929). Although these ceremonies are associated with death, they offer unique insights into the cultural perceptions of the relationships among food, material culture, and ideology in a mortuary context.

As discussed at the beginning of this chapter, mourning ceremonies and funeral feasts cultivate social memories of the individual and the community and help to renew and reinforce community networks and to forge group membership. Ample ethnohistorical and ethnographic evidence of funeral feasting and mourning ceremonialism exists in southern California, particularly among the Gabrielino/Tongva in the Los Angeles Basin (Bean 1975; Benedict 1924; Blackburn 1975; Boscana 1846; Strong 1929). In addition, using ethnohistorical documentation and records, Hull (2011:35) has identified the tangible archaeological correlates of mourning ceremonies. These include the personal items and other items of the deceased that are ritually destroyed ("killed") by fire or other means and are buried in a defined space reserved for the mourning rituals.

Contexts related to mourning ceremonies and funeral feasting that date to the Intermediate and Mission periods have been identified in the Ballona. During the Mission period, two distinct areas with concentrations of features containing large quantities of food remains and unique material culture have been interpreted as the remnants of spatially discrete areas associated with annual mourning and feasting events. An area at LAN-62 defined as FB 3, located about 4 m from the burial area, was used for mourning ceremonies (Figure 130). This area consisted of a concentration of features in an 8-by-4-m area that may represent a single depositional event or an area of recurrent ritual involving burned offerings (see Volume 2 of this series). The feasting area was defined at LAN-211, located 1.5 km east of LAN-62 (Figure 131). It is a composite feature described as FB 1 and comprises a group of hearths associated with a very dense midden of food remains and stone tools concentrated in a 20–30-cm-thick deposit.

Mourning-Ceremony Features

Kroeber (1925) suggested that the annual mourning ceremony has a southern California origin and was developed by the Gabrielino/Tongva. Subsequently, Bean and Shipek (1978:556) also suggested that the annual mourning ceremony is "one of the typical elements of California culture and possibly developed from the Gabrielino/Tongva and spread to most, if not all, other southern California groups." This is not to say that the mourning ceremony is limited to the Los Angeles Basin, as evidence of annual communal mourning exists in other areas of California, such as the San Joaquin and Sacramento Valleys and the Sierra Nevada foothills (Merriam 1962; Powers 1976; Reid 1968). Among the Chumash, the linguistic group immediately north of the Gabrielino/Tongva, mourning ceremonies were conducted every 4–5 years among some Chumash groups: e.g., the Ventureño Chumash (Arnold and Green 2002; Gamble 2008; Harrington 1942; Hollimon 2001; Librado 1981). Evidence of mourning ceremonies may date to as early as the Intermediate period and possibly the Millingstone period in the Chumash region (Hull 2012:29, 30). Of course, the nature of these mourning ceremonies varied considerably by region and group, and archaeological correlates are highly variable. As indicated above, a special ceremonial area at the center of the burial area at Humaliwo was kept clean and had a low density of burials (Gamble et al. 2001:199, Figure 3). This area, however, did not have any evidence of mourning ceremonies.

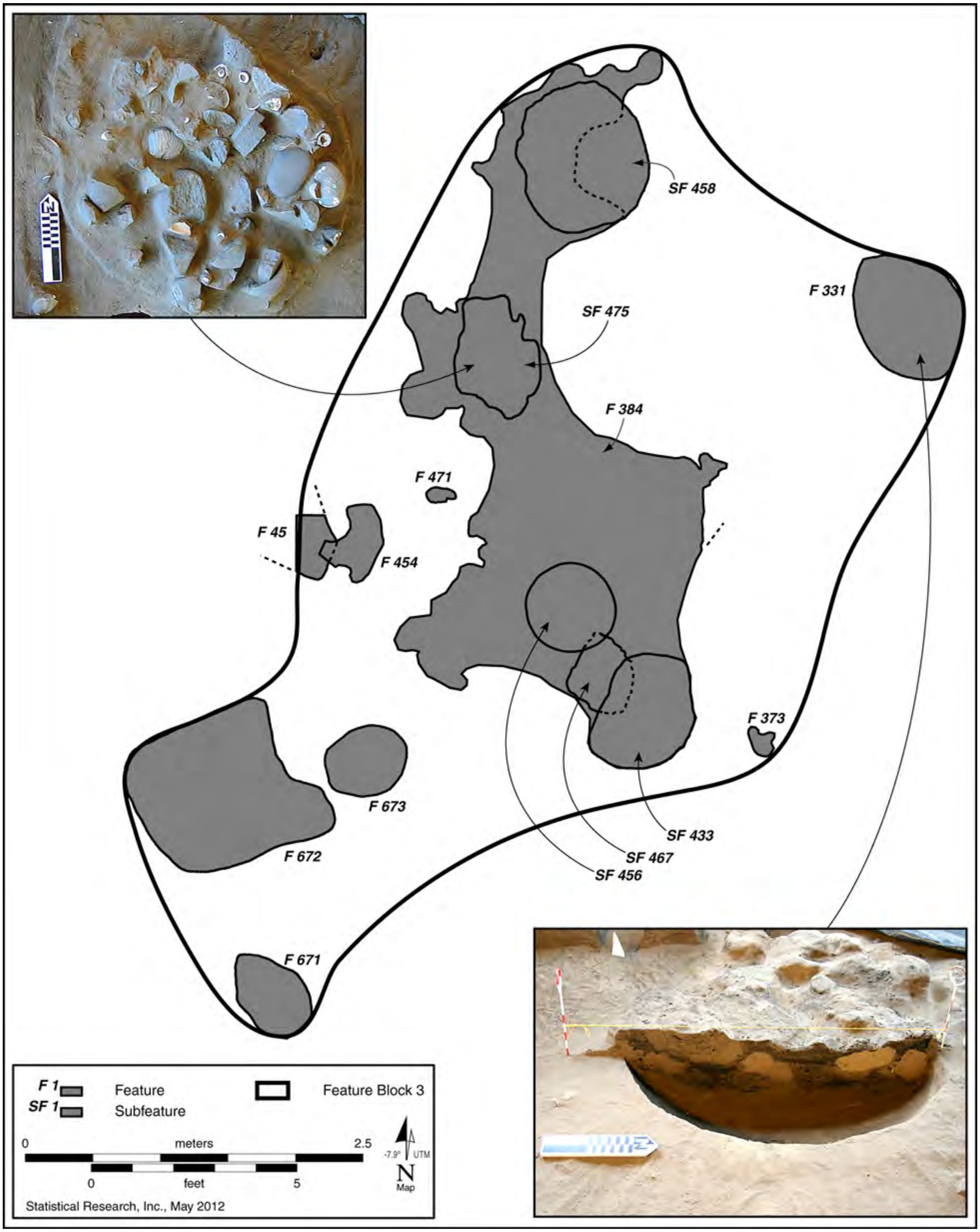

Figure 130. FB 3 (Mission period mourning-feature complex) at LAN-62.

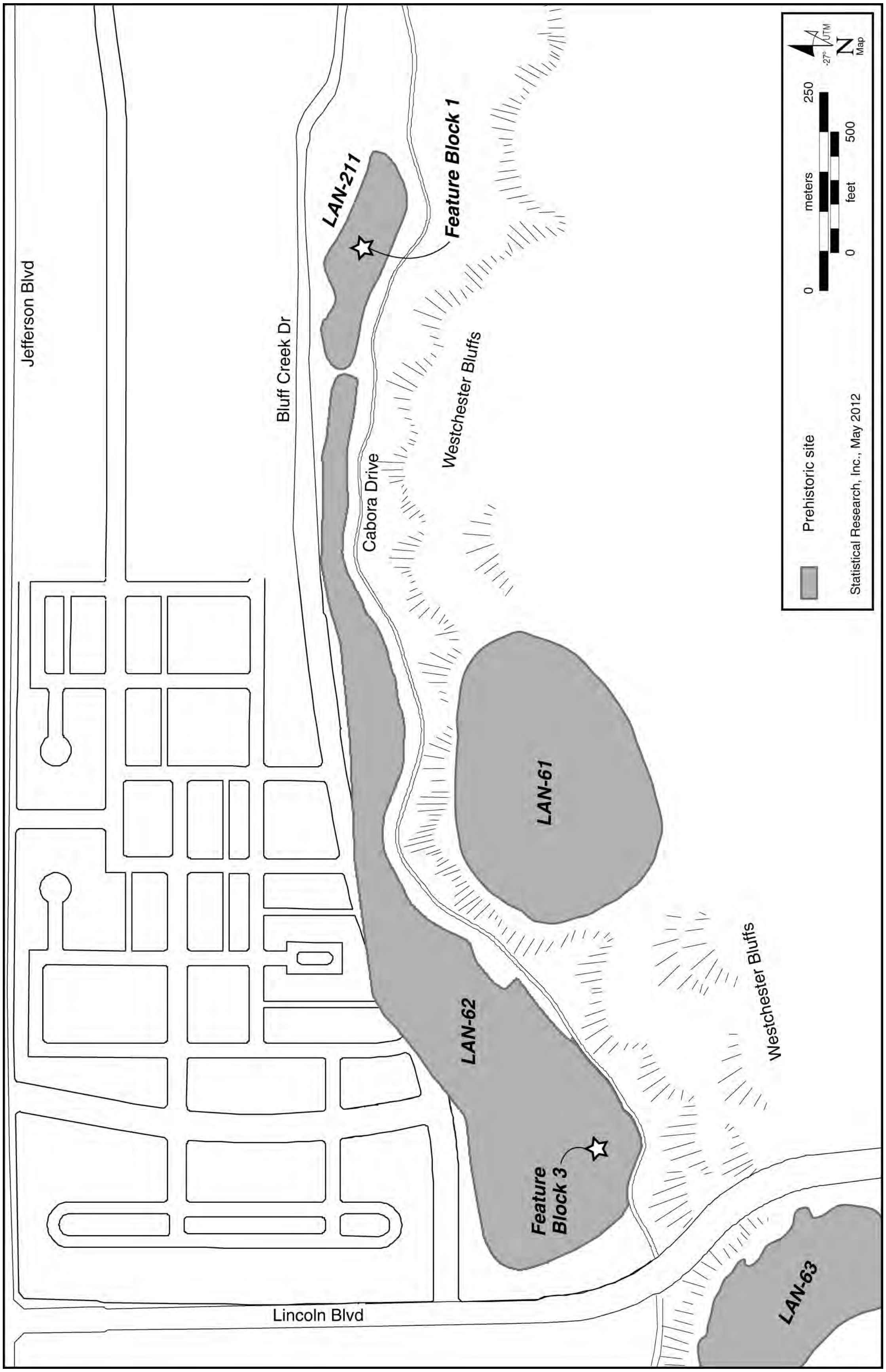

Figure 131. Mourning and feasting areas associated with mortuary practices at PVAHP sites. Site numbers are abbreviated by omitting the CA- prefix.

Intermediate Period

Mourning ceremonies in southern California are by no means unique to the Protohistoric and Mission periods. Instead, evidence exists for similar ritualized behavior starting perhaps as early as 3,000 years ago, during the Intermediate period. This evidence is from within the Ballona (Douglass et al. 2005; Hull et al. 2006; Hull et al. 2013) and across the greater Los Angeles Basin at site including Chatsworth, Big Tujunga, and Porter Ranch in the San Fernando Valley (Walker 1952); Sheldon Reservoir in Pasadena (Walker 1952); Malaga Cove (Walker 1952); and Landing Hill (Cleland et al. 2007). Hull (2012) also described evidence of the mourning ceremony in Intermediate period contexts at the Tank and Little Sycamore Creek sites in the Chumash region.

As discussed in Chapter 3 (this volume), bluff-top sites LAN-63, LAN-64, and LAN-206A (just west of LAN-62) and LAN-61 (just south of LAN-62) have provided abundant evidence of Intermediate period settlement. Analysis of the midden materials and hundreds of features indicates a highly diverse set of activities at these sites and evidence of a settlement more permanent than that in the lowlands during this period. The use of space at these bluff-top sites was highly structured and segregated into communal refuse areas, resource-procurement and resource-processing areas, ritual space, and burial areas. Several features at LAN-61 (nonburial Feature 9) and LAN-63 (nonburial Feature 11, burial Feature 587, and the "earth oven") with purposefully broken artifacts and one with cremated human remains were similar to features found elsewhere in southern California that have been interpreted as evidence of the mourning ceremony.

Nonburial Feature 9 at LAN-61 consisted of a concentration of burned objects and a peripheral scatter of artifacts, cobbles, and human bone. The entire feature measured approximately 2.9 by 2 m (Van Horn and Murray 1985). Artifacts included a compact, oval pile of ground stone and cobble fragments, all fire affected. Fragments of some ground stone (including a metate and a bowl) could be partially refitted, indicating that whole artifacts were broken and tossed into a fire. Nonburial Feature 11 at LAN-63 consisted of a 1-by-0.8-m concentration of cobbles and associated artifacts. The single-most-abundant class of artifacts was steatite flaking debris, followed by flaked stone debitage (Table 59). Flaked stone tools were rare, but ground stone artifacts were more common, including purposefully broken mortars and pestles and a single steatite vessel. Only two stone ornaments were present, but vertebrate remains were abundant, including large pieces of whalebone. In contrast to nonburial Feature 9 at LAN-61, nonburial Feature 11 contained no human remains. The "earth oven" described by Van Horn (1987) appears to have been a very similar feature with broken ground stone artifacts and whalebone. Burial Feature 587 at LAN-63 was much larger and more diverse; unfortunately, only a small sample of the contents of this feature could be analyzed. The artifact collection was similar to that from nonburial Feature 11, but ground stone artifacts were much more common, including many mortars, pestles, and steatite vessels as well as smaller numbers of manos and metates. Most of these artifacts appear to have been purposefully broken and the pieces placed into the feature. Many were covered in ocher and sprayed with asphaltum. A number of these ground stone artifacts appeared to have been made especially for the ceremony and showed no evidence of use. Most notable was 1-m-long pestle made of sandstone that had been broken into three pieces. A pestle of such great size and made from relatively soft material was not a practical tool for use with a mortar and, indeed, showed no evidence of use. Small numbers of ornaments made from stone and even shell were also recovered from this feature. Apart from those in several contemporary burials at nearby LAN-64, shell ornaments were not recovered from any other Intermediate period contexts in the Ballona. Vertebrate and invertebrate remains were abundant in burial Feature 587. In contrast to nonburial Feature 11 and the "earth oven," burial Feature 587 contained the scattered fragments of at least three human individuals.

Burial Feature 2 at ORA-263 at Landing Hill also contained a large amount of fragmentary cremated and unburned human bone, broken ground stone fragments, flaked stone and bone tools, stone and shell beads, and several pieces of large, fossilized mammal bone (Cleland et al. 2007:98–107). This feature, extending over an area of about 10 by 20 m, contained ground stone that had been purposefully broken and left in place. In total, 135 pieces of ground stone were recovered in a 3-by-5-m area. Most of the bowls and mortars recovered appeared to have been intentionally broken or "killed," in a way similar to that observed for artifacts on the bluff tops in the Ballona area. This main concentration of cremated human bone also contained more than 800 beads and ornaments (primarily stone beads, although some shell beads were also present). This deposit was a late Intermediate period (ca. 1900–2300 cal b.p.) cluster cremation feature intrusive into a Millingstone period deposit. The cremation feature apparently was used for a few hundred to perhaps 1,500 years (ca. 2300–800 cal b.p.), according to radiocarbon dating of human teeth, but its use may have continued into the Late period, as determined from the presence of olivella cup callus beads (Cleland et al. 2007:110–112). On the basis of similarities with descriptions in ethnographic and ethnohistorical documents, Cleland et al. (2007:114–115) argued that the cremation feature at ORA-263 may have been a mourning-type-activity area as described for the Historical period.

Mission Period

Evidence of the Mission period mourning ceremony may have been found on San Clemente Island at several sites, including the Ledge site (Madden 2000), the Old Air Field site (Meighan 2000), and the Lemon Tank site (Hale and Salls 2000). A single infant burial was discovered at the Ledge site, along with the scattered remains of an adult. The site has been interpreted as a specialized locale for annual mourning ceremonies during the Mission period, with the burial area at another location (Meighan 2000). The site

Table 59. Characteristics of Intermediate and Mission Period Mourning Features in the Ballona

Item	Intermediate Period (LAN-63)		Mission Period (LAN-62)		
	Nonburial Feature 11	Burial Feature 587[a]	FB 3 Features	FB 3 Midden	FB 3 Total
Dimensions (m)	1.0 × 0.8	5.0 × 5.0			
Volume (m^3)	0.24	12.5	9.6	12	21.6
Artifacts (n)	806	219	>4,141	5,396	>9,537
Artifact density (n/m^3)	3,358.3	17.5	>431	450	442
Projectile points (n)	—	—	2	9	11
Bifaces (n)	—	—	2	1	3
Cores, choppers, and scrapers (n)	4	4	6	5	11
Debitage (n)	69	87	697	7	704
Manos (n)	—	1	—	—	—
Metates (n)	—	7	8	—	8
Mortars/bowls (n)	7	26	—	—	—
Pestles (n)	8	20	—	—	—
Vessels/bowls (n)	—	—	2	1	3
Comales (n)	—	—	4	3	7
Pendants and perforated disks (n)	2	6	—	1	1
Stone beads (n)	—	3	1	16	17
Steatite vessels (n)	1	13	—	—	—
Steatite debris (n)	701	12	—	—	—
Indeterminate ground stone (n)	—	—	3	4	7
Bone tools (n)	—	7	29	8	37
Bone beads (n)	—	—	1	—	1
Worked whalebone	—	—	1	—	1
Indeterminate worked bone (n)	—	—	6	—	6
Shell ornaments (n)	—	3	—	—	—
Shell beads (n)	—	16	767	475	1,242
Shell tools (n)	—	—	4	1	5
Asphaltum-covered shell (n)	—	—	1	9	10
Socioreligious artifacts (n)	—	—	2	4	6
Glass beads (n)	—	—	112	335	447
Glass items (n)	—	—	—	3	3
Metal items (n)	—	—	—	1	1
Invertebrate remains (g)	—	1,258.8	1,091.5	7,051.8	8,143.3
Invertebrate remains, density (g/m^3)	—	100.7	114	588	377
Vertebrate remains (number of individual specimens)	2,107	7,531	4,991	233	5,224
Vertebrates (number of individual specimens/m^3)	8,779.2	602.5	520	19	242

Note: Only selected artifact types are enumerated in the table.
Key: FB = Feature Block.
[a] Only a sample of burial Feature 587 was analyzed.

had evidence of a residential midden but primarily from earlier occupations. People may have lived at the site for only short durations every year during the annual mourning rituals. Evidence of a circular grouping of postholes was found at the site, and Madden (2000) suggested that it may have represented a ceremonial enclosure for mourning ceremonies conducted as part of the Chinigchinich cult. The site had 41 nonburial features that were largely uniform in their composition (Madden 2000); none of these features, which were all interpreted as offering locales, was associated with human remains. A wide range of materials was recovered from these features, including shell beads, bone tools, basketry, carbonized seeds, ground stone artifacts, abalone shell bowls, steatite plaques, and stone pipes. The Old Air Field site on San Clemente Island, dating to 1769–1790, also revealed mourning-offering features containing abalone shell, steatite vessels, pipes, and other artifacts (Meighan 2000). The offerings in the features at this site appeared to have been intentionally broken or burned or both and were close to a single burial of an adult female (Meighan 2000). Whether the offerings were associated with this particular individual or whether the burial was located in an area of regular mourning-ritual activities was not clear (Meighan 2000). The third site on the island with evidence of ceremonial mourning was the Lemon Tank site, which had a ceremonial locale consisting of caches in pits within a circular, bermed midden with postholes (Hale and Salls 2000). The unique characteristic of the Lemon Tank site was the presence of a single human female burial and 12 canid burials (6 dogs [*Canis lupus familiaris*] and 6 island foxes [*Urocyon littoralis*]). The canid burials at the site provide a rare insight into the status of dogs in the society. One of the fox burials was close to a mourning feature with offerings that included burned baskets, abalone shells, and a turtle-shell rattle with inlaid shell beads (Hale and Salls 2000). A dog burial had a crystal placed on the left shoulder and a pipe fragment under the pelvis. Ritual dismemberment of adult dogs was observed in 2 burials (burial Features 5 and 30) (Hale and Salls 2000). The purpose of the dismemberment is unknown, but clearly, canids held special status among the Gabrielino/Tongva on San Clemente Island.

The mourning-feature complex (FB 3) at LAN-62 in the Ballona comprised a midden and 14 well-defined features that yielded more than 9,000 artifacts, more than 5,000 vertebrate remains, and more than 350,000 carbonized seeds. The midden around the mourning features yielded a corpus of artifacts that was distinct from that recovered from the features in terms of the range of artifacts. For example, shell beads and flaked stone tools (including projectile points, 2 bifaces, a chopper, a core, debitage, an edge-modified piece, a core hammerstone, and a drill) were present in varying relative frequencies in the 14 features (ranging from less than 2 percent to 78 percent of the collection from each feature), and flaked stone alone constituted 65 percent of the collection from the midden. Overall, the FB 3 collection was dominated by flaked stone (44 percent) and shell beads (13 percent).

The 14 features contained burned basketry, textiles, carbonized seeds, and nonperishable items (Figures 132 and 133) and consisted of 3 artifact concentrations, 7 pits, 3 rock clusters, and 1 thermal feature (Table 60). The features varied in size from 24 by 11 cm (nonburial Feature 471, a rock cluster) to 30 by 20 cm (nonburial Feature 373, the thermal feature), to 155 by 120 cm (nonburial Feature 672, a pit), to 540 by 251 cm (nonburial Feature 384, an artifact concentration). Nonburial Feature 373, the thermal feature, was a burned pit (see Figure 130). These features yielded large amounts of charcoal and burned basketry fragments, great quantities of burned seeds, abundant faunal remains, and numerous artifacts, many of which were contained within the remains of burned baskets (Table 61). Several fragments of white,

Table 60. Mourning-Feature Types at FB 3, LAN-62

Feature/Subfeature No.	Type	Dimensions (length × width [cm])
45	artifact concentration	50 × 30
331	rock cluster	107 × 76
373	thermal feature	30 × 20
384	artifact concentration	540 × 251
433	pit	55 × 75
454	pit	120 × 75
456	pit	65 × 65
458	pit	110 × 100
467	artifact concentration	60 × 55
471	rock cluster	24 × 11
475	pit	77 × 72
671	pit	40 × 46
672	pit	155 × 120
673	rock cluster	56 × 75

Key: FB = Feature Block.

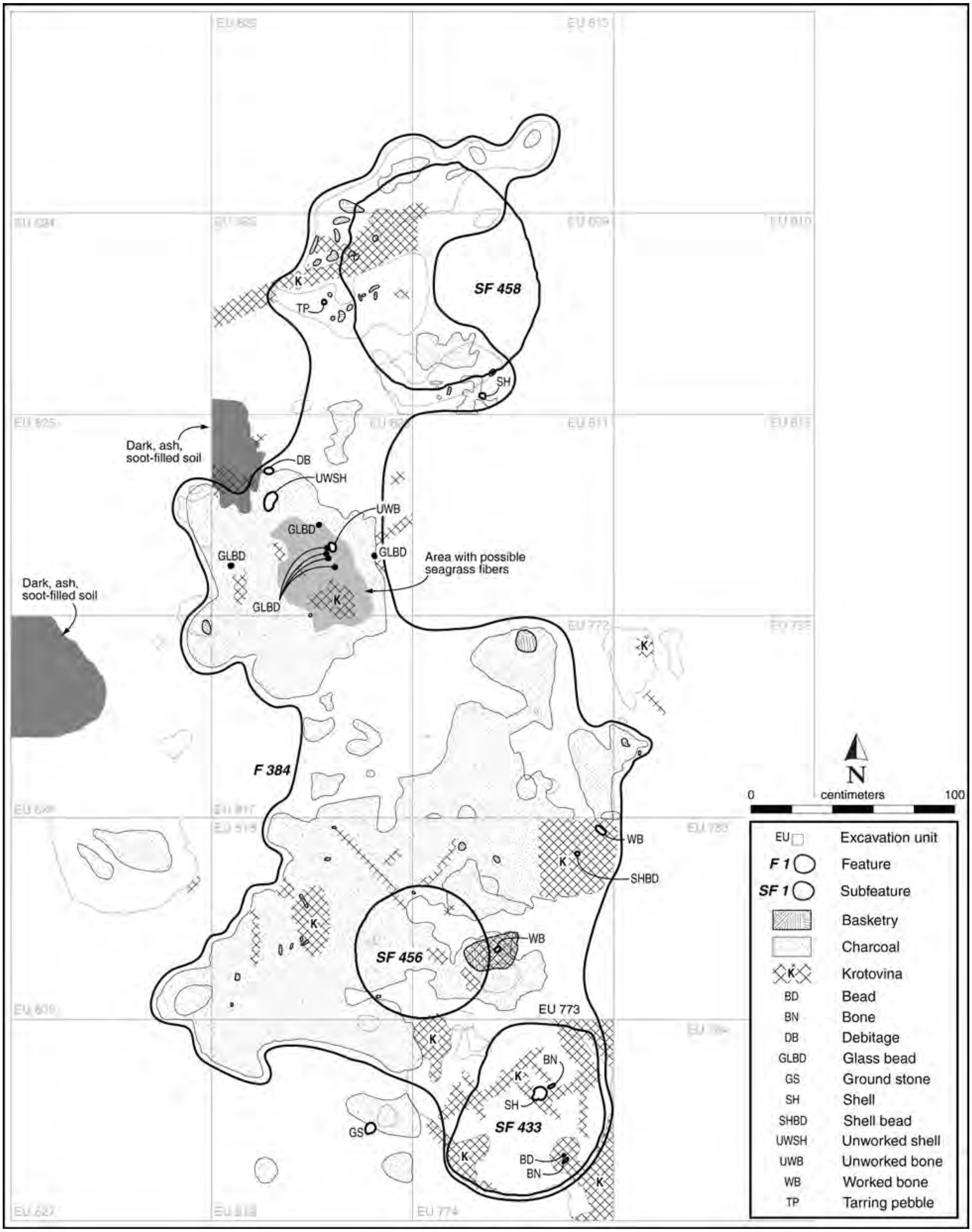

Figure 132. Plan-view drawing of nonburial Feature 384 (part of the mourning-feature complex), LAN-62. Notice the different loci of burned and scattered artifacts, including ground stone, shell beads and glass beads, seeds, basketry, and textiles.

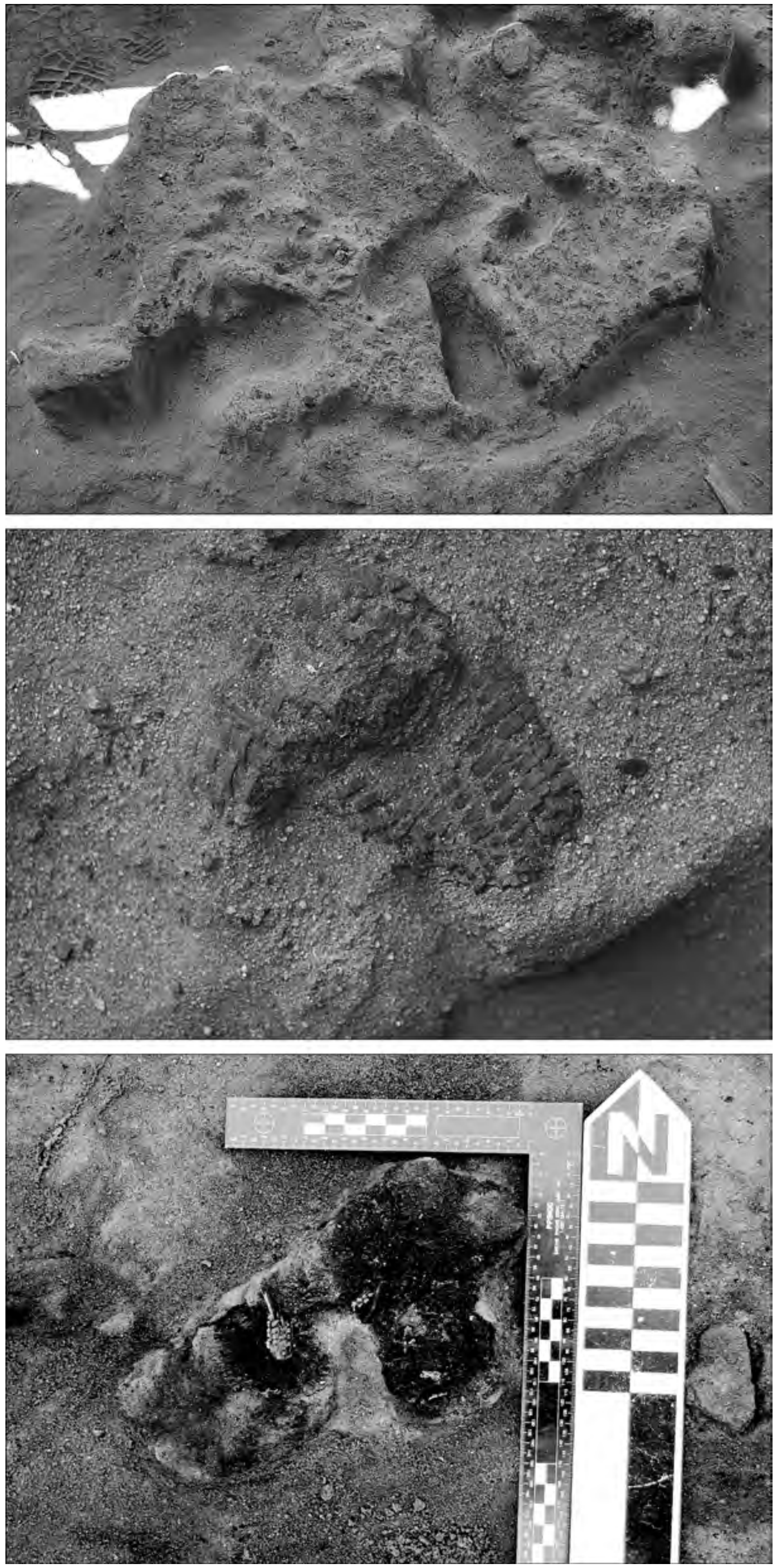

Figure 133. Basketry recovered from mourning-ceremony contexts, LAN-62.

Table 61. Select Artifacts and Plant and Faunal Remains from Individual Features in the Mourning-Ceremony-Feature Complex (FB 3) at LAN-62

Artifact Category	Feature/Subfeature No. and Type														All Features/ Subfeatures	Percent	Midden[a]		Total	
	45	384	467	331	471	673	373	433	454	456	458	475	671	672						
	AC	AC	AC	RC	RC	RC	TF	Pit	Pit	Pit	Pit	Pit	Pit	Pit			n	Percent	n	Percent
All shell beads	8	201	273	2	8	—	—	121	4	4	14	131	—	1	767	18.5	475	8.8	1,242	13.0
Shell beads, high-status (fused and unfused)	2	14	6	—	—	—	—	1	—	—	—	1	—	—	24	0.6	49	0.9	73	0.8
Shell beads, non–high-status fused	—	12	—	—	—	—	—	—	—	—	—	8	—	—	20	0.5	78	1.4	98	1.0
Shell beads, other[b]	6	175	267	2	8	—	—	120	4	4	14	122	—	1	723	17.4	348	6.4	1,071	11.2
Shell ornaments	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—		—	
Shell tools	—	—	—	4	—	—	—	—	—	—	—	—	—	—	4	0.1	1	0.02	5	0.05
Abalone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		2	0.04	2	0.02
Asphaltum-covered shell	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	0.02	9	0.2	10	0.1
Worked-bone artifacts	—	8	1	2	—	—	—	2	—	1	7	—	—	9	30	0.7	8	0.1	38	0.4
Projectile points	—	1	—	—	—	—	—	—	—	—	1	—	—	—	2	0.05	9	0.2	11	0.1
Flaked stone artifacts, other	—	406	11	50	3	9	6	38	8	14	41	13	14	92	705	17.0	3,490	64.7	4,195	44.0
Ground stone artifacts, other	—	—	—	5	—	—	—	—	—	—	—	—	—	—	5	0.1	22	0.4	27	0.3
Metates	—	—	—	8	—	—	—	—	—	—	—	—	—	—	8	0.2	—		8	0.1
Vessels	—	—	—	1	—	—	—	—	—	—	1	—	—	—	2	0.05	1	0.02	3	0.03
Comales	—	—	—	—	—	—	—	—	—	—	4	—	—	—	4	0.1	3	0.1	7	0.1
Glass beads	—	101	—	1	—	1	—	8	—	1	—	—	—	—	112	2.7	335	6.2	447	4.7
Glass items[c]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		3	0.1	3	0.03
Metal items[c]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		1	0.02	1	0.01
Socioreligious items[d]	—	1	—	1	—	—	—	—	—	—	—	—	—	—	2	0.05	4	0.1	6	0.1
Fire-affected rock and manuports	4	559	93	71	9	33	9	29	32	107	235	48	23	59	1,311	31.7	1,015	18.8	2,326	24.4
Basketry and cordage	2	>136	—	—	—	2	6	6	5	>900	106	1	—	25	>1,189	28.7	18	0.3	>1,207	12.6
Total artifacts	14	>1,412	378	146	20	45	21	204	49	>1,027	409	193	37	186	>4,141	100.0	5,396	100.0	>9,537	100.0
Percent	0.3	34.1	9.1	3.5	0.5	1.1	0.5	4.9	1.2	24.8	9.9	4.7	0.9	4.5	43.4		56.6		100	
Volume (m^3)	0.01	9.04	0.05	0.1	0.01	0.1	0.01	0.1	0.01	0.02	0.1	0.03	0.01	0.03	9.6		12		21.6	

continued on next page

Artifact Category	Feature/Subfeature No. and Type														All Features/ Subfeatures	Percent	Midden[a]		Total	
	45	384	467	331	471	673	373	433	454	456	458	475	671	672						
	AC	AC	AC	RC	RC	RC	TF	Pit	Pit	Pit	Pit	Pit	Pit	Pit			n	Percent	n	Percent
Artifact density (n/m³)	1,400	>156	7,560	1,460	2,000	450	2,100	2,040	4,900	>51,350	4,090	6,433	3,700	6,200	>431		450		>442	
Shellfish (g)	—	461.6	34.7	306.1	9.9	43.3	1.5	37.6	9.8	10.2	44.8	14.4	8.9	108.7	1,091.5		7,051.8		8,143.3	
Shellfish density (g/m³)	—	51	694	3,061	990	433	150	376	980	510	448	480	890	3,623	114		588		377	
Domesticated animals (NISP)	—	—	—	—	—	—	—	—	—	—	—	—	—	—			—		—	
Wild animals (NISP)	—	2,642	172	349	120	51	54	277	156	113	363	121	73	500	4,991		233		5,224	
Wild-animal density (NISP/m³)	—	292	3,440	3,490	12,000	510	5,400	2,770	15,600	5,650	3,630	4,033	7,300	16,667	520		19		242	
Domesticated-plant seeds (n)	NA	89	63	NA	NA	—	NA	NA	—	363	40	25	3	—	583		NA		583	
Wild-plant seeds (n)	NA	131,421	8,118	NA	NA	201	NA	NA	5,941	48,350	143,201	13,250	15,897	6,718	373,097		NA		373,097	
Wild-plant-seed density (n/L)	NA	14	162	NA	NA	2	NA	NA	594	2,418	1,432	442	1,590	224	39		NA		17	

Key: AC = artifact concentration; FB = Feature Block; NA = not analyzed; NISP = number of individual specimens; RC = rock concentration; TF = thermal feature.

[a] Levels 57, 58, 59, and 60 of Excavation Units 139, 296, 301, 303, 339, 715, 717, 772, 773, 774, 782, 783, 809–815, 817–819, and 822–829.

[b] Shell beads that are neither high status nor fused.

[c] Complete or nearly complete artifacts only.

[d] Nonutilitarian, possibly ritual related (bone wand, charmstone, crescent, crystal, *Datura* seeds, gaming pieces, incised stone, musical instrument, palette, perforated disk, pipe, plummet, rattle pebbles, shaft straightener, sunstone, and waterworn pebbles).

decomposing fibers, possibly *Halophila* (seagrass), were also found within nonburial Feature 384 (see Figure 132).

A combination of native plant species and introduced domesticates was recovered. The nonperishable contents of the burned-basket offerings varied. Some features contained relatively small collections, mainly beads or faunal bones. Other features contained an abundant and diverse array of materials, including glass beads, shell beads, flaked stone, and unworked shell. Notably, only 24 high-status shell beads were recovered from these 14 features. Only 2 artifacts indicative of socioreligious roles were recovered: a shaft straightener from nonburial Feature 331 (a rock cluster) and a bone wand from nonburial Feature 384 (an artifact concentration that also contained high-status beads). With the exception of 112 glass beads, no colonial artifacts were recovered from the FB 3 features, although small to moderate amounts of domesticated-plant remains were recovered from 6 features. Significantly, no remains of domesticated fauna were found in FB 3.

Most of the artifacts (n > 1,412) found in the features of FB 3 were recovered from nonburial Feature 384, the large artifact concentration, which also contained almost half of the shellfish remains (461.6 g), more than half of the vertebrate faunal remains (NISP = 2,642), and more than a third of the plant seeds. This feature contained many shell beads (n = 201), including most of the high-status beads (n = 14); most of the glass beads (n = 101); several worked-bone artifacts; and hundreds of flaked stone tools and pieces of debitage.

The collection of artifacts from nonburial Feature 331, a rock cluster, was considerably smaller (n = 146) but unique. This feature contained only two shell beads and one glass bead but also had one fire-affected stone vessel, eight fire-affected metate fragments, bone tools, and fire-affected rocks. Six of the fire-affected metate fragments conjoined, and the metate probably was intentionally broken and burned in situ, not as part of a hearth, but as part of a ritual ceremony. Steatite *comal* fragments recovered from nonburial Feature 456 (a pit, the feature with the second-largest collection of artifacts in FB 3) conjoined with fragments recovered from Excavation Units 824 and 811, located less than 1 m to the south and west, respectively (Figure 134). One partially reconstructible *comal* (three conjoined fragments) from this feature was a miniature (about half the size of the ones recovered from the burial features) with a perforation (perhaps for hanging) and an incised groove along the margin. The *comales* were ritually killed and placed in distinct areas, like the *comales* associated with the female in burial Feature 38. No human bones were recovered among the 14 features in FB 3.

The 14 features in FB 3 were distinct from one another in terms of frequencies, densities, and types of offerings. Nonburial Feature 384, the large artifact concentration, and nonburial Feature 673, a moderate-sized rock cluster, for example, had much lower densities of artifacts (approximately 156 and 450 per m^3, respectively) than those of the other 12 features, each of which had more than 1,000 artifacts per m^3. However, nonburial Feature 384 was the largest feature and had the highest volume; it was a composite feature that contained several other features. In sheer counts, it yielded the largest quantities of artifacts and faunal bone but not of carbonized seeds. Nonburial Feature 467, a moderate-sized artifact concentration, and nonburial Features 456 and 475, two moderate-sized pits, had the highest artifact densities and moderate densities of faunal remains. Nonburial Feature 456 had the highest frequencies of domesticated-crop seeds and basketry remains. In all, 583 carbonized seeds of *Hordeum vulgare* (n = 15), *Triticum aestivum* (n = 28), *Pisum sativum* (n = 539), and *Cicer arietinum* (n = 1) were recovered from 6 features. *Pisum sativum* was the most ubiquitous of the four domesticated-crop seeds and was recovered from all 6 features, whereas *Hordeum vulgare* and *Triticum aestivum* were recovered from 2 features (nonburial Features 384 and 475) and *Cicer arietinum* from only 1 feature (nonburial Feature 384). Nonburial Feature 456, which had the highest number of domesticated-crop seeds, had no other colonial items (except for a single glass bead), whereas nonburial Feature 384, which had 89 carbonized seeds of domesticated crops, had the highest number of glass beads among all mourning features.

The primary offerings during the mourning ceremony, as indicated by the collection from the 14 mourning features, included shell beads and flaked stone artifacts. Only two socioreligious artifacts (as defined earlier in this chapter) were recovered from the mourning features. A shaft straightener made on a recycled steatite *comal* fragment was found in nonburial Feature 331. A U-shaped groove 46.1 mm long, 7.9 mm wide, and 7.4 mm deep was found on one edge of the dorsal face. The convex dorsal face was fire blackened, either from its original use as part of the *comal* or from subsequent use as a shaft straightener. The second socioreligious item was a bone wand from nonburial Feature 384 (the composite artifact concentration). In general, colonial items were present in low frequencies and included only glass beads and domesticated-crop seeds that were selectively placed in specific mourning features. Colonial foods and goods were not ubiquitous among mourning-ceremony offerings, suggesting that mourners deliberately attempted to limit the inclusion of nonnative cultural items in the mourning ceremony. Finally, the collections from the mourning features did not reveal a ranking by frequency of certain types of offerings, with the exception that most features contained shell beads and flaked stone. Although the features were distinct from one another in terms of their contents, they showed no indication of a celebration of a specific "personhood" in these nonburial features (in contrast to the burial features). In other words, these mourning features appear to have represented community and public contexts and probably were not associated with particular individuals or groups.

The differences in the collections from the mourning features in FB 3 and from the burials themselves suggest that ritual associated with annual mourning probably was distinct from mourning ritual during interment, in terms of what was perceived as culturally and cosmologically acceptable to present as offerings. For example, colonial items, which were relatively sparse in the mourning features, were common in burial features (see Tables 45 and 61). Glass beads,

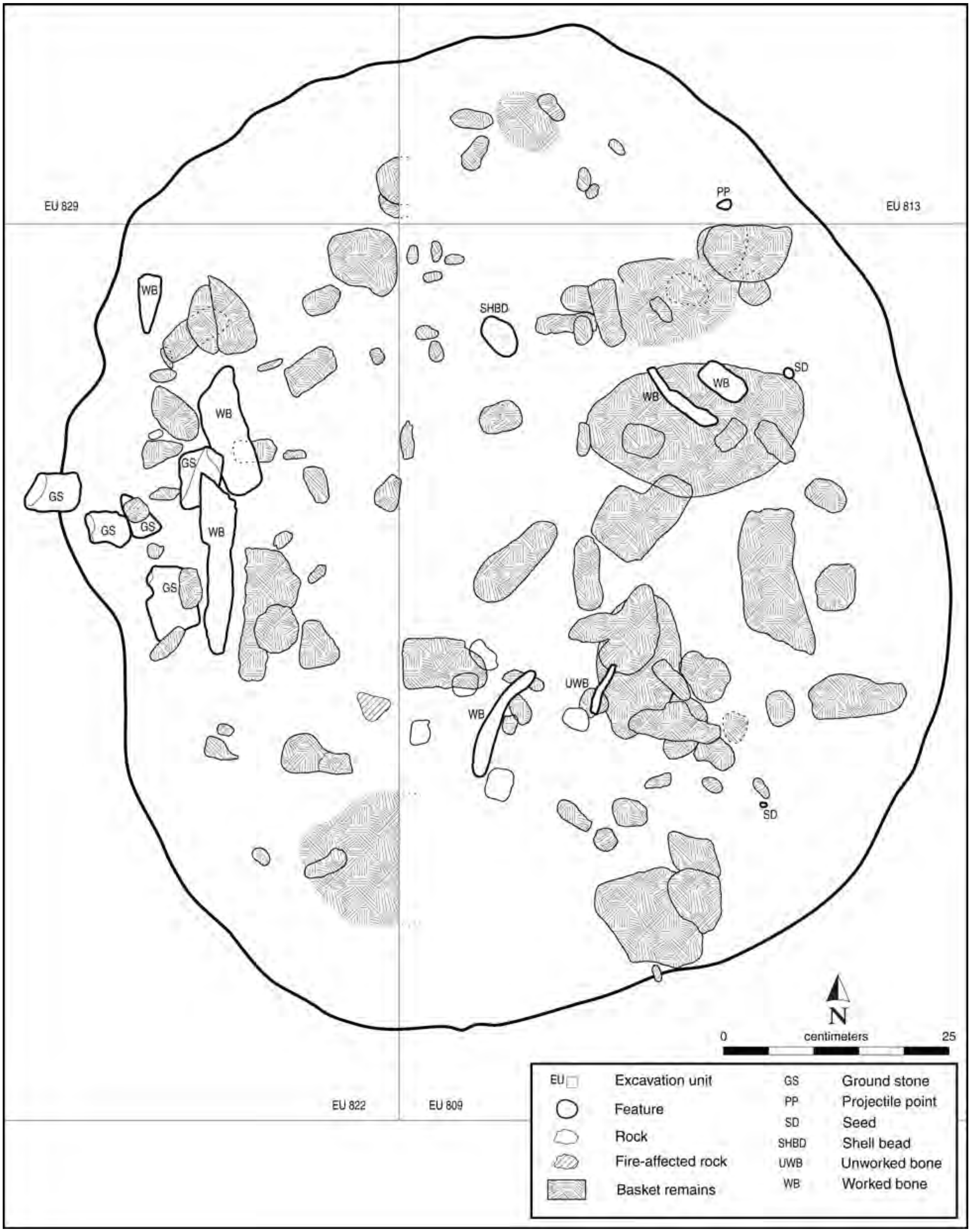

Figure 134. Plan-view drawing of nonburial Feature 458 (a mourning feature within nonburial Feature 384), illustrating the types of artifacts found within the feature fill.

in particular, were much more abundant and ubiquitous in burial contexts than in the mourning features (see Tables 46 and 61). Similarly, a relatively large collection of socioreligious items was recovered from the burials, but only two such items (a shaft straightener and a bone wand) were recovered from the mourning features. A deliberate avoidance of offering these special items during the mourning ceremony seems likely. This deliberate behavior suggests that these socioreligious artifacts were meant to be associated with particular individuals and therefore were placed in their burials but were not included in communal mourning rituals.

The mourning features and surrounding midden probably were established in the late Mission period. Fifty percent of the shell beads found in FB 3 were semiground disk beads that were diagnostic of the late Mission period (a.d. 1800–1816) (Table 62). Only a single early Mission period ground disk bead was recovered from this area, and no terminal Mission period rough disk beads were found. These relative frequencies of Mission period beads were consistent with those from the adjacent burial ground.

In summary, the mourning-feature complex dated to the Mission period, probably the late Mission period. It was located 2 m west of the concentration of late Mission period burial features and provided strong evidence of the types of offerings made during what were probably communal mourning ceremonies. The offerings consisted largely of traditional items, such as shell beads, flaked stone, and food. Items related to prestige and religion usually were absent, and colonial items were limited to low frequencies of glass beads and domesticated crops. As determined from their nature and content, the mourning-ceremony features located within FB 3 represent communal practices; they did not reflect a focus on particular individuals or lineages and contained more-traditional material culture.

Comparison of Intermediate Period and Mission Period Mourning Features

Mourning features have been documented in the prehistoric and Historical periods, reflecting both continuity and change in ceremonial practices. In the comparison of the mourning features from these two temporally distinct contexts within the Ballona, several distinctive characteristics are evident. The 4 Intermediate period mourning features from LAN-61 and LAN-63 are generally larger than the 14 individual Mission period features from LAN-62. The combined area of FB 3, however, is comparable to that of burial Feature 587 at LAN-63, the largest of the Intermediate period mourning features. The frequencies and types of artifacts placed in mourning features differed by period (see Table 59). Most noteworthy is that Intermediate period mourning features contained large quantities of broken ground stone tools, especially mortars, pestles, and steatite vessels, whereas FB 3 contained large quantities of shell and glass beads, reflecting wealth and personal decoration. Many of the ground stone artifacts used in Intermediate period mourning ceremonies appear to have been ritual items rather than functional tools. The large quantity of steatite flaking debris in Intermediate period mourning features is also unusual and suggests that vessels may have been made especially for the ceremony and that the manufacturing debris may have been offered with the finished product.

By contrast, ground stone in Mission period FB 3 appears to have been more functional. Several *comales* were recovered from FB 3, however. This artifact type did not appear in the region until the Mission period, but as evidenced in burial Feature 38, it may have had ritual significance as well as a food-processing function. Socioreligious artifacts, though rare, were found in FB 3 but not in the Intermediate period mourning features. Projectile points, flaked stone tools, debitage, and bone tools were also much more abundant in FB 3 than in the Intermediate period mourning features. Food offerings also differed markedly between the two periods. Intermediate period features had slightly lower shellfish densities but notably higher densities of vertebrate remains than Mission period features. Basketry remains and plant foods were recovered only from the Mission period features, although that may be the product of better preservation in this much younger temporal context.

In summary, the Intermediate period mourning features were characterized by large quantities of ritually broken and burned ground stone, shellfish remains, and vertebrate

Table 62. Mission Period Shell Beads in Mourning Features and Midden Contexts

Shell Beads	FB 3 Midden		FB 3 Features		Total
	n	%	n	%	n
Ground disk (early Mission period, A.D. 1771–1800)	—		1	0.1	1
Semiground disk (late Mission period, A.D. 1800–1816)	219	46	405	53	624
Rough disk (terminal Mission period, A.D. 1816–1834)	—		—		—
Other	256	54	361	47	617
Total	475	100	767	100	1,242

Key: FB = Feature Block.

remains and by small numbers of shell beads, flaked stone artifacts, and other artifacts (Cleland et al. 2007; Hull and Douglass 2005; Hull et al. 2006; Hull et al. 2013; Walker 1952). Many of the ground stone artifacts were covered in ocher, and some, including meter-long pestles exhibiting no use wear, appear to have been created with no purpose other than to be used or broken in these ceremonies. Most significantly, prehistoric mourning features often included cremated and unburned human remains but not complete burials. The Mission period mourning features in the Ballona were different and included offerings placed in baskets and burned. The baskets contained various combinations of native and introduced foods and artifacts. Some contained large quantities of shell beads and glass beads along with flaked stone, plant foods, and faunal remains, whereas others contained smaller quantities of beads with food and other artifacts. The foods included wild plants and animals and domesticated-plant seeds but not domesticated animals. Most noteworthy, however, is that human remains were not intermixed with offerings in Mission period mourning features. Clearly, therefore, the nature of offerings made during mourning ceremonies (large quantities of artifacts during the Intermediate period vs. food during the Mission period) and the ritual practices during these ceremonies (high frequency of objects ritually broken during the Intermediate period vs. a low frequency of the ritually broken objects during the Mission period) changed over this time span in this region. (Note that the lack of plant-food remains in the Intermediate period features could also be a taphonomic issue.) Perhaps more important, however, Mission period mourning ceremonies represent a long Gabrielino/Tongva tradition of memorializing the departed through offerings of food, wealth, and personal items and the destruction of utilitarian objects. Prehistoric mourning ceremonies differed, however, in involving the reburial of the dead and a greater emphasis on the ritual destruction of utilitarian and ceremonial objects. Recognizing that the Intermediate period mourning features were discrete and unrelated to burial areas is also important. Although all three mourning features at LAN-63 were near the center of the western concentration of features, they were not close to one another. By contrast, the late Mission period mourning area at LAN-62 was adjacent to the contemporary part of the burial ground. Thus, mourning and burial were not spatially related in the Intermediate period, even though remains of individuals were found in some mourning features. By the late Mission period, mourning and mortuary activities were closely related in space but still spatially segregated.

What led to this change in mourning ceremonies is still unclear, but colonization might have had an effect, along with the introduction of new foods, technologies, and other items. For example, prehistoric mourning ceremonies involved the remains of several individuals and may have been communal burial and memorial rituals. Mourning features in FB 3 appear to have represented communal commemorations that continued the memorial aspect of this tradition and employed primarily traditional foods and objects.

Feasting Area

The topic of feasting has been prominent in archaeological studies, and several scholars have presented varying views of the issue (e.g., Dean 2001; Dietler 1996, 2001; Dietler and Hayden 2001; Grimstead and Bayham 2010; Hayden 1996, 2009; Potter 1997). Hayden (1996) and Dietler (1996, 2001) have made inferences regarding the relationship between feasting and social differentiation (or self-promotion). Both scholars have argued that feasts do much more than feed many people; they are forces for social change or reinforcement, creating or maintaining important social relationships (Hayden 2001:30). Therefore, they constitute "a prime arena for the reciprocal conversion of 'symbolic capital and economic capital'" (Dietler 2001:73). Spielmann (2002) has focused on the relationships between feasting and other realms of social rituals. Hayden (2009) has explicated the cross-cultural role of feasting in funerary rites. According to Hayden (2009), funerals are perfect settings for the ulterior sociopolitical motives that he assigned to feasting, because emotions run high and generosity that might in other contexts be seen as suspicious is accepted in funerary contexts as the proper behavior for kin of the deceased.

Among the neighboring Chumash to the north, Mission period feasting has been proposed by Arnold (2001b) and Noah (2005) for Santa Cruz Island at Prisoners Harbor and by Gamble (2008) for the mainland at Medea Creek. Archaeological signatures used by scholars (Arnold and Graesch 2001; Gamble 2008; Noah 2005) to identify feasting have included large quantities of food (abalone, swordfish, fish, pinnipeds, and shellfish), prestigious foods, and high densities of shell beads and glass beads. Gamble (2008:182) has suggested that the consumption of "prestigious" foods such as swordfish, albacore (*Thunnus*), and shortfin mako (*Isurus oxyrinchus*) at Late and Mission period sites is another indicator of feasting because capture of these rare animals is labor intensive. Gamble (2008:184–187) also used the presence of large steatite vessels (ollas) for cooking, as well as large mortars and pestles (sometimes decorated) for food preparation, as indicators of feasts rather than daily food preparation and consumption.

To define feasting and to differentiate it from daily consumption at LAN-211 in the Ballona, we have both used Hayden's (2001) and Dean's (2001) archaeological correlates for feasting that include, among other signatures, labor-intensive foods (plants and animals), indications of food waste or presence of large quantities of food, and large food-preparation vessels. Table 63 presents some correlates proposed by Hayden (1995, 1996, 2001) and Dean (2001) and their manifestation at LAN-211 (as well as at LAN-62; see Deciphering Feasting and Mourning Ceremonialism, below). The characteristics of the material and food remains from the Mission period feasting area (FB 1) at LAN-211 are remarkably similar to the correlates of feasting identified by other scholars. In terms of comparability to Chumash feasting correlates, the Mission period inhabitants of the Ballona did

Table 63. Characteristics of Feasting at LAN-211, FB 1, and LAN-62, FB 3

Important Characteristics of Feasting	Reference	LAN-211, FB 1	LAN-62, FB 3
Taxonomic diversity should be low	Hayden 1995, 1996	vertebrate and invertebrate foods = low diversity plant foods = high diversity	low
Large quantity of nonhuman bone	Hayden 1995, 1996	159,037[a]	4,991[a]
High frequency of prey animals	Hayden 1995, 1996	99%	99%
Presence of unique features, artifacts, and/or architecture	Hayden 1995, 1996	yes	yes
Abundance of taxa susceptible to communal hunting (high yields, including high yields from communal collection)	Potter 1997	10.0%	21.0%
High frequency of fauna associated with ritual rather than consumption alone	Potter 1997	5%[b]	6%[b]
Work-party feasts—high frequency of small mammals	Grimstead and Bayham 2010; Szuter 1989, 1991	5%	3%
High-utility body parts from artiodactyls	Dean 2001	43.7% high 42.4% medium 13.9% low	37.1% high 26.6% medium 36.3% low
High ratio of large game to small game	Dean 2001	0.95	0.53
Clear visibility of cooking or processing locations	Dean 2001	yes	yes
Unique ritual contexts	Dean 2001	yes	yes

Key: FB = Feature Block.
[a] Number of individual specimens (NISP).
[b] Canids only.

not have a maritime subsistence economy; therefore, some of the "prestigious" food indicators that Gamble (2008) used to argue for Chumash feasting are not applicable. (However, we do have evidence for the consumption of large fishes, such as giant sea bass [*Stereolepis gigas*], that would have been as labor intensive to capture as large pelagic fish.) Similarly, large ground stone containers are absent at FB 1; however, ground stone artifacts including *comales* and basketry were recovered from FB 1. Some large stone vessels were also recovered from burials at LAN-62 (see Figure 105); these could be seen as evidence for feasting, in keeping with the interpretations of L. King (1982) and Gamble (2008).

In addition, the tightly spaced contemporaneous hearths (see below) suggest communal cooking rather than just daily consumption related to habitation activities. The habitation appears to have been the location of a residential area occupied by at least two domestic groups (see Chapter 3, this volume). These may have been a part of a larger settlement at LAN-211 or, perhaps, caretakers of the feasting area.

FB 1 was a central location for cooking large quantities of food (see Volume 2 of this series) (Figure 135). The dense concentrations of faunal bone, shell, and carbonized seeds in the midden and subfeatures composing FB 1, along with stone bowls and ceramic-vessel fragments with soot deposits, suggest that they were the remnants of cooking and food consumption (Figure 136). The great mass of discarded faunal bone and shell found at FB 1 was unlikely to have been produced by one or two residential groups over the short time posited for the creation of FB 1. Therefore, we have interpreted FB 1 as the product of communal feasting. However, this evidence does not preclude the possibility that several domestic groups may have resided at LAN-211 and may have hosted these feasts.

FB 1 comprised a large group of hearths and other domestic subfeatures and a dense concentration of shellfish, faunal bone, and artifacts. It consisted of 21 subfeatures: 8 small hearths (nonburial Subfeatures 5, 6, 8, 13, 17, 18, 19, and 41), 10 large hearths (nonburial Subfeatures 4, 14, 16, 21, 22, 26, 28, 42, 50, and 51), 1 domestic trash or storage pit (nonburial Subfeature 12), and 2 rock cairns (nonburial Subfeatures 24 and 25) (Table 64). The hearths were aligned in an east–west arrangement within the central portion of the activity area (see Chapter 3, this volume). One possible cause for this pattern is a process of "drift" in hearth locations as old hearths were abandoned over the course of the occupation and new hearths were constructed. But this begs the question of why the arrangement was linear rather than random. A linear pattern suggests that the hearths were relatively contemporary and that their locations were constrained by other activities located to the north and south of the line of hearths, which would have prevented an expansion or drift into these areas. In this scenario, the linear arrangement of hearths was part of a larger community plan; the hearths (including any newer constructions) would have been situated within a single planned location, and areas to the north or south may have been reserved for other community functions and activities. For example, mud-and-thatch residences may have been constructed around the

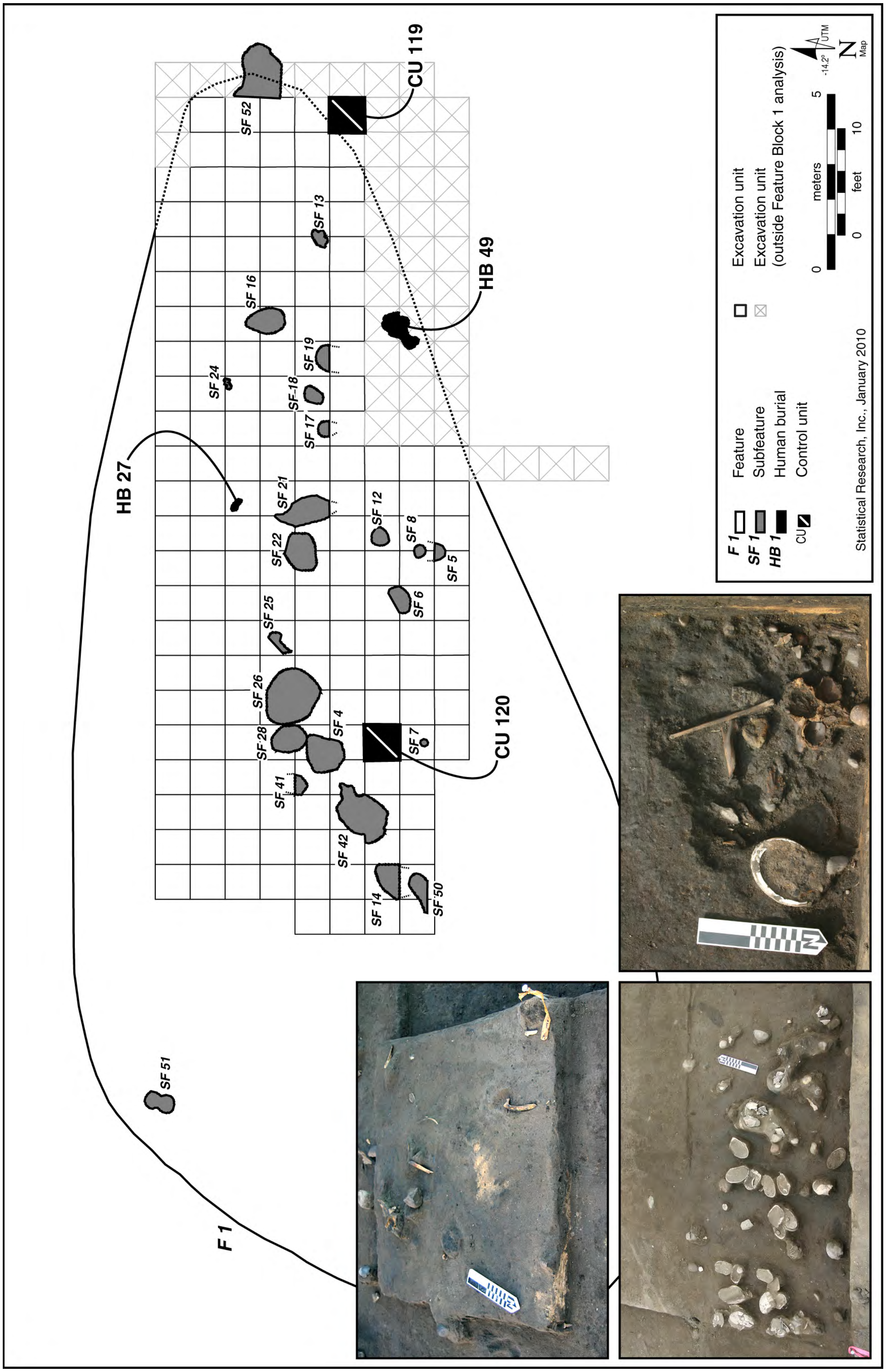

Figure 135. Feasting area (FB 1) at LAN-211, including photographic examples of portions of the feature block.

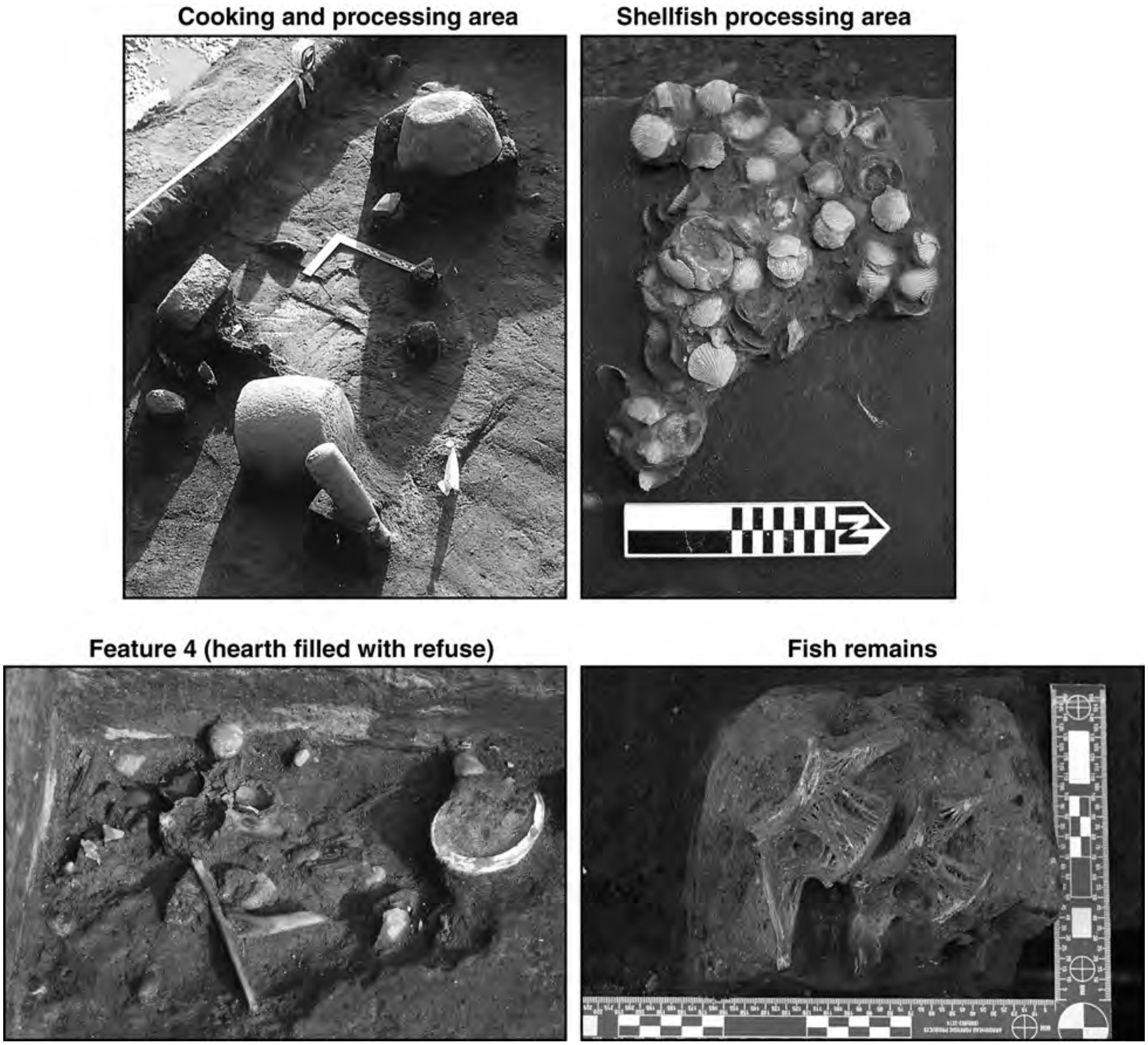

Figure 136. Activity areas in the feasting area (FB 1) at LAN-211.

Table 64. Artifacts Recovered from Feasting Contexts (FB 1), LAN-211

Artifact Category	Small Hearth[a]	Large Hearth[b]	Domestic Trash or Storage Pit[c]	Cairn[d]	All Subfeatures		Midden		Total
					n	Percent	n	Percent	
All shell beads	8	47	—	—	55	2.1	851	3.1	906
Shell beads, high status (fused and unfused)	—	20	—	—	20	0.8	104	0.4	124
Shell beads, non–high-status fused	—	—	—	—	—		3	0.01	3
Shell beads, other[e]	8	27	—	—	35	1.3	744	2.7	779
Shell ornaments	—	1	—	—	1	0.04	10	0.04	11
Worked-shell tools	—	2	—	—	2	0.1	14	0.1	16
Abalone	—	1	—	—	1	0.04	9	0.03	10
Asphaltum-covered shell	—	2	—	—	2	0.1	20	0.1	22
Worked-bone artifacts (domesticated animal)	—	—	—	—	—		24	0.1	24
Worked-bone artifacts (wild animal)	—	18	—	1	19	0.7	134	0.5	153
Projectile points	—	5	—	—	5	0.2	132	0.5	137
Other flaked stone tools	103	557	—	1	661	24.9	17,307	63.8	17,968
Ground stone artifacts	—	—	—	—	—		47	0.2	47
Aboriginal ceramics	—	—	—	—	—		92	0.3	92
Comales	—	1	—	—	1	0.04	3	0.01	4
Basketry and cordage	—	19	—	—	19	0.7	—		19
Glass beads	—	1	—	—	1	0.04	44	0.2	45
Socioreligious artifacts[f]	—	—	—	—	—		9	0.03	9
Subtotal	111	654	—	2	767	28.9	18,696	68.9	19,463
FAR and manuports[g]	121	1,716	4	45	1,886	71.1	8,437	31.1	10,323
Total	232	2,370	4	47	2,653		27,133		29,786
Percent of total	0.8	8	0.01	0.2	9		91		100

Key: FAR = fire-affected rock; FB = Feature Block.
[a] Small hearth = nonburial Subfeatures 5, 6, 8, 13, 17, 18, 19, and 41.
[b] Large hearth = nonburial Subfeatures 4, 14, 16, 21, 22, 26, 28, 42, 50, and 51.
[c] Domestic trash or storage pit = nonburial Subfeature 12.
[d] Cairn = nonburial Subfeatures 24 and 25.
[e] Shell beads that are neither high status nor fused.
[f] Bone wand, charmstone, crescent, crystal, *Datura* seeds, gaming pieces, incised stone, musical instrument, ocher, palette, perforated disk, pipe, plummet, rattle pebbles, shaft straightener, sunstone, and waterworn pebbles.
[g] Fire-affected rock, cobbles, and manuports.

line of hearths, as was speculated on the basis of the presence of possible dried-mud or adobe fragments to the north and east of the hearths (see Chapter 7, Volume 3 of this series). If this speculation is correct, the hearths may have marked the location of a communal cooking locus in the center of the residential area. The hearths appeared to be divided into eastern and western clusters. The western cluster included a tightly spaced line of 7 hearths that was separated by about 3 m from a less tightly spaced line of 6 hearths in the eastern part of FB 1. A smaller, nonlinear scatter of 3 hearths and a trash/storage pit was situated about 2 m to the south of the gap and may have been affiliated with the eastern group. The eastern and western lines of hearths were roughly equal in number of hearths but differed in hearth size. The western group consisted of 6 large hearths and 1 small hearth; by contrast, the eastern group consisted of 3 small and 3 large hearths. The 3 hearths located to the south of the groups were all interpreted as small hearths. Speculation about the reason for this disparity in the ratio of large to small hearths is difficult (see Volume 2 of this series).

We have noted that the 3-m space between the eastern and western groups of hearths may have been the result of random drift, but the hearths also may have been situated to avoid a central structure or activity located between the two subgroups (see Chapter 3, this volume, and Volume 2 of this series). Of note were two subfeatures (nonburial Subfeatures 24 and 25) that were concentrations of cobbles, ground stone, and fire-affected-rock fragments. These cairn subfeatures might have functioned as the central post supports for structures. Both subfeatures were surrounded by an approximately 1–2-m radius of "open" area devoid of subfeatures, which could have indicated the interior spaces of two structures. One heavily disturbed burial of a fetus/perinatal infant (burial Feature 27) was recovered roughly equidistant between the two possible post supports. The fetus may have been interred in an open space between the two posited structures associated with nonburial Subfeatures 24 and 25. Alternatively, this burial could have been interred beneath the floor of one of the structures.

Most of the artifact collection from FB 1 was recovered from the midden (91 percent), and the types of artifacts recovered from the subfeatures and the midden are distinct. Artifacts recovered in higher frequencies from the midden included projectile points, flaked stone, worked-shell tools, asphaltum-covered shell, glass beads, and fire-affected rocks. Ground stone, aboriginal ceramics, worked bone from domesticated animals, and socioreligious artifacts were recovered only from the midden. The only artifacts that were recovered only from the subfeatures were basketry and cordage fragments.

The distribution of ground, semiground, and rough disk shell beads were used to place FB 1 in temporal context (Table 65). Overall, semiground disk beads dating to the late Mission period were present in higher frequencies (27 percent of shell beads) than ground or rough disk shell beads. Early Mission period ground disk beads were once again recovered in lower frequencies (4 percent) than semiground disk shell beads, and only seven terminal Mission period rough disk beads were recovered. Overall, late Mission period beads were much less common than at LAN-62, where they constituted at least half of all shell beads in Protohistoric through Mission period contexts. Although rare, in terms of percentage, early Mission period beads were three times more abundant in FB 1 than at LAN-62. As determined from the distributions of these three bead types, FB 1 was deposited throughout most of the Mission period but was used most intensely during the late Mission period.

In all, nine socioreligious artifacts were recovered from the FB 1 midden, consisting two pieces of ocher, two crystals, three shaft straighteners, and two pipes. One of the quartz crystals was coated on all faces with asphaltum. Three steatite shaft-straightener fragments were recovered from the midden; one of them was made from a recycled vessel-rim fragment or the edge of a *comal*, as one thick, rounded edge is retained. Each of the two sandstone pipes, one complete and one fragmentary, was decorated with an incised line encircling the distal end. The fragmentary pipe exhibited postdepositional thermal breakage.

In addition to the socioreligious artifacts mentioned above, an asphaltum-encased canid distal-mandible fragment with shell beads inlaid into the asphaltum was recovered from the midden (Figure 137). The inlaid beads included 38 olivella bushing beads arranged in two rows of 7 beads each and

Table 65. Mission Period Shell Beads in FB 1, LAN-211

Shell Beads	Midden		Subfeatures		Total	
	n	%	n	%	n	%
Ground disk (early Mission period, A.D. 1771–1800)	42	4	—		42	4
Semiground disk (late Mission period, A.D. 1800–1816)	273	29	3	5	276	27
Rough disk (terminal Mission period, A.D. 1816–1834)	7	1	—		7	1
Other	633	66	52	95	685	68
Total	955	100	55	100	1,010	100

Key: FB = Feature Block.

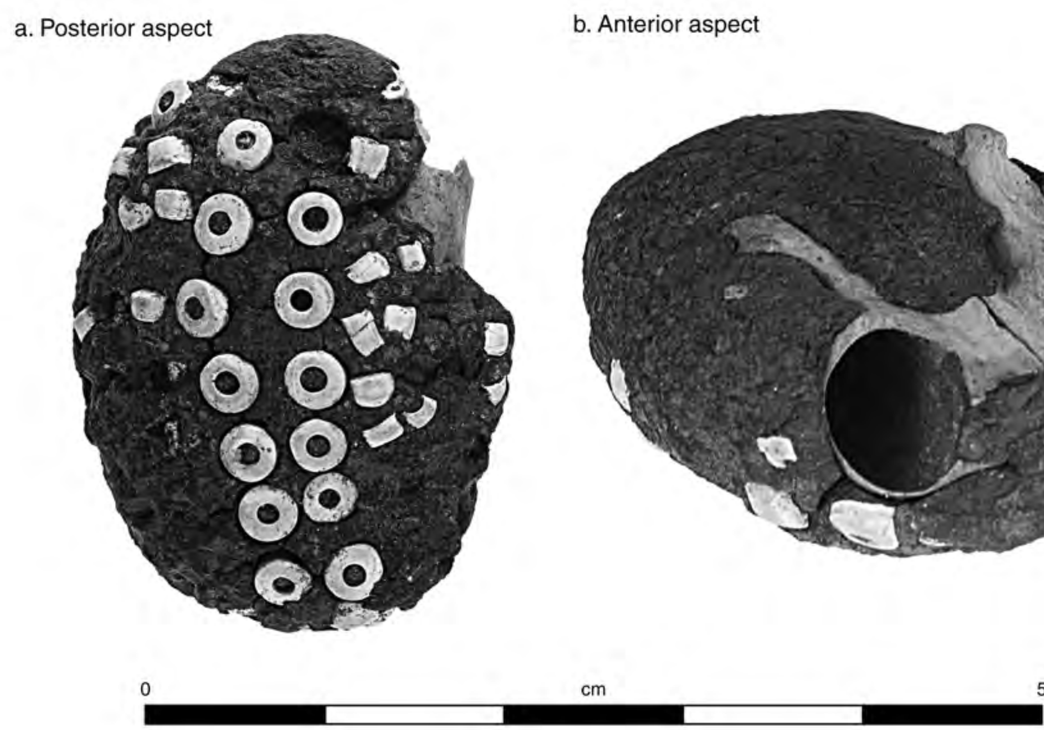

Figure 137. Canid mandible with shell beads inlaid in asphaltum.

bordered on both sides by 24 beads and bead fragments (see Chapter 3, Volume 3 of this series). The proximal end had an indentation in the asphaltum where something once may have been attached, perhaps for stringing as a pendant. The mandible was not complete, and from the anterior perspective, one could see that only the distal portion of the mandible was selected to form the supporting structure for the asphaltum object. The proximal portion of the mandible and, at least, the canines and first premolars broke off or were purposely removed (see Chapter 4, Volume 3 of this series). Certainly, at the time of the object's manufacture, the remainder of the jaw either was already missing or had been purposely cut away; the tooth sockets not covered by the asphaltum may or may not have held teeth within them at that time. Two similar artifacts were recovered from Mikiw, a Historical period Chumash site a few kilometers north of Santa Barbara, next to Dos Pueblos Canyon (Harrison 1965:100–101). One artifact from Mikiw, a pair of rodent incisors protruding from an asphaltum-covered partial mandible (Harrison 1965:138, Figure 58), was similar in design but was formed from a rodent mandible instead of a canid mandible. The second asphaltum-covered bone at Mikiw (Harrison 1965) was a modified carnivore mandible. The mandible was ground down on its "lower" (i.e., posterior) edge but, as was true for the specimen from LAN-211, no longer held any teeth. The posterior surface of this bone also showed traces of asphaltum, leading Harrison (1965:138) to suggest that the mandible was probably "mounted into another object but with the teeth protruding, and held in position with asphalt." By contrast, as determined from string impressions on two tar knobs, one located on either side of the jaw, the asphaltum-covered rodent mandible apparently was not mounted but, rather, was suspended from a string, either "for decorative purposes, or suspended as a pendant" (Harrison 1965:138). Harrison (1965:138) suggested that the rodent mandible could have had a decorative function. As to the choice of bones and animal taxa as inclusions in the finished objects, the use of jaws in each of the examples (at Mikiw and LAN-211) may simply have been a choice related to decorative value or the dramatic impact of large, pointed teeth jutting out from a pendant or other object. Whether the choice of carnivore mandibles was of significance is unclear. These animals' mandibles are larger and hold longer, more-fearsome teeth. In addition, coyotes (*Canis latrans*), at least, featured frequently in southern California Native American mythology (Kroeber 1925:626–627). Certainly, the similarities between the objects found at Mikiw and the one found at LAN-211 further demonstrate the cultural connections and economic transactions between the Gabrielino/Tongva and the Chumash (McCawley 1996:114, 144–147).

Ceramic artifacts (n = 92) and burned "daub" fragments (187.8 g; n = 629) were also recovered from the FB 1 midden (see Chapter 7, Volume 3 of this series); these types of artifacts were notably absent outside FB 1. The function of the "daub" fragments was ambiguous, but it may have been related to walls of structures. However, the Gabrielino/Tongva did not use daub to coat the walls of residential dwellings but, instead, reserved such coating for sweat-lodge walls and floors (Kroeber 1925). The daub fragments at LAN-211 are unlikely to have been associated with a sweat lodge, because no evidence of such a large structure was found at this location, and the spatial distribution of the daub fragments did not support the possibility of a single sweat lodge. Furthermore, it is unlikely that more than one would have been constructed in the area, unless they were built successively in slightly different locations over the course of time. However, the daubing practices are likely to have changed over time from the Mission period to the early twentieth century, when Kroeber made his observations. Perhaps various types of structures, and not just sweat lodges, were completely or partially coated with daub during the Mission period (Strudwick 2004). In terms of aboriginal ceramics, the pottery forms represented by the ceramic fragments included bowls, jars with necks, and neckless jars (see Chapter 7, Volume 3 of this series). The vessel sherds from LAN-211 did not resemble the Mission ceramics described by Love and Resnick (1983); instead, they resembled the indigenous-made Tizon Brown wares recovered from the inland deserts to the east. The ceramic remains were concentrated largely in the central portion of FB 1 and in the vicinity of several hearths and cleanout subfeatures (Figure 138). None of the vessel sherds was located more than about 3 m from a hearth subfeature. This area was a locus for cooking and food preparation, and surrounding this cooking area to the west and north was a linear or semilinear arrangement of "daub" remains with three or four distinct concentrations that might have marked locations of wattle-and-daub structures. These dwellings may have encircled a central, communal cooking area that was characterized by the large and small hearths, vessels, and large quantities of flaked stone and faunal-bone debris in the midden. Alternatively, the burned "daub" remains may have marked the locations of outdoor kitchen structures or shelters under which food-preparation tasks were carried out.

FB 1 yielded large quantities of food remains, including animal (both vertebrate and invertebrate) and plant remains (Table 66). Vertebrate remains from the subfeatures and the midden were largely similar and were dominated by remains of wild mammals, followed by those of fishes and birds. Bones of introduced/domesticated animals (cow [*Bos taurus*], pig [*Sus scrofa*], goat, and sheep [*Ovis aries*]) were present in low frequencies. Plant remains from the two contexts were markedly different; subfeatures yielded much higher densities of carbonized seeds from wild plants, whereas domesticated-crop seeds were found in higher densities in the surrounding midden. Remains of *Phalaris* sp. were present in slightly higher frequencies than those of other wild grasses. The recovery of both *comal* fragments and *Zea mays* kernels from the FB 1 midden suggests that tortillas may have been cooked. Both *comales* and *Zea mays* were introduced during the Mission period (Harrison 1965:163; Hudson and Blackburn 1983:196–197).

Artifacts also were recovered in much higher frequencies in the surrounding midden than in the subfeatures. Higher frequencies of fire-affected rock, flaked stone, projectile points, and worked-shell tools suggest that food was prepared away from the subfeatures and that the subfeatures were reserved for cooking. By contrast, basketry remains were limited to the subfeatures, suggesting that they were the containers in which food was cooked. Aboriginal ceramics, which also appeared to have been used for cooking, were found only in the midden and not in subfeatures.

In summary, FB 1 was the remnant of either a single occupation episode or limited events wherein the focus was on food preparation and consumption. The line of hearths marked the location of a communal cooking area, as evidenced by the dense concentrations of discarded faunal bone and shell in the vicinity and by the presence of ceramic-vessel fragments with exterior soot deposits from exposure to fire.

Although the two sites were separated by a mile, the FB 1 area at LAN-211 may have served as a feasting area associated with late Mission period mortuary activities in the burial ground and mourning ceremonies at FB 3 at LAN-62. Evidence from shell beads from the two feature blocks and the southwestern part of the burial ground indicated that the three clusters of features and subfeatures were contemporary.

Evidence of feasting during the Protohistoric and Mission periods in coastal southern California has been gleaned from ethnohistorical and ethnographic records (Bean 1975; Blackburn 1975; McCawley 1996; Merriam 1962). To date, most of the discussion of feasting in an archaeological context in the coastal southern California region has focused largely on the neighboring Chumash. Recently, however, Laylander (2011) has also summarized mortuary practices in select regions of the Yuman territory in southern California and in northern Baja California. Gamble (2008) and Noah (2005) have studied dietary remains from Chumash sites and argued for evidence of feasting and differential access to prized foods within that society. Noah (2005) focused on feasting evidence based on the amount and distribution of certain animal species, most notably abalone, swordfish, and pinnipeds in addition to other aquatic taxa. Notably absent from Noah's discussion, however, was any emphasis on large terrestrial game. Gamble (2008:180–182) summarized the archaeological and ethnographic evidence for Chumash feasting within the context of models proposed by Hayden (2001). With respect to the latter, Gamble (2008) suggested that the Chumash hosted cooperative and alliance feasts (when the Spanish expedition led by Portolá landed in Chumash territory) and funerary ceremonies. Gamble (2008:182–183) evaluated the Chumash sites for archaeological feast signatures as defined by Hayden (2001) and argued that swordfish, abalone, and shortfin mako were prestigious foods because of their rarity and the difficulty in obtaining them (see also Bernard 2004). Gamble (2008), as well as other archaeologists who have studied Chumash material culture (Corbett 2004; Graesch 2004; King 1990), suggested that along with dietary changes in the Late period, an evolution of craft manufacture, including bone whistles, shell beads, and stone vessels (ollas) and the development of the *tomol*, took place. These authors also argued that these changes were a response to, or a reflection of, increasing social complexity among the Chumash resulting from the development

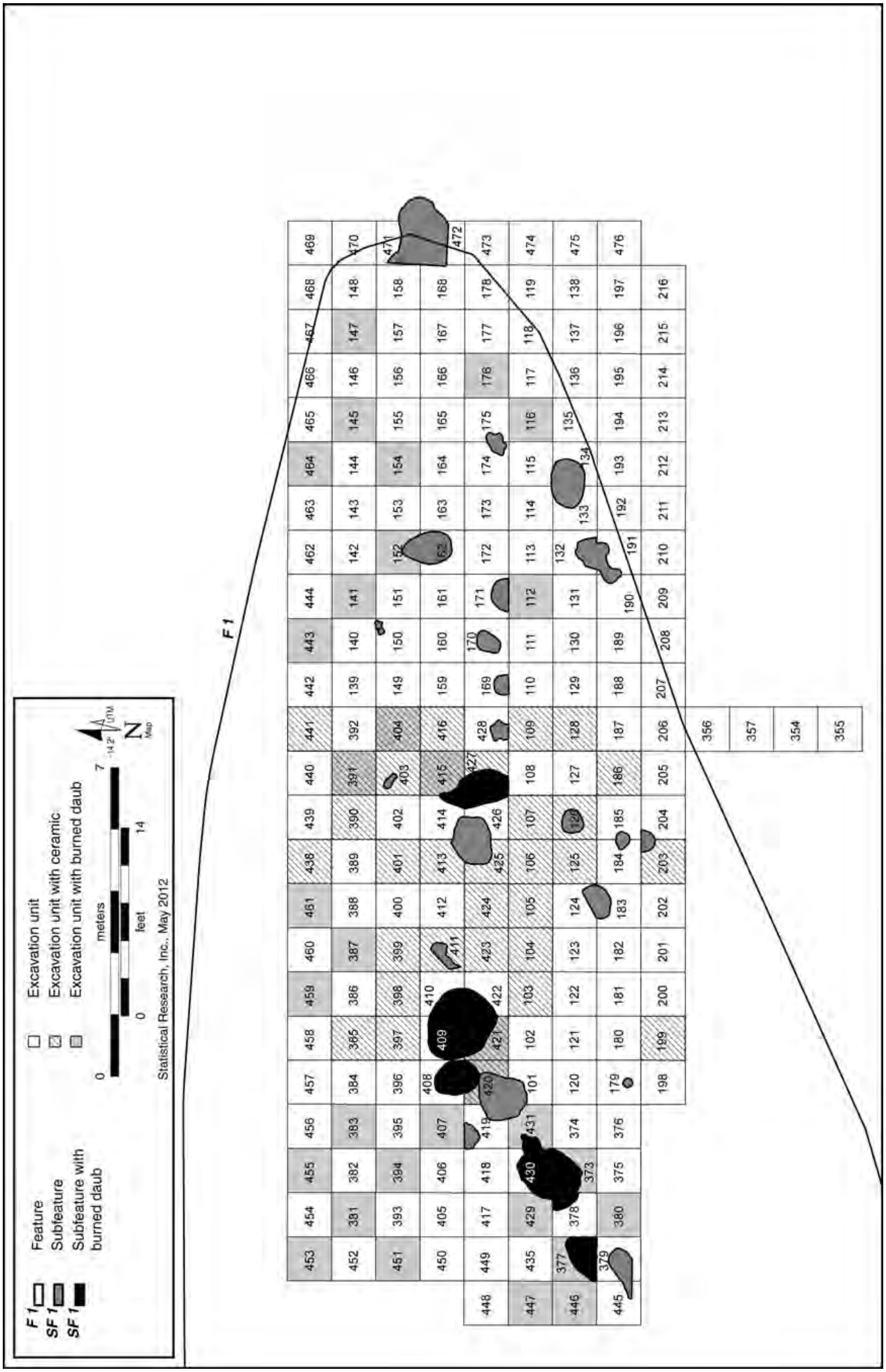

Figure 138. Distribution of ceramic and daub fragments in the cooking area at LAN-211.

Table 66. Distribution of Main Foods in the Mourning and Feasting Contexts

Food Remains	Mourning-Area Features (LAN-62, FB 3)			Feasting-Area Subfeatures (LAN-211, FB 1)			Feasting-Area Midden (LAN-211, FB 1)		
	Plant Foods								
	n	%	Density[a] (n/L)	n	%	Density[a] (n/L)	n	%	Density[a] (n/L)
All carbonized seeds	373,677		1,987	26,044		145	13,336		31
Wild grasses	321,961	86	1,712	19,002	73	106	7,748	58	18
Hordeum pusillum (little barley)	44,837	12	238	6,812	26	38	3,292	25	8
Phalaris (canarygrass)	267,605	72	1,423	10,025	38	56	3,736	28	9
Domesticated plants	604	0.2	3	81	0.3	0.45	502	3.8	1
Cicer arietinum (chickpea)	1	<0.1	0.01	11	<0.1	0.1	13	0.1	0.03
Pisum sativum (pea)	539	0.1	3	61	0.2	0.3	99	0.7	0.2
Avena sativa (oats)	21	<0.1	0.1	5	<0.1	0.03	3	<0.1	0.01
Hordeum vulgare (common barley)	15	<0.1	0.1	3	<0.1	0.02	114	0.9	0.3
Triticum aestivum (wheat)	28	<0.1	0.1	1	<0.1	0.01	263	2.0	1
Zea mays (corn)	—			—			10	0.1	0.02
	Vertebrate Foods								
	NISP	%	Density[a] (NISP/m³)	NISP	%	Density[a] (NISP/m³)	NISP	%	Density
Wild vertebrates	4,991		520	88,785		50,360	70,252		NA
Mammals	3,829	77	399	45,642	51	25,889	33,518	48	NA
Birds	445	9	46	5,420	6	3,074	3,171	5	NA
Reptiles	74	1	8	2,435	3	1,381	1,877	3	NA
Amphibians	—			4	<0.1	2	4	<0.1	NA
Bony fishes	512	10	53	11,256	13	6,385	8,035	11	NA
Cartilaginous fishes	9	0.2	1	212	0.2	120	184	0.3	NA
Domesticated vertebrates	—			192	0.2	109	190	0.3	NA
	Invertebrate Foods								
	Weight (g)	%	Density[a] (g/m³)	Weight (g)	%	Density[a] (g/m³)	Weight (g)	%	Density
Unworked shell	1,091.5		114	334.4		722.2	12,835		NA

Note: Except in the count for All carbonized seeds, seeds are enumerated only for selected plant taxa. Except for the count for Wild vertebrates, remains are enumerated only for selected vertebrate taxa.

Key: FB = Feature Block; NA = not analyzed; NISP = number of individual specimens.

[a] The volume used for density calculations differs among contexts and among food types because of variation in volume of material collected.

of social stratification. Shell beads were often exchanged at ceremonies including feasts, bone whistles were employed in such rituals, and stone vessels were produced to hold feast foods (Gamble 2008).

By contrast, we propose that feasting in the Ballona was a mechanism of social cohesion, especially during a time of social upheaval and cultural change (Dietler 1996, 2001; Hayden 1996, 2001, 2009). In particular, feasting was associated with mortuary practices associated with the death of an individual or individuals or with the mourning ceremony or ceremonies or with both.

Deciphering Feasting and Mourning Ceremonialism

When Mission period feasting (FB 1 at LAN-211) and mourning (FB 3 at LAN-62) contexts in the Ballona were compared, striking differences in their compositions were evident (Table 67). Feasting contexts had a higher density of artifacts: in particular, projectile points, flaked stone, bone tools, and fire-affected rock. Flaked stone tools included edge-modified flakes, choppers, and bifaces, all of which could have functioned as butchering implements during food preparation (see Chapter 2, Volume 3 of this series), although the bulk of the flaked stone was debitage. Shell beads and glass beads constituted much higher percentages of the artifacts recovered in mourning contexts than in feasting contexts. Overall, no colonial artifacts other than glass beads (with the exception of very low quantities of metal [n = 1] and glass [n = 3] artifacts at FB 3) were recovered from either context. Small numbers of socioreligious artifacts, however, were recovered from both. Greater densities of vertebrate remains were recovered from the feasting area, although, in general, the taxa were similar in both contexts, with the exception of the presence of domesticated-animal bone in the feasting area (see Table 66). Other differences in fauna distinguished the two contexts. Mourning features had comparatively lower densities of the remains of mammals and birds (see Chapter 10, Volume 3 of this series), as well as the remains of fishes, particularly bony fishes, some of which may be pelagic. Pelagic fishes may have had a higher value, because they were not as easily obtained.

Table 67. Distribution of Specific Material Culture in the Mourning and Feasting Contexts in the Ballona

Categories	FB 3, LAN-62		FB 1, LAN-211	
	n	%	n	%
Shell beads	1,242	13.0	906	3.0
Glass beads	447	4.7	45	0.2
Shell ornaments	—		11	0.04
Glass items	3	0.03	—	
Metal items	1	0.01	—	
Socioreligious artifacts[a]	6	0.1	9	0.03
Worked-shell tools	5	0.05	16	0.05
Abalone	2	0.02	10	0.03
Asphaltum-covered shell	10	0.1	22	0.1
Worked bone (domesticated animal)	—		24	0.1
Worked bone (wild animal)	38	0.4	153	0.5
Projectile points	11	0.1	137	0.5
Other flaked stone artifacts	4,195	44.0	17,968	60.3
Ground stone	27	0.3	47	0.2
Metates	8	0.1	—	
Vessels/bowls	3	0.03	—	
Comales	7	0.1	4	0.01
Basketry and cordage	>1,207	12.6	19	0.1
Fire-affected rock and manuports	2,326	24.4	10,323	34.7
Aboriginal ceramics	—		92	0.3
Total	>9,537		29,786	
Artifact density (artifacts per m^3; features only)	>431		1,507	

Key: FB = Feature Block.

[a] Bone wand, charmstone, crescent, crystal, *Datura* seeds, gaming pieces, incised stone, musical instrument, ocher, palette, perforated disk, pipe, plummet, rattle pebbles, shaft straightener, sunstone, and waterworn pebbles.

The pattern was reversed for plant foods: carbonized seeds were recovered in higher densities from the mourning area than from the feasting area. Domesticated-crop seeds were recovered from both contexts; however, remains of domesticated crops were recovered in higher densities in the mourning area (see Table 66). In addition, *Pisum* cf. *sativum* appeared to have been preferred among the domesticated crops in the mourning offerings, but *Triticum aestivum* appeared to have been preferred during feasting. Although remains of domesticated crops were generally uncommon at both sites, the percentage of carbonized seeds that were those of domesticated plants was nine times higher in feasting contexts than in mourning contexts. Furthermore, domesticated-crop seeds were incorporated into mourning offerings, and remains of domesticated fauna were not, but the latter were present in feasting contexts. This difference could reflect a choice to exclude certain colonial foods and not others, or it could reflect the types of foods (plant vs. animal) that were given as payment to Native American workers by the Spanish. In other words, workers may have been paid in crop produce but not necessarily in animal products (including meat).

To gain a better understanding of the use of foods in these two different ritual contexts, we explore the range of characteristics identified by previous scholars to define feasting and the archaeological correlates of these characteristics. FB 1 at LAN-211 was interpreted as a feasting area rather than an intensively occupied food-processing and food-consumption area. In comparison to FB 3 at LAN-62, it exhibited more characteristics used to identify feasting activities (see Table 63). For example, the quantity of faunal bone was almost 32 times higher at FB 1. The frequency of small game was higher, as was the ratio of large to small game. FB 1 also had a much greater abundance of artiodactyl body parts characterized as of high and medium utility than did FB 3 (86.1 percent vs. 63.7 percent). However, the abundance of taxa targeted by communal hunting was twice as high in FB 3. The two areas had unique features (such as the concentration and alignment of hearths in FB 1 and hearths and burned baskets at FB 3) and socioreligious artifacts (crystals, pipes, and ocher). Clearly defined areas of food preparation and cooking were present at FB 1. Feasting at LAN-211 probably was related to mourning ritual, as determined from the presence of contemporary Mission period burial and mourning areas at LAN-62.

The higher density of faunal remains in feasting contexts vs. the higher density of carbonized seeds in mourning contexts could be the result of how these foods were prepared and consumed. In the case of faunal remains in a feasting area, meat was processed (and perhaps consumed), and waste bone discarded, near the site of consumption. In addition, the scavenging of discarded bones by dogs would have contributed to the distribution of the bone. Eating large amounts of meat should have resulted in the discard of large numbers of bones, especially in the case of larger vertebrate fauna. By contrast, most of the seeds would have been completely consumed, and those discarded in food-preparation and food-consumption contexts would have been those that were accidentally burned or spilled. In other words, the consumption of seeds should have had few by-products. In the case of the mourning context, seeds were not consumed but were placed as offerings that were carbonized immediately during the ceremony and thus preserved. Last, basketry was recovered from both contexts and usually was more intact in mourning contexts (see Chapter 5, Volume 3 of this series). The baskets were the receptacles of offerings made during the mourning ceremonies and were burned during the ceremony; thereby, they were preserved along with the seed and bead offerings. Although a general set of customs may have governed mourning-ceremony food offerings, the contents of individual features and baskets varied. These differences may be indicative of the culinary tastes of particular groups. From a plant-food perspective, the collections from the basket offerings were, on average, characterized by high ratios of wild-grass seeds to nongrass seeds (6:1). These baskets of seed offerings may have been symbolic offerings of different types of pinole mixes ritually offered to the deceased (see Chapter 14, Volume 3 of this series). Three mourning features, however, contained Old World domesticated-crop seeds, primarily *Pisum sativum*; quantities of *Triticum aestivum* were much smaller. The greater use of nonnative foods in feasting settings vs. mourning contexts gives us a glimpse of aboriginal perspectives on the adoption and acceptance of nonlocal-plant foods during a period of immense cultural change, dominance, and rebellion. Evidently, reticence to integrate new plant and animal foods was greater for ceremonial events than for funeral meals.

Although the composition of the mortuary features demonstrates the remarkable persistence of traditional ritual practices, the inclusion of introduced foods is noteworthy. Aboriginal populations' inclusion of new foods in their ritual practices soon after these foods were incorporated into their diet indicates that they looked favorably on at least some of these new foods acquired from the missions and ranchos. We see both continuity and change in feasting and mourning ceremonialism in the Ballona. The Mission period in coastal southern California was an era that witnessed unprecedented shifts in social interaction, interpersonal relationships, religious practices, and economic behavior. Mourning and feasting in the Ballona during the Mission period show a fascinating mix of cultural conservatism and adoption of new norms. New foods (both plants and animals) were readily consumed during feasts, but only some were selectively integrated into ceremonial activities centered on mortuary and mourning rituals. The traditional wild foods offered during mortuary ritual were a medium for binding populations, perhaps from a larger catchment, culturally through powerful links between food and memory (Feeley-Harnik 1995b; Sutton 2001). Consumption and ritual offerings of traditional foods reinforced cultural traditions in a rapidly changing world (Reddy 2010). At the same time, limited incorporation of new foods into ritual events confirmed the acceptance of new culture items. Because rituals and beliefs surrounding food powerfully reinforce religious and ethnic boundaries (Bahloul 1989; Mahias 1985; Fabre-Vassas 1997), the incorporation of Old World domesticates into mortuary contexts indicates tacit recognition that these foods had positive social value (see Chapter 14, Volume 3 of this series). The inclusion of colonial foods, even in small quantities, in these rituals reveals a cautious willingness to adapt to a changing social landscape while maintaining seminal aspects of traditional life.

Communal mourning and feasting were powerful cultural mechanisms to reinforce social cohesion in the Ballona during a time of cultural upheaval in the Mission period. Funeral and commemorative ceremonies in a range of societies (from complex hunting-and-gathering to urban) are often common venues in which kinship ties are renewed, new relationships and alliances are forged, and social status is confirmed. For ceremonies as diverse as Northwest Coast potlatches, Moche funerals, funerals of megalithic cultures of Europe, and Dynastic period Egyptian funeral rites, the underlying intent of the funeral feasting and mourning was largely similar: to reinforce cultural and communal ties, to reaffirm old alliances, and to build new ones. The degree of lavishness and regional integration during these events varied significantly, and belief systems may have been among the driving factors. Hayden (2009) reasoned that funerals in particular provide ideal venues for promotional feasting with intent to renew kinship and communal ties and to display social status and wealth, because people's emotions are most likely to be most malleable (Huntington and Metcalf 1979) during such times of grieving, and people can be more easily manipulated to support the host group's intents (Hayden 2009:40). Maintaining alliances with their neighbors was important to the residents of the Ballona throughout prehistory. Such alliances were essential to maintaining long-distance trade and also served as buffers against environmental disaster. As we discuss in Chapter 3 (this volume), shifts in the course of the Los Angeles River and major climatic changes (e.g., the MCA) led to the partial or complete abandonment of the Ballona. These alliances established a structure for absorbing populations and for resettlement in other areas. Alliances between groups would also have allowed for defensive protection if they were set upon by others, whether native or colonial (John Johnson, personal communication 2014; see also McCawley 1996:92; Schwitalla et al. 2014). Reinforcing alliances and reaffirming cultural traditions were particularly important during the Mission period because of the extreme social upheaval of that time. Mourning ceremonies soon became the main occasions when local community members could gather with friends and relatives from afar. Native Americans working at the missions, the pueblo, and the ranchos were allowed to leave their workplaces and to return to their native villages during particular times of the year, in late summer or fall (Hackel 2005:84–88), usually after harvests or during times of low food availability at the missions or both. The mourning ceremony became an important event that brought together the dispersed members of a community that was rapidly becoming splintered because of changing economic and political pressures and demographic changes caused by rampant diseases. In other words, the mourning ceremonies of the Mission period may have had slightly different and perhaps more-significant purposes than those of the prehistoric period.

Summary and Conclusions

The PVAHP, with one of the richest and best-documented Mission period mortuary data sets in coastal southern California, has provided a unique opportunity to define and understand Native Americans' lifeways and practices pertaining to death, remembrance, and grieving, as well as the ways in which their responses to colonialism were expressed in their burial rites, mourning ceremonies, and feasting activities. In addition, comparison of the Mission period data and the Intermediate period data from the Ballona, both to each other and to those for Chumash burial grounds, has provided a rare insight into diachronic changes in mortuary-related behavior, particularly as it pertains to social structure. Below, we summarize the major results of the mortuary analysis.

No evidence of Millingstone period mortuary patterns has been found in the Ballona, although occasional Millingstone period burials were found in the surrounding area in the early twentieth century. During this time, the Ballona was occupied by highly mobile hunters and gatherers who moved in and out of the area periodically or seasonally. People probably were buried very close to where they died, and no evidence for mortuary ceremony has been found.

The Intermediate period in the Ballona is distinguished by a much more intensive and sedentary occupation that may be associated with the Takic intrusion into the coastal region. Mortuary patterns are better documented for this time. During much of prehistory, most burials in the Ballona lacked grave goods and were isolated or arranged in small clusters possibly representing family plots. Grave goods consisted of a few utilitarian artifacts perhaps associated with the deceased's life as well as, for some individuals, items of personal adornment, such as shell or stone beads or ornaments or both. Contrary to early views of Intermediate period burial practices (Walker 1952; Wallace 1978), cremation burial was very rare. Several features at LAN-63, and possibly at LAN-61, represent what has long been considered an early form of the ethnohistorically documented Gabrielino/Tongva mourning ceremony (Hull 2012; Hull et al. 2013; Walker 1952). In some of these features, isolated cremated human remains have been found commingled with a variety of ritually broken ground stone tools, some of which probably were made specifically for ritual use and subsequent destruction. This mortuary pattern appears to have continued throughout much of the Late period in the Ballona, although no Late period mourning features have been found.

Mortuary practices during the Intermediate period in the Ballona differed from those observed in contemporary burial grounds in the Santa Monica Mountains region. As early as the early Intermediate period, a densely packed and well-defined communal burial ground was present at the Trancas Canyon site (Martz 1984); a less dense and less clearly defined communal burial ground existed at the even earlier

Rincon Point site. Although a large communal burial ground may have been present at ORA-64 in the Gabrielino/Tongva region during the Millingstone period (Macko 1998), such large burial grounds were not the norm in the Ballona or in other areas of the Los Angeles Basin, such as Encino Village (Cerreto 1986), Landing Hill (Cleland et al. 2007), and Bolsa Chica (Whitney-Desautels 2010), where burials were either isolated or arranged in small clusters that might represent family plots. On the basis of the presence of large quantities of artifacts representing high status and socioreligious roles and of the placement of these burials in restricted portions of burial grounds, Gamble (2008), Gamble et al. (2001), and Martz (1984) argued for the development of a hierarchical, stratified social system among the Chumash in the latter part of the Intermediate period (referred to as the Middle Period in the Chumash area), as represented at Humaliwo and Simo'mo. Arnold (1992a, 1992b), however, suggested that such a system did not develop until the Late period.

By contrast, the Intermediate period burials in the Ballona and other areas of the Los Angeles Basin exhibited no indications of wealth, prestige, or socioreligious status associated with status differentiation. Instead, mourning features, including those containing human remains, were more common than burials with indicators of wealth, prestige, or socioreligious roles in the Los Angeles Basin. In contrast to contemporaneous Chumash mortuary patterns that celebrated the lives of individuals, mourning features apparently were the focus of mortuary-related ritual. Mourning ceremonies probably focused on the community more than on individuals and apparently celebrated the lives of many deceased. Into these communal features, wealth and socioreligious items were placed, rather than into the graves of individuals. Thus, although individual status differences may have existed in life, they probably were deemphasized and not celebrated in death.

During the Late period in the Ballona, little evidence in mortuary patterns suggests major changes in the social system. At the beginning of the Late period, the Ballona was once again depopulated, and settlement consolidated around the edge of the lagoon (see Chapter 3, this volume). Whether settlement returned to a more mobile pattern is unclear. Burials were present at LAN-47, but little evidence of burial practices has been documented. Inhumation remained the dominant pattern, and few grave goods were recovered with burials.

By the end of the Late period, people were returning to the Ballona (see Chapter 3, this volume) and began to develop a large, discrete burial area at LAN-62. Although the burial ground was large, burial density was very low, and no visible evidence of boundaries or grave markers, like that at some early Chumash burial grounds, has been found. At LAN-62, however, we see the first evidence of more-standardized burial preparation. Burial during the Intermediate period was characterized by a mix of semiflexed and fully flexed burials in the supine position, with a generally westward orientation. By the end of the Late period, burials predominantly were semiflexed, placed on their right sides, and oriented to the east. Grave goods were still extremely rare, however, suggesting a lack of social differentiation. No evidence of Late period mourning features has been documented at either LAN-47 or LAN-62.

By the time when the Spanish missionaries arrived in Alta California, this pattern of use of the LAN-62 burial area had been in place for several hundred years. The ensuing Mission period witnessed dramatic changes, both in the structure of the burial ground and in the preparation of individual burials, as well as the reappearance of the mourning ceremony, albeit in a somewhat different form. Mortuary-related feasting activities appeared for the first time. Burial density increased greatly, probably reflecting the increased death rate resulting from introduced European diseases, which may have preceded the actual arrival of the padres and soldiers or any direct interaction with them. During the early part of the Mission period, the burial area itself became much smaller, more tightly defined, and concentrated in the southwestern part of the old burial ground. The only difference in burial preparation, however, was a slight shift in orientation to the southeast and an increase in the number of grave goods. Among burials dated to the Mission period, many more individuals exhibited differences in status, and many graves contained evidence of European interaction in the form of small numbers of glass beads, European tools, hardware, weapons, articles of clothing, horse tack, containers, and domesticated plants and animals. However, the numbers of all these items were relatively low during the early Mission period.

The rate of change appears to have increased exponentially in the late Mission period (post–A.D. 1800), when European interaction increased greatly, almost certainly because of the establishment of Rancho de los Quintos in the Ballona in 1803 (see Chapter 8, this volume). The area in which people were buried became even more restricted, and the long-term shift toward the southwestern part of the burial ground continued. Like its Chumash contemporaries, the Mission period burial ground at LAN-62 probably was well defined and may have been marked with whalebone and possibly bounded by a fence. The Mission period also was a time of the emergence of status differentiation and the incipient development of a hierarchically structured social system with a variety of classes. Burials, including those of a relatively large number of infants, contained disproportionately large quantities of grave goods, especially thousands of glass beads and shell beads that probably represented considerable wealth and prestige. This evidence may indicate the development of ascribed status and inheritance, although it may merely reflect the anguish of grieving family members who had the means to dispose of wealth. The concentration of wealthy and high-status burials in the southwesternmost part of the burial ground may indicate a conscious attempt by high-status grievers to segregate their dead and to bury them in a special place. This location, however, was the part of the burial ground that was used by all segments of society in the late Mission period. Thus, this concentration represents a temporal shift in the use of the burial ground at LAN-62 rather than the kind of social stratification that has been interpreted for the Mission period burial ground at Humaliwo (Gamble 2008; Gamble et al. 2001).

As Martz (1984) has argued persuasively, the onset of the colonial period created new avenues for Native American wealth and status through interaction with the colonists. Martz (1984:498) also has pointed out, regarding both the Late/Protohistoric period burial area at Medea Creek and the Mission period burial area at Malibu, that "the proportion of children with wealth and other status privileges has increased, and the proportion of adults has decreased to the extent that there are more children with these traits than adults. This indicates an increase in the transmission of advantages between generations and suggests that the emphasis on status by ascription was a fairly recent development." At LAN-62, this similar pattern of children and fetuses/infants with large numbers of grave goods, as well as their positioning within the burial area among others with similar amounts of goods, suggests significant changes in the organization of Gabrielino/Tongva society during the late Mission period.

Like that of the Chumash, late Mission period society in the Ballona was highly structured, with several distinct classes or social roles. Following Martz, we distinguish three major types of social status: wealth, prestige, and socioreligious role. We identify six social classes based on various combinations of these types of status. Wealthy people were a secular and economically advantaged class that lacked prestige and socioreligious roles. These individuals appear to have gained much of their wealth rapidly from nontraditional sources through direct or indirect interaction with Europeans and thus represented a new social class that did not exist before European contact. People with prestige probably were traditional political leaders, whereas those with socioreligious roles were the individuals who maintained social traditions and the cultural memories of the society. These traditional ritual leaders represented the largest high-status class and the one with the greatest time depth in Ballona society. In contrast to the pattern at the nearby Chumash Mission period burial ground at Humaliwo, burials of these religious practitioners greatly outnumbered burials of those with prestige and wealth. Several of these individuals appear to have represented a distinct class that broke from tradition and acquired considerable wealth from European interaction. Significantly, these individuals appear to have had more wealth than their secular wealthy neighbors.

The most distinctive class was made up of individuals who combined wealth, prestige, and socioreligious roles. At LAN-62, this class was represented by five individuals, who amassed the largest numbers of grave goods, a diversity of religious paraphernalia, and the most money in the form of shell beads, as well as considerable numbers of glass beads; they also had significant quantities of high-status shell beads indicative of prestige. In contrast to those of the other three wealthy classes, these individuals appear to have obtained most of their wealth from traditional sources. These women and men are the most likely candidates for the chiefly class; they were the wealthiest individuals, participated in all aspects of society, and successfully combined political and religious leadership. Another group of individuals, made up entirely of fetuses and infants, appear to have been related to this chiefly class. They were associated with tremendous wealth and even more indicators of prestige than the chiefly class but lacked evidence of socioreligious roles. These could have been the children of the chiefly class.

Although many may interpret these patterns as prima facie evidence for the development of a hereditary, hierarchically structured chiefdom, we must take into consideration the broader context in which these changes took place. First and foremost, we must look at the temporal factors and recognize that these changes took place very rapidly, over a period of only a few decades, and ended abruptly with Gabrielino/Tongva abandonment of the Ballona in the second decade of the nineteenth century. Although differentiation in status clearly developed by the end of the native occupation of the Ballona, this period was too brief for the establishment of a system of inheritance, especially as native Ballona society was being ripped apart by massive disease and emigration to the missions and the pueblo. Second, we must take into account the role that European contact played in the replacement of traditional culture. Archaeological and archival evidence suggests relatively little direct contact with European culture until the late Mission period. As we discussed previously, the scale of direct interaction before 1800 was smaller in the Ballona than in the rest of the Los Angeles area, although such interaction was not necessarily absent. Contact increased rapidly over the ensuing decade, as ranches were established in the Ballona. At that time, native residents began to emigrate to the pueblo and the missions, and massive herds of domesticated animals and nonnative weeds overtook the Ballona and began to degrade the natural environment (Hackel 2005; Milliken 1995; Minnich 2008). Other native residents undoubtedly worked for the ranchers. Work at the pueblo and ranches and exchange with traders provided new sources of wealth that probably led to rapid inflation, which further threatened the traditional social order. As Gamble (2008) suggested, placement of wealth in graves was one means of counteracting this type of inflation and, thus, maintaining the social order. The revival of the mourning ceremony and the addition of feasting events probably were other means of destroying and redistributing wealth while reinforcing traditional community bonds.

The Mission period in the Ballona provides clear evidence of both cultural continuity and massive change. Trends in ceremonial behavior, as evidenced at LAN-62 and LAN-211, indicate conservatism in mortuary, mourning, and other ritual contexts as native communities made a concerted effort to maintain traditional practices during a time of tremendous social, cultural, and demographic upheaval. At the same time, considerable acceptance of colonial foods and material culture is evident. Native Americans in coastal southern California adopted and resisted changes in their lifeways while striving to maintain a balance between traditional and new cultural norms. They made selective and conscious decisions regarding which new or traditional foods and types of material culture were acceptable in mourning and ritual practices during the Mission period.

Cultural Trajectories and Ethnogenesis during Colonialism: The Mission Period in Southern California

John G. Douglass and Seetha N. Reddy

Introduction

The colonial era in Alta California, dating between 1769 and 1834, was a tumultuous time for native residents. During this period, a number of foreign groups—including the Spanish, Russians, and Native Alaskans—began to colonize lands that had been originally settled by Native Americans thousands of years before (see Douglass and Hackel 2011; Gamble 2008; Graesch et al. 2010; Hackel 2005, 2010; Hull 2009; Lightfoot 2005; Lightfoot et al. 1993; Lightfoot et al. 1998, 2013; Lightfoot and Simmons 1998; Mason 1998, 2004; Miller 2001; Panich 2013; Voss 2008a, 2008b, 2010). Although early foreign expeditions intruded into Alta California in the 1500s and 1600s, the colonial era (the Mission period) began in 1769 with the establishment of Mission San Diego and its nearby presidio and ended in 1834 with the secularization of the mission system. In the Los Angeles Basin, baptismal records from Missions San Fernando Rey and San Gabriel, in addition to those from the Pueblo of Los Angeles church, dated from the 1770s through the 1830s document a large, diverse number of foreign residents in the area from both across the Americas and farther afield.

The Mission period in Alta California was a time of colonialism rather than simple culture contact (Silliman 2005, 2009). Rather than short-term encounters, as "culture contact" implies, the Mission period was a time of sustained and significant alteration of the physical, social, and political arena in which Native Californians in the Los Angeles Basin had lived for thousands of years. The colonialism of the Los Angeles area was a process of cultural entanglement in which the native inhabitants were incorporated into a system of labor, religious conversion, and exploitation (Silliman 2005:62). Furthermore, it was a time of asymmetrical interaction between Native Californians and colonists (Ferris 2009:26; see also Alexander 1998). Indigenous groups across the Americas during the colonial period adapted to this colonialism in a variety of ways, including re-creation (ethnogenesis) of their identities and daily practices, and this process took place multiple times throughout their lives as situations changed (see Adams 1989; Castillo 1994; Ferris 2009; Gamble 2008, 2011; Guy and Sheridan 1998; Hantman 2010; Hull 2009; Jackson and Castillo 1995; Jamieson 2005; Jamieson and Beck Sayre 2010; Lapham 2005; Liebmann 2012; Liebmann and Murphy 2011; Lightfoot 2005, 2012; Lightfoot et al. 1998; Lydon 2009; Mathers et al. 2013; Matthew 2012; Mills 2008; Mitchell 2013; Oland et al. 2012; Oliver 2010; Peelo 2011; Preucel et al. 2002; Robinson 2013; Scheiber and Finley 2011a, 2011b; Silliman 2004, 2010, 2012; Stojanowski 2010; Wilshusen 2009).

The concept of ethnogenesis has been a useful rubric for understanding the changing identities of both colonial and native groups. At the same time, although there was transformation of identity, social organization, and the daily life of native groups, some have recently argued that instances of this transformation were not ethnogenesis, per se, but rather an adaptation of daily practices to allow the persistence of long-term cultural traditions (Panich 2013). Major transformations of native life, such as dressing in a nonnative fashion, eating and incorporating nonnative foods or material goods in daily life, or instituting new mortuary practices, could be seen not as acculturation or ethnogenesis but, rather, as persistence. Instead of focusing on the creation of new native identities and the death of traditional native culture in the face of colonialization (what Panich [2013:109], borrowing from Wilcox [2009:11–15], called "terminal narratives"), there ought to be a focus on the processes of long-term indigenous and local histories (see Rubertone 2012:269–272). Transformative behavior, related to core cultural beliefs, could be viewed not as direct reactions of native groups to colonial domination but, rather, as native action that originated culturally, internally, based upon their worldviews, as they negotiated the new colonial reality (see Mitchell and Scheiber 2010:18). In this perspective, these changes and transformations are seen as part of the vibrant and dynamic social identity of native groups that are in a constant "process of becoming" (Panich 2013:109). As both Lightfoot (2012) and Silliman (2009, 2012) have recently reminded us, change and continuity of cultural traditions were not polar opposites or "either/or" situations for native groups like the Gabrielino/Tongva. Rather, change and continuity were parts of the same process of responding and adapting to newly emerging and evolving colonial surroundings. It is clear that Native Californian groups continually adapted to ever-changing situations placed upon them and, in the face of colonialism, persisted in their core belief systems while at the same time transforming with the new social structures. These two interpretations of cultural transformation during the Mission period in California—ethnogenesis and persistence—are considered in this chapter.

This chapter offers an overview of and insight into the theory behind colonial studies as well as the colonial era in the Los Angeles Basin. It also introduces concepts that are discussed in the two subsequent chapters focused on ethnohistory (Chapters 8 and 9 in this volume). An overarching goal of this chapter is to understand, through the documentary record, the lifeways of the Gabrielino/Tongva during the colonial period and how this indigenous group related to colonial settlers and the padres. Because the documentary record was written by colonizers, indigenous groups often are marginalized in those same records (see Liebmann 2011:220). Whereas the archaeological record provides tangible evidence of behavior, the ethnohistorical record provides the important historical context for behavior that is very often indiscernible in the archaeological record. In this chapter, we delve into the ethnohistorical records that documented interactions between the indigenous groups in the greater Los Angeles Basin and the Hispanic settlers, to conceptualize the complex negotiations that native groups undertook during the colonial era.

Perspectives on Colonialism

Colonialism, the process of state expansion into new territories far from the capital, has occurred for thousands of years across the globe. Ancient states as well as modern ones have found it politically useful and economically viable to establish colonies; the Mesopotamians, the Romans, the British Empire, and the Spanish are just a few examples (Alcock 2005; Deagan 1995; Gosden 2004; Gosden and Knowles 2001; Lightfoot 2005; Stein 2002; Stojanowski 2010; Tiesler et al. 2010; Voss 2008a; Wade 2008). In many cases, colonial natural resources were harvested for the benefit of the homeland.

Until fairly recently, researchers have used the terms "colonialism" and "culture contact" in similar ways when referring to different parts of the same process of interaction between unfamiliar groups. Certainly, in ancient societies with little social differentiation and in which culture contact came through activities such as trade, the term "culture contact" may apply well. However, in more-complex societies, both ancient and modern, as Silliman (2005, 2009) has pointed out, the meanings of these two terms are distinct. "Culture contact" generally implies short-term encounters rather than the sustained interaction seen with colonialism (Silliman 2005; see also Silliman 2009). Using the term "culture contact" for all interactions obscures the distinction between different types of interactions and allows them to be misconstrued and confused with one another. Colonialism is likely to have had a more dramatic or lasting effect on economy and subsistence, because the interaction between culture groups was more persistent and more intermeshed with the political economy of Native Americans during this era. These native groups responded to colonialism in a variety of ways through adaptations and multiple alterations of their cultural identities. Silliman (2005:62) put it well when he stated, "colonialism is not about an event but, rather, about processes of cultural entanglement, whether voluntary or not, in a broader world economy and system of labor, religious conversion, exploitation, material value, settlement, and sometimes imperialism." Colonialism, unlike culture contact, was not an event or a series of short events but, rather, a long-term process. Ferris (2009:168–170) preferred to jettison the distinction between "contact" and "colonialism," and the concept of "contact" in general. Ferris argued that at least in the Great Lakes area, a "creeping" colonialism manifested itself in a variety of ways and that using the term "contact" masks and negates the complex social and political relationships that existed during the colonial era. In many ways, this distinction, in part, comes down to not only a temporal differentiation (e.g., short-term vs. sustained) but also one of power relations. That is, culture contact occurs when two groups, whether equal or not, have an exchange that is either equal or at least not one of domination, and colonialism is a situation in which a foreign power exerts control over an indigenous group or groups.

Chris Gosden (2004:24–40) has recently argued that there has been a spectrum of colonialism across time and space, from a colonialism within a shared cultural milieu, in which it is often difficult to identify and distinguish colonial and noncolonial types of relationships, to the other extreme, in which colonists have little understanding or recognition of or respect for local traditions, leading to destruction of local ways of life, confiscation of large tracts of land, and the deaths of many local residents through disease or violence. Gosden (2004:25) made clear that he did not believe that any of the types of colonialism within this spectrum (discussed below) are fixed and stable; rather, they should be seen as attempts to simplify the range of colonialism. He also argued that the types should not be seen as any sort of linear progression, because within one colonial formation, all types may exist, depending on particular circumstances.

Gosden identified three main types of colonialism. He referred to the first as a situation in which "colonial relations between state and nonstate polities [are] created within a (partially?) shared cultural milieu" (Gosden 2004:Table 3.1). Gosden (2004:32–33) argued that the earlier sorts of Greek settlements along the Mediterranean and the Black Sea from the eighth century b.c. onward are good examples of this type of colonialism. Those colonies were established as independent settlements as a result of overflow of Greek populations and not as a manifestation of colonialism in the modern sense. Although elites drew on exclusive sets of resources in those communities to differentiate themselves from the local populations, the colonies were set up, according to Gosden (2004:33), as a "network of friendships, as much as through institutionalized, state-dominated structures."

Gosden (2004:Table 3.1) referred to a second type of colonialism as "middle ground," wherein, he argued, accommodation and regularized relations exist through each group's working understanding of the other group's social relationships, to the point that both colonized and colonizers believe that they are in control. The term "middle ground" refers in part to the relationship between the Native Algonquians and the European (primarily French) colonists in the Great Lakes regions during the seventeenth through nineteenth centuries. During that period of the fur trade, there was an alliance between the French and the Native American groups that was created out of mutual dependence and need and solidified through gift exchanges. That alliance between colonizer and native groups was formed in part through French acquiescence to local norms and traditions, including situations in which French colonists copied local thought and practices and connected local ritual traditions to Christian belief systems (Gosden 2004:88).

Finally, Gosden described a third type of colonialism as *terra nullius*. *Terra nullius* is a type of colonization in which the colonizing group completely ignores and rejects the social organization and cultural norms of indigenous groups living on colonized lands. Literally, "*terra nullius*" translates as "land of none." This term implies that the colonial powers viewed the land, though occupied by native groups, as politically empty. Harking back to Jennings's (1976) term "widowed landscapes," Gosden argued that in this type of colonization, native peoples have to abandon traditional ways of life and land use as colonizers confiscate crucial elements of the land and landscape. Without recognition of prior ways of life, colonists force new political and economic systems on native inhabitants. This colonialization leads to the erosion of native cultures, the destruction of past social relationships between native groups, and the death of many indigenous groups through introduced, nonnative diseases. Like Gosden (2004:123), Hull (2009:12–13) argued that the introduction of new infectious diseases into newly colonized areas of the Americas, Australia, and the Pacific islands assisted the process of colonization. The Spanish colonies in the Americas are good examples of *terra nullius*. This type of colonization is a relatively recent phenomenon and took place in other areas, such as Russia, Australia, and New Zealand, from the eighteenth century forward.

Although Gosden's (2004; Gosden and Knowles 2001) work on colonialism is often cited and is seen as a baseline for understanding the theory of colonialism, it has not been without critique. Spielmann et al. (2009), for example, have argued that authors such as Acheson (1998), Deagan (2001), Hill (1998), and Gosden (2004) all seemed to focus on the demographic collapse of native populations during colonial periods. Spielmann et al. (2009) specifically cited Gosden's (2004) discussion of *terra nullius* as an example of focusing on the catastrophic demise of native demography while ignoring (what they referred to as) "the actions of the living" (Spielmann et al. 2009:103). Furthermore, Spielmann et al. (2009) critiqued Gosden's (2004) planar view of effects on colonists. In reference to the Spanish colonization of the Southwest, Spielmann et al. (2009:106) argued that rather than one set of responses to the colonization of an area by local inhabitants, there were, in fact, diverse and varied actions and reactions shaped by a combination of local environments, histories within specific native pueblos, gender, past and present subsistence strategies, and the specifics of the establishment of missions in particular native pueblos. Spielmann et al.'s (2009) critique of Gosden's work focused in part on the nuances of colonialism in specific settings and the interactions among diverse individuals and groups during the colonial era and stressed that gender, ideology, and political economy all played important roles in guiding the end results of colonialism for both indigenous groups and colonizers.

Historically, colonialism has been viewed in a binary way, with two primary players: the colonizer and the colonized. This dichotomous relationship between outside and indigenous groups is oversimplified and unidirectional (from colonialist to native peoples) and restricts the understanding of complex relationships. Like Stein (2005:25–26), we believe that colonial encounters should be viewed as having three participants: (1) the colonial homeland, (2) the colonies themselves, and (3) the indigenous societies living within the established colonies.

In the case of the colonization of Alta California, many of the initial settlers from the Anza Expedition (and others) were multiethnic and displayed specific traits with dress that masked their positions within specific castes of Hispanic society (Voss 2008a:416). Within any given area of Alta California, there were also multiple Native Californian groups pulled together into missions, each with a distinct language and its own cultural traditions (see Johnson [1997] for details on the specifics of the "cultural mixing pot" at Mission San Fernando Rey). The east coast of North America, much like the west coast and the North American Southwest, was multiethnic; in that case, French and English colonists commingled with multiple, distinct native groups.

Along those same lines, "acculturation" and "assimilation," as concepts used historically, are unidirectional processes in which the dominant colonizer transforms passive indigenous groups (Stein 2005:25). Farnsworth (1992), for example, argued for an acculturation classification system to understand the degree of assimilation amongst Native Californians at several California missions. By looking at the use of different types of native or Hispanic items in particular contexts, Farnsworth (1992) sought to understand the degree of cultural change within populations of neophytes (baptized Native Americans). Generally, the concept and study of acculturation can be problematic, in part because they do not allow for identification of the complex processes of cultural identity, especially in pluralistic cultural settings such as colonies, in addition to hiding the individual agency (as opposed to general cultural norms) in the process of cultural identity (Van Buren 2010:158; see Lightfoot et al. 1998). Instead, many scholars today believe that these are multidirectional processes in which diverse cultures can actually create new identities that encompass a meshing or hybridization of traits, such as ethnogenesis, persistence, Creole culture, or *mestizaje* (see Deagan 2005; Haley and Wilcoxon 1997, 2005; Panich 2013; Voss 2008a, 2008b). Others, such as Robinson (2013), have recently argued that identity formation within the realm of colonialism is fluid and has the potential to constantly change, depending on the particular situation. This idea is generally accepted by many scholars and was expressed in Panich's (2013:109) description of cultures faced with colonization as being in a constant "process of becoming." As a result, Robinson (2013:304–305) has argued that changing colonial identity is best encompassed by the concept of polyvalence, in which there is "a process of ambiguous potentiality, or the inherent capacity for different or multiple outcomes to occur from a given set of factors" (Robinson 2013:304). Robinson argued that the creation of identity by cultures that are interacting with colonizing forces is not standardized or set but, rather, situational, fluid, and unpredictable, depending on a number of factors and variables (valences) that lead to unique results.

The study of colonization anywhere in the world, whether Roman colonies in North Africa thousands of years ago or the Russian incursion into northern California in the early 1800s, depends to a large degree on archaeology and the resultant study of material culture—that is, the goods left behind by those previous cultures. When studying the early Historical period in California, as well as in many other parts of the world experiencing colonialism, one must have a full appreciation for the meaning embedded in material culture. Specifically, as Casella and Fowler (2005:4) argued, archaeological investigations of the colonial period necessitate "an appreciation of the multiple meanings invested in material culture . . . [because] similar forms of material culture (and sometimes the exact same artifact) can communicate multiple, different, and contextually dependent identities." Certainly, the connection between ethnohistorical documents and archaeology can be very useful in this appreciation; Spanish documents from the colonial era can offer "hidden transcripts" of the resistance of Native Americans to colonization (Newell 2009:15; see also Sandos 2004).

An important part of studying the colonial era relates to how one identifies cultural and personal identity as well as culture change in the archaeological record. As an example of the difficulty in identifying the exact meaning of an artifact, consider material culture and European artifacts found at Native American sites. At the Russian colony of Fort Ross, north of San Francisco (Lightfoot et al. 1998); the Mexican period Rancho Petaluma in northern California (Silliman 2004); and the Chumash Mission period burial ground at Humaliwo (Bickford 1982; Gamble et al. 1996, 2001), native peoples used and adopted European goods for either everyday use or special purposes but used them in ways that were not European but, rather, indigenous. In the case of the Chumash burial area at Humaliwo, for example, Bickford (1982:19–22) has documented parts of three European weapons buried with Native Americans. One of the weapons, a pistol, had been partially coated with asphaltum and altered for use as a receptacle of some sort. As discussed in Chapter 6 (in this volume) and Chapter 8 (Volume 3 of this series), two copper pots were identified in the burial area at LAN-62. They had been wrapped in traditional textiles, and the bottoms had been smashed in a way that was similar to the deliberate destruction of ceramic and stone vessels by Native Americans in ritual contexts. Silliman (2005:66) suggested that examples such as these argue for little acculturation, despite the presence of European artifacts at Native American sites. He argued for studying material culture not as simply "native" or "colonial" but, rather, as items "taken up by individuals to forge their way in new colonial worlds" (Silliman 2005:68; see also Lydon 2009:152–154). These items and the identities created by Native Americans during the Mission period represent and are part of resistance to and residence in colonial worlds (Silliman 2005:68) and may be viewed as examples of persistence (see Panich 2013). Lydon (2009:153) argued for a similar perspective on the process of missionization of aboriginal groups in central Australia during the nineteenth century:

> While Moravian missionaries supervised the residents [indigenous aboriginal groups] and were pleased with their adoption of European material culture, Aboriginal people reject the notion that such adaptation undermines their Aboriginality. Such ideas stem from the colonial opposition between Indigenous people as either static, unchanged, and authentic *or* altered and inauthentic—a formulation used to constrain their choices and limit their claims to land and other rights. As archaeologists have often pointed out, classification systems that define artifacts as either "Aboriginal" or "non-Aboriginal" mask the presence and activity of Indigenous people, for whom such distinctions were meaningless.

As a result, although indigenous groups may experiment or incorporate new and novel items or ideas into everyday life, the decision to use the items and ideas is based on internal cultural dynamics rather than a reaction to external factors.

In the following discussion, the context of colonialism in California is addressed with particular reference to economic interactions, health and disease, cultural identity, and ethnogenesis. This is accomplished by exploring the relationship between the people representing the colonies (colonial settlers and the padres) and the indigenous groups.

Context of Colonialism in Alta California

By the 1500s, foreign ships had landed on the shores of Alta California, bearing, among others, the Portuguese explorer Juan Rodríguez Cabrillo and the Spanish explorer Sebastián Vizcaíno. Not until 1769, however, did Alta California become a truly important part of the Spanish colonial empire. The year 1769 was important in three respects: the founding of Presidio San Diego by Gaspar de Portolá and his sea expedition; the subsequent establishment of Mission San Diego de Alcalá in July of that year, with the blessing of Franciscan Friar Junípero Serra; and the commencement of the Portolá Expedition (Crespí 2001). The presidio in San Diego was the first such institution established in Alta California, and it laid a strong foundation for the subsequent mission system. Figure 139 illustrates the core of the Spanish Empire in Mexico, its colonies to the north (including both Baja and Alta California), and the locations of presidios and the Pueblo of Los Angeles around 1790. Although missions had been founded earlier in Baja California, Mission San Diego was the first in Alta California, a geographic designation that may have been observed first by Jesuit Friar Francisco Kino in the mid-1770s (Brown 2001:35). The Portolá Expedition was well chronicled by Juan Crespí, the official record keeper and priest-chaplain of the expedition (Crespí 2001). Besides soldiers and settlers, the expedition brought a contingent of neophytes—in this case, primarily from Sonora (in northern Mexico) and southern Arizona—to act as intermediaries and interpreters for Native Americans met along the way. Unfortunately for the expedition, many of the neophytes deserted on the way to the Pacific coast (Brown 2001:50). Crespí's journals documented what probably was the first person-to-person contact between many Native Californians and the colonizing Spanish.

Colonial Economy in Alta California

Although missions were established to convert Native Americans, both missions and colonial pueblos were generally established to develop the colonial frontier in Alta and Baja California. Settlers at the pueblos probably were eager to gain class status in the new colony and to reap the benefits of their labor. Unfortunately, for many years after the establishment of both pueblos and missions in the Los Angeles Basin and elsewhere, it was difficult for the residents of the missions and pueblos to realize an economic gain. As Hackel (1998:113) has argued, the backbone of the colonial economy in Alta California was the Spanish state; it provided soldiers and settlers, invested start-up money for goods needed by new missions, and sent annual supply ships north from San Blas, in Baja California, to deliver requested goods (see also Archibald 1978; Duggan 2000; Hornbeck 2983; Phillips 2010). In addition to missions and pueblos, the presidios in Alta California functioned as seats of government in the colony, as trade centers from which annual supplies were distributed to missions and pueblos, and as "seed" communities from which future pueblos would grow (Perissinotto 1998:16).

The annual shipments, as discussed by Steven Hackel in Chapter 9 (in this volume), provided goods necessary for the survival of residents of these early colonies. Early on, the shipments were strictly one-sided: goods primarily went north to the settlements, and only payments for goods went south to San Blas and Mexico City. Later, after missions and pueblos had become established, they were able to export a number of goods back to San Blas (Mexico), including grain, soap, and cattle hides (Engelhardt 1927b; Hackel 1998, 2005; Mason 2004). Unfortunately, one perceived problem with the annual shipments from San Blas was that the goods were expensive and, at times, irregular in delivery; another problem was that there were discrepancies between the requisitions (referred to as *memorias*) sent from presidios, missions, and pueblos and what was actually shipped north (known as *facturas*). Before 1781, there were heavy surcharges on all goods shipped to Alta California, which in part led to low morale among soldiers and settlers (Hackel 1998:114). Much has been written about the Spanish supply ships in and out of San Blas (e.g., Hackel 1998; Perissinotto 1998), but less is known about another type of goods resource that was important to the settlers: smuggler ships.

Miller (2001) has published an account of one of the smuggler ships: the *Mercury*, captained by George Washington Eayrs. During the Mission period, the Spanish had a monopoly on trade along the California coast and prohibited other sources of goods, such as these Yankee ships. Until 1813, when it was captured by a Spanish ship outside Santa Bárbara and confiscated for illegal trade along the California coast, the *Mercury* and other black-market ships sailed a triangle connecting California, Alaska, and China. They traded, among other things, sea otter pelts from the California coast for goods from China and Manila, where sea otter pelts were in high demand (Miller 2001; see also Dado 2006; Mason 2004). These black-market ships acquired sea otter pelts partly through direct trade with indigenous groups as well as settlers. Although the practice was technically illegal, these ships also traded with inhabitants of pueblos, missions, and presidios up and down Alta and Baja California, because official shipments from San Blas were generally irregular before 1810. After 1810, the year when the Mexican War of Independence began, all shipments north from San Blas were discontinued. Miller (2001:18–19) documented that in December 1806, the captain of the *Mercury* traded directly

Figure 139. Illustration of the core of the Spanish Empire in Mexico, its colonies to the north (including both Baja and Alta California), the locations of presidios and the Pueblo of Los Angeles around 1790, and the approximate path of the Anza Expedition (after Mason 1998:19; Voss 2008a:Map 1).

with Hispanic residents living in the Los Angeles area. While the *Mercury* was anchored near San Pedro, it received 171 sea otter pelts in exchange for cotton cloth, crockery, hardware items, and liquor. Those who traded with the *Mercury* included Fray Nicolás Lázaro of Mission San Fernando Rey, José Bartolomé Tapia of Rancho Topanga Malibu Sequit, and José Antonio Yorba of Rancho Santiago de Santa Ana. Miller (2001:17) further documented that in November 1806, the *Mercury* anchored in Morro Bay for trading with Mission San Luis Obispo and the surrounding area. The ship's account book recorded 60 transactions at that location and trades of, among other things, a sword, 12 pounds of gunpowder, and 2 powder flasks. On that same trip down the coast, the *Mercury* also traded with various ranchos and Missions Santa Bárbara, Santa Inés, San Gabriel, San Fernando Rey, and San Miguel. Mason (1993:176) also suggested that guns were available to colonists in Baja and Alta California through these smuggler ships, as evidenced by their manifests. As has been pointed out by Swope and Douglass (Volume 3 of this series), Spanish weapons of any sort were extremely rare in colonial California during this time. In 1816, for example, 40 years after the establishment of the Pueblo of Los Angeles, extremely few muskets, pistols, swords, and lances were noted in official documents, and all were highly restricted in distribution. The information presented above about the *Mercury* suggests that there may have been sources for weapons in Alta California besides those sold by the presidio to select colonists for protection.

As Hackel discusses in Chapter 9 (in this volume), not just colonists were involved in the colonial economy; Native Californians also played an important part. In many cases, it appears that although neophytes were more directly connected with the colonial economic system than gentiles (unbaptized Native Americans), gentiles actually had better direct access to Hispanic goods, because they were employed by ranchos and inhabitants of the pueblos. Father Isidro Alonzo Salazar, for example, wrote during the Mission period that "the gentile is the farmhand, he is the cowhand, and irrigator, and in a word he does everything, such that at the time of harvest he takes half, and must be given a blanket, and a tunic, so that he goes about better than a Christian, and these never convert because they get along better than in the mission" (Newell 2009:77–78). In addition, it appears that ranchos, in need of indigenous labor, paid gentiles in glass beads as well as other goods that they desired. Manuel Nieto, a local rancho owner, reportedly paid gentiles for labor with grain, glass beads, knives, clothing, tools, or "whatever else struck an individual Indian's fancy" (Mason 1993:180–181).

From an early date, the missions and pueblos began to produce goods both for their own consumption and for export to San Blas (after such export was approved in 1801) (Hackel 1998:117). As Engelhardt (1927b), Hackel (1998, 2005), Mason (1998, 2004), Voss (2008a), and others have documented, wheat, barley, and maize were all major agricultural crops from the start; within a short time, missions were generally self-sufficient for many agricultural foodstuffs. After self-sufficiency, the pueblos and missions sold their immediate excess to the presidios. Besides food goods, presidios were dependent on missions and pueblos for other goods, such as soap, leather goods, candles, blankets, and even coffins (Hackel 1998:116). In exchange, the missions received credit from the presidios for these goods and were able to use that credit for shipments north from San Blas. In addition, at missions and pueblos, horses, sheep, and cattle were essential livestock, all of which multiplied extremely rapidly. Mason (2004) and Minnich (2008) both noted that there was such a plethora of horses, for example, that it was necessary at times to undertake a culling (*matanza*) of the herds, as during dry years when there was insufficient pasture (referred to by colonists as either *zacate* or *pasto* [Minnich 2008:26–27]). In addition, mass slaughter of cattle occurred at times when a trading ship anchored off the coast. In these instances, cattle of age were slaughtered; their tallow, hides, and choice cuts of meat were removed; and the carcasses were abandoned (Leonard 1959:104). In general, all three types of livestock probably were allowed to roam free across the Los Angeles Basin; the result was alteration of the native landscape that was essential to Native Americans for continuing their traditional subsistence strategies.

There were four military presidio districts in Alta California: Presidios San Diego, Santa Bárbara, Monterey, and San Francisco (Figure 140). The area around the Pueblo of Los Angeles was bisected into two presidio districts (Presidios San Diego and Santa Bárbara); therefore, each had separate authority and control over portions of the greater settlement area. As has been previously discussed by others (e.g., Hackel 2005; Mason 1998; Voss 2008b), Baja and Alta California were in many ways physically and politically separated from the rest of the core of the Spanish colonial empire, in what is today central Mexico. Settlers in pueblos, including those who arrived at newly established settlements like San José, San Diego, and Los Angeles, were expected to produce export goods for shipment back to the main colony.

Colonial Settlers and Evolving Ethnogenesis

The Spanish colonies grew relatively quickly after 1769; more missions and other settlements continually were being built. By the census (*padrón*) of 1790, some 21 years after the establishment of the first presidio and mission, there were approximately 1,000 settlers and soldiers living in Alta California, primarily in the 2 pueblos, 4 presidios, and 11 missions that had been established by then (Mason 1993). By far, the majority of the foreigners living in Alta California during that time were soldiers; the rest were either padres or civilian settlers. Mason (1993:170) documented that approximately one-half of the colonial adult population of Alta California in 1790 was listed in the census as *español*—that

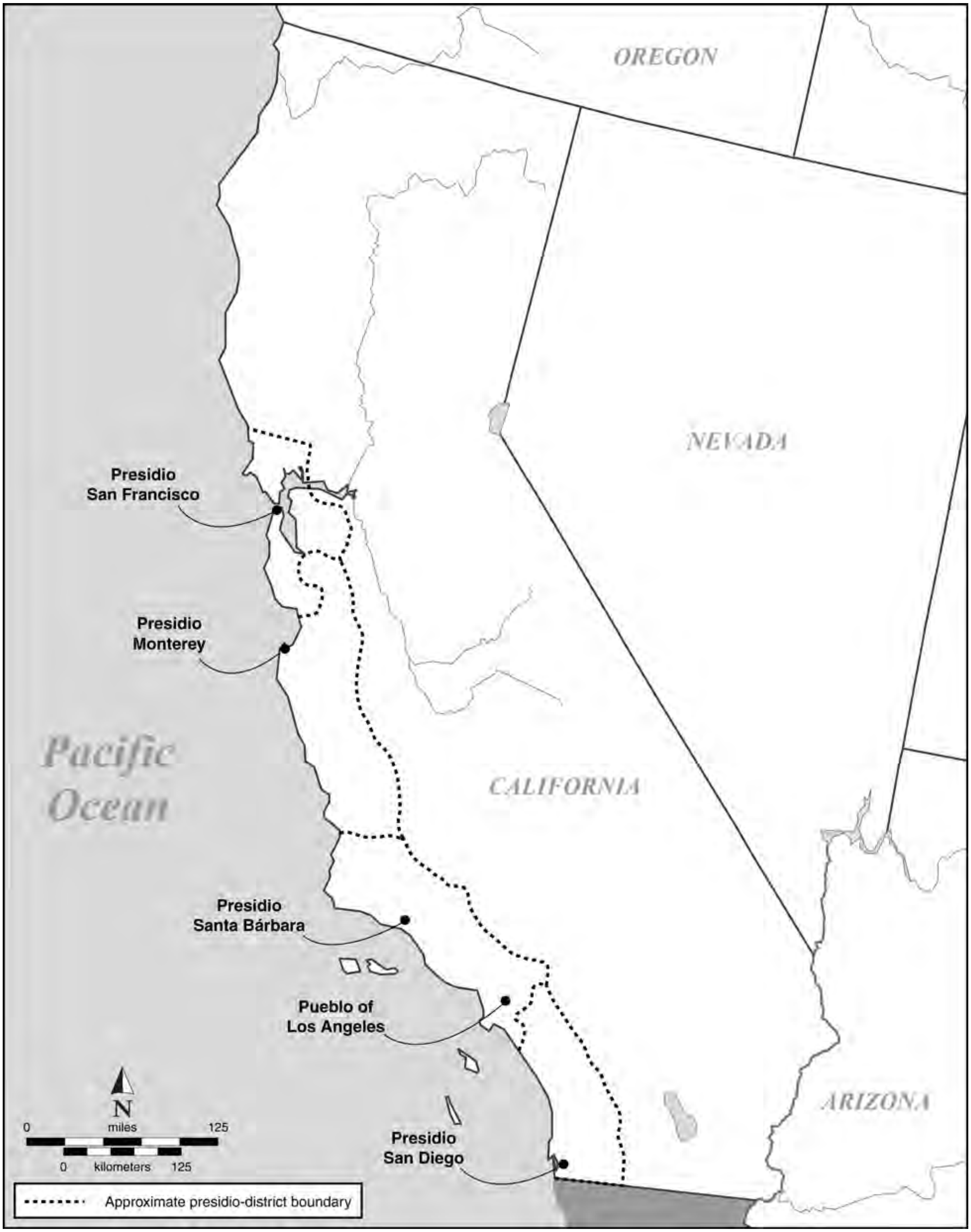

Figure 140. Map showing the four military presidio districts in Alta California: Presidios San Diego, Santa Bárbara, Monterey, and San Francisco (after Costello and Hornbeck 1989:311; Voss 2008a:Map 4).

is, Spanish in origin. The rest of the colonial population in the 1790 census was mostly mixed racially, usually noted as mestizo (having a mixture of Spanish and Native American heritage) or mulatto (having a mixture of at least part African ancestry) (Mason 1993, 1998). In some parts of the Spanish Americas, such as the Gulf Coast of Mexico, a large influx of enslaved Africans served as labor on plantations (Tiesler et al. 2010; see also Schwaller 2010, 2011). In both colonial Mexico and the Caribbean in general, enslaved Africans arrived in increasing numbers as local, native populations declined because of disease, poverty, and abuse by colonial powers (Zabala 2010:153).

Categories such as race and an individual's place within a caste system were very important parts of colonial society in the Spanish Americas, including Alta California. The caste system hailed from the concept of *limpieza de sangre*, or purity of blood. Legal definitions of caste groups were elaborate and complex and made fine distinctions among different classes of people. The system was outwardly a "pigmentocracy" wherein lighter-skinned people were likely to be higher in the social order; castes also related to lineal ancestry, class, and a variety of other attributes (Voss 2005:463). Colonial society during the eighteenth and early nineteenth centuries was very rigid in its caste system, and Spanish colonial sumptuary laws highly restricted both upward and downward movement within the caste system by members of colonial society (Voss 2008b:413). Clothing was a conduit for expressing one's position within the caste system. For example, Voss (2008b:413–414) argued that people with African ancestry were expected to dress in Bourbon fashion and were not allowed to wear luxury goods. Bourbon clothing for those with African ancestry was fastened with ties and laces rather than buttons or buckles (Voss 2008b:414). More-elite members of Spanish colonial society were permitted to have plain buttons and buckles on their clothing, but only members of society with the highest status were allowed filigreed and jeweled buttons and ornamental gold or silver buckles. Voss (2008b:414), citing Fisher (1992) and Loren (1999), argued that clothing fasteners "were especially potent objects in representations of racial differences."

Schwaller (2010, 2011) has recently challenged traditional views of *mestizaje* (mixing of castes and races) in Spanish colonial central Mexico. Scholars have traditionally argued that early in the colonial period in central Mexico, there was little mixing of races, whereas there was a rapid increase, if not an explosion, of *mestizaje* by the early 1600s. Schwaller (2011), on the other hand, argued persuasively that from the outset of the colonial period, there were interethnic and interracial marriages that led to new identities and ethnogenesis. He argued that because of the simple fact that there were so few Spanish women in early colonial central Mexico, it was common for many Spaniards to find spouses in other castes, creating a system of *mestizaje*. Mestizas (women partially of Indian ancestry) were much more likely, then, to marry a Spaniard than were mestizos, men of partial Indian ancestry, who were more likely to marry an *india* (Native American woman). At the same time, Schwaller (2011) has argued that some biological mestizos, even during the early colonial period in central Mexico, were able to avoid the caste limitations set on them by maintaining strong ties with Spanish life and effectively playing the roles of *españoles*. Alternatively, those who had biological ties to Spaniards but were abandoned by their Spanish fathers probably identified with indigenous castes and communities.

Although caste and social distinction were fundamentally important to Spanish colonial society, the settlers and soldiers in Alta California were far removed from Mexico City and the colonial core of Mexico. As a result, as several scholars have recently pointed out, the stark divisions among castes and among races were blurred in colonial Alta California to the extent that individuals were able to alter their identities and gain upward mobility (Haley and Wilcoxon 1997, 2005; Mason 1993, 1998, 2004; Voss 2005, 2008a, 2008b). In other words, the distance from the colonial core facilitated a gradual ethnogenesis of Californio identities deriving from the same immigrant group through time. This ethnogenesis, for some, began as soon as settlers left with the Anza Expedition for coastal California from the Sonoran Desert community of Tubac. As Voss (2008b:416) pointed out, Anza supplied the 30 adult men, their wives, and their approximately 180 children with sets of clothing that were Bourbon in fashion but of a plain fabric, to mark them as being of lower castes.

Many of the members of the Anza Expedition were of mixed race, including approximately 20 percent who had some degree of African ancestry (mulatto). Expression of one's caste within Spanish society was in part accomplished through the clothes worn daily in both public and private venues. The Bourbon clothing distributed to the Anza Expedition members was in part designed to be distinct, for women, from their traditional indigenous dress, called *huipiles*. In addition to Bourbon clothing of plain material, the procurer for the Anza Expedition also issued a silk shirt to each woman—something that was forbidden to anyone with African ancestry. Voss (2008b:416) argued that by issuing these types of clothes, ones that were forbidden in the core of Spanish colonial society, Anza was allowing the future settlers of Presidio San Francisco to reinvent themselves in new and higher castes in the outer reaches of the Spanish Empire. Indeed, through time, more inhabitants of Presidio San Francisco identified themselves as Spanish (*español*), and fewer identified themselves as being of African ancestry (mulatto) (Voss 2005:Figure 3). Haley and Wilcoxon (1997, 2005) have offered similar interesting clues to longitudinal changes in identity and ethnogenesis during the colonial period in Alta California, illustrating how, through time, members of society in Alta California changed their caste identities upward. In 1781, for example, fewer than 5 percent of the residents of the Pueblo of Los Angeles were recorded (self-identified) as being *español*, whereas just 9 years later, nearly half of the same settlers were listed (self-identified) as being *español* (Pubols 2010:132). Haley and Wilcoxon (2005:438) argued that soon after 1790, perhaps in part because of this ethnogenesis, the caste system had lost importance in the colonies of Alta California, because, as they put it, "many respectable citizens had ancestry they wished to hide." As a result, after 1790, most census data collected included only two categories, *gente de razón* (people of reason) and *indio* (Native Americans) (Hackel 2005:60; Haley and Wilcoxon 2005:438), thus simplifying the recording of a complex caste system that was in the process of being reinvented by colonists so far removed from the motherland in central Mexico and even farther removed from Spain. Hackel (2005:59–60) agreed with this general statement, arguing that the distinctions among castes made in central Mexico during this period did not hold the same weight in the colonies; after 1790, the main distinction made was one between settlers (*gente de razón*) and Native Americans. Although there was a gulf between soldiers and settlers, there was a greater divide between those two groups and indigenous groups.

Johnson and Lorenz (2010) recently have complemented these ethnohistorical studies of ethnogenesis by studying the correlation between genetics and the colonial caste system in Alta California. Their work, using mitochondrial DNA, demonstrated that as determined from their sample, most (roughly 80 percent) of the women settlers in colonial Alta California, no matter to what caste they were assigned in the 1790 census, had ancestry from Mexican indigenous groups. This new information about colonial settlers suggests that there was a continuing movement of settlers to higher social castes through time. As Johnson and Lorenz (2010:182) pointed out, actual ancestry of settlers, as determined from genetic data, was not necessarily reflected in the castes reported in the 1790 census. Johnson and Lorenz (2010:183) concluded their study by arguing that

> certainly, many Spanish Californians must have been aware of their partial Indian ancestry; in the new frontier setting in which they found themselves, however, this genetic inheritance became less important. In order to differentiate themselves from the populations indigenous to Alta California, the newly arrived colonists from Sonora and Sinaloa constructed a *gente de razón* social identity that eclipsed the old *casta* distinctions of their homeland.

One rationale for constructing new cultural identities and systems in colonial Alta California that were different from those in central Mexico or Spain itself may have been that the new area required adaptation to local conditions. The archaeological investigation of La Isabela, which was the first intentional colony in the Americas and was founded by Columbus in 1493 (Deagan 1996; Deagan and Cruxent 2002a, 2002b), suggested that the colony was doomed to fail, partly because it attempted to transplant Spanish lifeways to the Caribbean island of Hispaniola without taking local conditions into account (Van Buren 2010:156). Although differences between La Isabela and Alta California certainly existed, Spanish colonists had to learn to adapt to local conditions if they were to survive in new landscapes, and the creation of new identities was certainly a part of that adaptation.

Missions, Native Californian Religious Conversion, and Daily Life

As of 1769, with the founding of Mission San Diego, a complex program of Spanish encroachment into Alta California began. As Newell (2009:5) has pointed out, Spanish missions were "frontier institutions" acting on behalf of both the Catholic Church and the Spanish Empire. In Alta California, between San Diego and San Francisco, missions were established to convert Native Californians to Christianity so that they could become part of a class of laboring Christian subjects in the new Spanish territory. Franciscan missionaries recruited Native Americans to their missions to convert them to Christianity because "it seemed self-evident to Franciscans that without Christianity the Indians lacked 'true' religion and lived in spiritual darkness misguided by superstition" (Sandos 2004:14). Because Native Californians lived in tribes that had strong and complex kinship networks, the Franciscans took on the difficult task of reorienting them to a new cultural geography that was defined by colonial powers. Young (1987:78) described this conversion as requiring "the native to accept both intellectual abstractions and psychological distancing alien to the Indian's sense of himself in relation to others." Much of the drive that Franciscans (as well as Jesuits, who preceded the Franciscans in Baja California and Sonora) had for conversion had to do with their belief in the struggle between good and evil, between the Devil and salvation (Wade 2008:19). Missionaries in Alta California and elsewhere in New Spain believed that native religion in the Americas was devilish in that it was based on worship of false idols that were different from Catholicism's "true" god (Wade 2008:18).

As a result, padres in Alta California recruited Native Californians to move to their new missions and to convert to Christianity and become neophytes. The techniques that Franciscans and Jesuits employed for recruitment and conversion to Christianity differed in place and time. In Baja California, for example, Jesuits (1697–1767) did not require neophytes and nonbaptized recruits to live at the missions. Native villages had been scattered far across the landscape; therefore, in some areas, Jesuits established dependent pueblos removed from the mission and requested that Native Americans (voluntarily?) reside there. The opposite pattern was used by Franciscans in Alta California: a program of *reducción* forced indigenous groups to reside at the mission, although there was variance in this practice from mission to mission (Hackel 2005:82–90). In Baja California, at San José de Comondú, for example, the dependent pueblos were located half a league (1.3 miles), 7 leagues (18.2 miles), and 10 leagues (26 miles) away from the mission (Wade 2008:133). Wade (2008:133) argued that by having such a system, the missions did several things: (1) created artificial social units for Native Americans that may have helped with breaking down traditional kin groups, (2) allowed some independence of native groups to continue their traditional practices without scrutiny by padres, and (3) allowed these different groups to visit the missions at different times, thus probably preventing conflicts among different native groups.

With the expulsion of Jesuits from the Americas in 1767–1768, Franciscans changed the previous daily practice at missions in Baja California. Rather than allowing neophytes to live in smaller communities across the landscape, they almost immediately relocated native populations into much larger aggregations near the missions—the typical pattern in Alta California during the Mission period (*reducción*). In addition to creating economic problems for these southern Baja California missions, the changes in settlement, among other issues, led to strong resistance from Native American populations. As a result, soon after the Franciscans arrived in southern Baja California, they refocused their attention on the new colonies in Alta California and provisioned the new missions farther north with resources taken from the south.

Franciscans believed that Native Americans' labor was an important part of their conversion because, as Hackel (1998:122; see also Lightfoot 2005) has pointed out,

> for the Franciscans, Indian labor amounted to more than the production of food and material goods; it was a morally enriching disciplinary activity that figured prominently in the Indian's conversion from savagery to civilization. To the padres, Indians lived as wild animals, at the whim of nature, without comfort or recourse to work. Franciscans, therefore, saw the transformation of savage Indians into industrious Christians as a wrenching process that was quite literally "unnatural" for the Indians. The recitation and memorization of the catechism and *doctrina* may have prepared the Indians' souls for salvation, but it was the missions' regimented daily work schedule that provided the structure and discipline the padres believed the Indians lacked.

Newell (2009:51–54) agreed with this assessment, arguing that neophytes' labor not only was required for continued progression of the missions but also was an important way to Hispanicize Native Americans. Newell (2009:51) specifically argued that this labor was one of the primary characteristics that distinguished gentiles from neophytes in the eyes of the Franciscans, noting that "teaching Indians to labor like Hispanic peasants, then, was a way of sustaining the colonial enterprise and also a way to teach the Indians their place in the new colonial order. As laborers, Indians learned to be the children of the Church and vassals of the Spanish king." An important part of the conversion of Native Americans was a change in perception of reward. Native Californians in Alta California were hunters and gatherers, and their reward for hunting or collecting was immediate. Much like the future heavenly reward of Christianity, the earthly reward of Hispanic agricultural practices was delayed (Wade 2008:137). Thus, Native American labor at the missions and in the missions' fields was an integral part of the evangelical program instituted by the Franciscans.

Gentiles and neophytes at the missions all played important roles in the missions' daily functioning. The large number of neophytes and potential neophytes at missions required a tremendous number of daily tasks related simply to feeding Native Americans and tending to their daily needs, such as bedding, clothing, and tools for work in the fields or shops at the missions. The goal of many of these production tasks was to help the mission not only to become self-sustaining for most needs but also to be able to export goods back to central Mexico. These types of jobs have been discussed and documented by a number of scholars, both historical and archaeological (e.g., Allen 1998; Engelhardt 1927b; Hackel 1998, 2005; Lightfoot 2005; Newell 2009; Wade 2008), and are therefore not discussed in detail here. Numerous jobs at the missions were filled by neophytes, including such specialized roles as shoemakers, carpenters, gunsmiths, soap makers, ceramicists, and blacksmiths (see Hackel 1998:123; Lightfoot 2005; Peelo 2011). Many of these tasks and jobs created gendered and occupational social identities (Castillo 1994; Peelo 2011). Tending to the large flocks of cattle, sheep, and horses also occupied many neophytes, as did tending crops in the fields, and such work was seen as important to the conversion process, as discussed above. For this labor, which was performed 6 days a week, neophytes were paid not in currency but in food, housing, religious instruction, and clothing (Hackel 1998:122). Certainly, there were other items given to neophytes, such as glass beads (for details, see Chapter 9 in this volume), but such items were in addition to the fundamental ones that neophytes received for their labor at the missions. It is important to note that some scholars, such as Peelo (2011:659), have argued that not all of the tasks undertaken by indigenous groups would necessarily make them more "Spanish" or acculturated. Rather, Peelo argued, in certain situations, such as a neophyte manufacturing ceramic pots at a mission, they were "creating a social identity tied to their status as an artisan among the indigenous mission community." She argued, for example, that although some ceramic types made at missions followed Spanish/mestizo techniques, others followed indigenous styles and techniques. As a result, neophyte tasks at the mission created multiple identities and aided in not only creating goods for the mission but also helping to sustain particular attributes of traditional life through this work.

For Native Americans, what was the draw to the missions and to conversion to Christianity? Certainly, from the standpoint of Native Californians in Alta California, there was much to be gained by keeping to themselves, because disease, among other things, wrought havoc on native populations (see

Hull 2009; Walker and Johnson 1992, 1994, 2002; Walker et al. 2005). Of course, as more settlers arrived in Alta California and more native environment was altered for herding and agriculture via ranchos, staying removed from settlers became less and less possible for natives. The many introduced items and animals were popular with Native Americans, as well, and the opportunity to acquire them could have been one draw of the missions—an attraction that must be understood within the context of the sociopolitical collapse of many native villages (Walker 2001:287). However, as Sandos (2004) and Hackel (2005), among others, have pointed out, Native Americans were able to receive many of the same trade goods (such as glass beads) from settlers and ranchos as they did from missions. Indeed, Native Californians' working on various ranchos in Alta California became an issue with Franciscans, who complained that the Native Californians were able to receive goods and to maintain many of their native traditions on ranchos and thus did not need to go to the missions. Indeed, Father Lasuén concluded that towns such as the Pueblo of Los Angeles were "an immense hindrance to the conversion of the pagans, for they [settlers] give them [the Gabrielino/Tongva] bad example, they scandalize them, and they actually persuade them not to become Christians, lest they would themselves suffer the loss of free labor" (Hackel 2005:312).

From a theological standpoint, many Native Californians could relate at some general level to Catholicism, which had some general similarities to Native Californian religious practices (Hackel 2005:164–165; Newell 2009; Sandos 2010; Wade 2008:18;). Song and music (along with dance) have long been parts of Native Californian performance and religious practices. As pointed out by Sandos (2010:112), music was also a part of the foundation of daily devotional life at the missions, and padres encouraged Native American song and music performance within this context. As Sandos (2010:113) argued,

> music played an important function within the church, as it gave the congregation an emotional link to the theological ideas the missionaries were attempting to communicate. The same set of skills that prepared an individual [Native American] to become a chorister also translated into the secular world, where mission Indians were paid to perform secular music and songs at Californio dances and fiestas; this conferred on them a form of status as well.

In addition, there were similarities in symbolism. The key element of Christianity—the cross—was a central element in all Catholic performances and was part of daily practice. As Hackel (2005:163) pointed out, Native Californians had a traditional practice of raising tall wooden poles to honor deities and to claim territories. The Catholic practice of raising a cross was seen by many Native Californians, then, as a similar practice. When Franciscans arrived at Monterrey and placed large crosses to mark the territory as both Catholic and Spanish, Hackel (2005:163) has reminded us, local Native Californian groups "decorated these crosses as if they were their own prayer poles, hanging from one of them strings of sardines and pieces of deer meat and placing at its foot 'many broken arrows.'" Hackel argued that this conflation of prayer poles with Christian crosses was common among many Native Californian groups (see Robinson [2013:307–310] for a discussion of ritual polyvalence between the pole and the cross in Chumash traditions). In addition, there were other similarities between Catholic imagery and symbolism and those of Native Californian groups. Hackel (2005:164–165) argued that like the cross, the image of the Virgin Mary—a central figure in Catholic practice and one of the first images seen by gentiles and neophytes alike—represented a figure to whom neophytes could relate, partly because of similarities in native traditions. The Gabrielino/Tongva, for example, believed in a mythic virginal woman named Chukit, who gave birth to the son of God after being impregnated by lightning (Hackel 2005:164). The Gabrielino/Tongva believed that their deity Chukit, like the Virgin Mary in Catholic theology, was central to fertility and motherhood. It is unclear when some of these Gabrielino/Tongva traditions were recorded, however, and therefore, it is uncertain whether some native traditions may have been hybridized with Catholic beliefs (see Kroeber 1925:656).

Overall, then, as Wade (2008:18) argued, there were many fundamental similarities between Catholicism and Native Californian belief systems that allowed Native Californians to incorporate Catholic belief systems into their own lives. General similarities included the following:

- Both sought the help of spiritual protectors against natural phenomena or other events outside one's control.
- Both periodically used secretive or unintelligible languages to access the supernatural realm.
- Both worshiped idols or symbols to request specific outcomes.
- Some of the fundamental images in the two religious realms were iconographically or symbolically similar.

At the same time, however, many Native Californians probably also held onto their traditional belief systems. There may have been parallel belief systems for some Native Californian neophytes. As Hackel (2003) has pointed out, one of the possible reasons for the attempted 1785 rebellion at Mission San Gabriel may have been the banning of Native Californian dance and traditional performances for neophytes. It is not surprising that Franciscans would have wanted Gabrielino/Tongva ritual and religious activity to cease, because those activities served to maintain native traditions at the expense of Catholic ones.

In many ways, the identities of many neophytes ebbed and flowed with the conflicts of being Catholic neophytes and also Native Californians with different traditional belief systems. Although these neophytes were living at the missions and performing Catholic rites, many (if they were first-generation neophytes) were also from native villages. Under the Jesuits in Baja California, it was easier for native groups to perform in both religious worlds—Catholic and native—because they were able to live apart from the missions and were only required to visit the missions on a regular cycle. Under the Franciscans in Alta California, it was more difficult. The performance of rituals and religious activity served as a means of creating and maintaining social structure within a group through a highly symbolic system of communication (Rappaport 1999:24). These rituals functioned to convey messages to the community and were parts of an enculturation process. Ritual activity, in general, functioned to convey and reaffirm important social ideas from one member to another and from one generation to another.

With this fabric of identity and ritual as a backdrop, an important question to ask again is "What drove Native Californians to enter the mission system and to become neophytes?" Although there were some broad similarities between Catholic and traditional, native ritual and religious practices, why would Native Americans voluntarily move from their home villages to a mission, where they would be forced to abandon their traditional ways of life, including ritual practices, and would most probably die from disease? Hackel (2005), Larson et al. (1994), and Milliken (1995) all have come to the conclusion that Native Americans were driven by a desire for food. In their correspondence, Franciscans wrote that they had a "hook" in gentiles via their desire for food. With the establishment of ranchos, pueblos, and missions across Alta California, the alteration of the natural environment was inevitable (for additional discussion of environmental change and its effect on traditional subsistence practices during the Mission period, see Chapter 4 in this volume). Tens of thousands of sheep, cattle, and horses needed pasture to survive, and crops needed expanding agricultural land (Engelhardt 1927b; Hackel 2005). These two forces, combined with the introduction of nonnative weed species, led to a catastrophe for Native Californians who were trying to continue to practice their traditional subsistence strategies (see Minnich 2008). Early in the Mission period in California, when converts to Christianity were few, the availability of food at the missions probably was not a large factor in the conversion of neophytes, because in early years, the missions had difficulty growing enough food, and native hunting and gathering practices had not yet been substantially altered by colonial herding and agricultural practices. Later, however, once agriculture and herding were established and provided ample food supplies to the missions, more gentiles became neophytes. Because neophytes, over time, increasingly consumed introduced foods (such as maize, wheat, barley, and beef), the increase in the number of neophytes at the missions led to greater destruction of the native landscape as larger patches of land were cultivated. Although it is clear that the introduction of livestock and agriculture destroyed native habitats across Alta California, the Ballona area was relatively unscathed, at least until the late Mission period (i.e., post-1800).

Among the many types of evidence to suggest that the desire for food was a motivation for some to enter the mission system, Hackel (2005:77–78) has argued that at least in the Monterey area, there were peaks in recruitment at Mission San Carlos following the establishment of ranchos and the increase of livestock in areas of native villages. As Hackel (2005:74) noted, the increase in neophyte populations at missions would have led to increased crop production (and also increased destruction of native habitat), thus creating a situation in which the missions would have increased their appearance as "places of refuge, as sources of food and shelter and community." However, Hackel (2005:77) stated that in general, although a correlation can be seen between increased livestock and mission recruitment, the motivations for Native Americans to join the missions were complex.

Lightfoot (2005:82–86) agreed with the assessments of Hackel (2005) and others that food was a factor in recruitment, at least as native habitat was destroyed through introduced agriculture and livestock, but he also pointed out that there were other factors involved. The padres themselves, Lightfoot (2005:84) argued, were persuasive salesmen who aggressively enacted a program of recruitment. He noted that the frontier mission churches, impressively large and elaborate, were created with the intention of attracting and overwhelming potential converts. In addition, padres gave these same potential converts food, clothing, beads, and other items that gentiles revered or needed to further entice them to join the missions. As Hackel (2012), Milliken (1995), and Lightfoot (2005) have all argued, the recruitment process was sometimes tailored to the needs of particular individuals or groups. For example, Hackel (2012) noted that certain types of gentiles, such as orphans, were offered special treatment in the mission system, because they were the most vulnerable. In studying mission records, it is clear that at times, parents offered their children up for baptism many years before they converted, themselves. Lightfoot (2005:85) has argued that these situations may have, in the minds of parents, opened up relationships with the missions for special treatment and access to special nonlocal goods. Along these same lines, becoming neophytes may have offered new avenues for status, prestige, or religious power among Native Californians, in that certain individuals may have been able to improve their social positions through their relationships with the missions and the goods the missions offered. The straining, decline, or complete transformation of social networks and ties between native communities as villages were depopulated as a result of the increasing colonial transformation of the social and physical landscape may have also been another important factor in neophyte recruitment by Missions. As traditional social networks declined or ceased to function in the ways they had prior to the Mission period, some Gabrielino/Tongva may have been attracted to the mission system as a way to continue those networks in new ways. As Johnson (1997) has pointed out, the mission system led to novel and new interrelationships of diverse native cultural groups and was a "melting pot" for social interaction. As discussed in Chapter 6 (in this volume), the late Mission period appears to have been a time of tremendous cultural change, and foreign items (as well as, perhaps, foreign ideas and religion) played an important part.

Finally, although Sandos (2004), among others, has argued that Native Californians were not forced to convert to Catholicism, it is clear from the documentary record that, indeed, some Native Californians were forced into the mission system through military intervention. A number of famous military-assisted recruitment expeditions that were sent by missions following rebellions belie the voluntary recruitment of converts. Perhaps the most notable of these military expeditions was the recruitment of Gabrielino/Tongva, Serrano, and Cahuilla people after a series of raids by Serranos and Cahuillas on ranchos near Mission San Gabriel in 1810 (Bean and Vane 1995:V-145–V-147). In response to those raids, in 1811, more than 500 gentiles were forced to abandon their native villages and to move to Mission San Gabriel, where they were baptized. The destruction of some Serrano and Cahuilla villages through military raids led to new territorial boundaries for native groups in the area east of San Bernardino.

Native Californian Health, Disease, and Death during the Mission Period

The increase and prevalence of disease (and corresponding negative effects on overall health) during the Mission period have been important subjects of research across North America (e.g., Cook 1976a, 1976b; Deagan 1978, 1995; Dobyns 1976; Douglass and Stanton 2010; Erlandson et al. 2003; Gamble 2008; Hackel 2005; Hull 2009; Hutchinson and Larsen 2001; Johnson 1999a; Larsen 1994, 2001; Larsen et al. 1991, 2001; Stojanowski 2005b, 2010; Tiesler et al. 2010; Walker 2001; Walker and Johnson 1992, 1994, 2002; Walker and Lambert 1989; Walker and Thornton 2002; Walker et al. 1989; Walker et al. 1996; Walker et al. 2005; Wilcox 2009). Walker and Thornton (2002) have recently argued that diachronic osteological studies of several prehistoric native groups in the Sacramento Valley and the Santa Barbara Channel area overall suggest that during all of prehistory, there was a decline in the overall health of individuals, probably because of the increase in sedentism, which led to an increase in exposure to pathogens. Walker and Thornton (2002:519) argued that increased sedentism and higher population density led to opportunities for the spread of infections because of sanitation issues and generally favorable conditions for parasites and other pathogens. Although during the Middle period (ca. 600 b.c.–a.d. 1150, which corresponds roughly to the Gabrielino/Tongva Intermediate period [ca. 1050 b.c.–a.d. 950]) (Walker and Lambert 1989; see also Johnson 2000), violence between groups increased, possibly because of stress related to drought, populations during the following Late period (ca. a.d. 950–1542) had better health indicators overall. Walker and Lambert (1989) argued, however, that the arrival of Spanish settlers and colonization of the region by the sixteenth century led to a major demographic collapse of native groups across California.

As many scholars have noted, Native Californians' health deteriorated significantly during the Mission period. As discussed by Walker and Johnson (2002), mortality of Chumash children 8 years old or younger at the end of the Mission period was approximately 900 deaths per 1,000 births. At Mission San Fernando Rey, approximately half of all baptized children had died by the age of 5 (Douglass and Stanton 2010). Newell (2009:167) has documented that the mean life expectancy for children born at Mission San Francisco was 4.2 years; between 1793 and 1821, that life expectancy never exceeded 2 years. The life expectancy among Euroamericans in Connecticut during the same period, Newell noted, was 45–50 years. Although life expectancy was low for Native Californians, there was not a correspondingly low life expectancy for colonists, many of whom were non-European mestizos and mulattoes from Sonora, Mexico. Overall, numbers suggest that the Native American population in Alta California dropped by half during the Mission period, from approximately 135,000 to approximately 88,000 individuals (Walker 2001:289; Walker et al. 1989:351), with a further decline to approximately 30,000 by the end of the American expansion (Walker 2001:289). As discussed below, although many factors with complex interrelationships contributed to that decline, death from infectious disease, decline in live births, and high infant mortality are generally seen as among the most important (Walker 2001; Walker et al. 1989; Walker et al. 1996; Walker et al. 2005; Walker and Johnson 2002).

Diseases such as measles, smallpox, and venereal disease, including syphilis, were relatively common among native groups across Alta California during the Mission period. At the missions, the housing of single girls and women in dormitories probably helped spread disease because of unsanitary conditions (Walker 2001:290). In addition, the combination of forcing of Native Californians to wear clothing covering their entire bodies (without much in the way of changes of clothes) and banning sweat baths because of their ritual significance also combined to spread disease (Walker 2001:291). Although introduced diseases did play a substantial role in the declining health of Native Californians, Walker (2001:282–283) argued that the evidence suggesting widespread epidemics of smallpox and other highly communicable diseases (except syphilis) is inconsistent. Certainly, there were measles epidemics, and syphilis was rampant, Walker argued, but there is little evidence that smallpox was a substantial epidemic until the Gold Rush era in the 1840s (see Walker and Johnson 1994:118).

Hackel (2012) has recently studied this particular issue using sacramental records of neophytes and colonists in Alta California missions. In studying the cause of death of 2,631 neophytes recorded in 19 Alta California missions, Hackel deduced that 810 neophytes during the Mission period were recorded as having died from an infectious disease. Hackel (2012:84–85) argued that of those 810 neophytes, 41 percent died from measles, 34 percent died from smallpox, 13 percent died from the plague, and only 5 percent died from syphilis, with roughly equal proportions of male and female neophytes succumbing to these diseases. Among non–Native Americans, Hackel (2012:85) found that smallpox was listed as the infectious disease responsible for death in 61 percent of cases; another 14 percent died of cholera, and 7 percent died from measles. Although these percentages are very different from those for neophytes, it is important to note that the sample sizes were also different. According to the records, among non–Native Americans, only 43 people died from smallpox, and only 5 died from measles (Hackel 2012). Notably, there are issues with the recorded data. For example, Hackel has argued that although some colonists may have been exposed to smallpox or measles in Mexico prior to their journey to Alta California, no one has immunity to waterborne cholera. Hackel (2012) has suggested that it is highly likely that many more colonists died of cholera than was reported by the missions. There are various issues with the sacramental records related to the recording of cause of death. For example, the ECPP database was used by Hackel (2012) to understand causes of death of Native Californians, but cause of death was only partially recorded in sacramental records. Walker and Johnson's (1992:135; 1994:Figure 5) studies of the 1806 measles epidemic at missions in the Chumash region were based upon careful day-by-day analyses of the deaths recorded in the burial register. The dates that the epidemic raged were obvious because of dramatic spikes in the number of people who died during the weeks when the contagion was present among the mission neophyte population, yet the cause for those spikes in the number of deaths was not mentioned at all in burial entries. As a result, Hackel's (2012) study is interesting and offers an important overview of patterns, but as John Johnson noted (personal communication 2014), his study may not be representative of all causes of death, because many were not recorded directly as such in mission records. Nonetheless, these data offer important insight into the missions' perceptions of deadly disease.

One of the major problems in uncovering this evidence is that most introduced diseases that led to the destruction of Native Californian populations did so quickly enough that no osseous signatures were left (Walker 2001:295). Exceptions to that rule were tuberculosis and syphilis. Beyond death from a major infection, venereal disease also had significant side effects on the reproductive health of females, adding to significant increases in infant mortality and general overall decreased population size (Walker and Johnson 2002; Walker et al. 2005). Geiger and Meighan (1976:74) recorded that missionaries at Mission Santa Bárbara, when asked in a questionnaire about the status of neophyte health, noted that

> the sicknesses found among these Indians are those common to all mankind, but the most pernicious and the one that has afflicted them most here for some years is syphilis. All are infected with it for they see no objection to marrying another infected with it. As a result, births are few and deaths many so that the number of deaths exceed births by three to one.

In their study of treponemal disease, such as syphilis, Walker et al. (2005:290) found that most instances of tibial lesions in the Santa Barbara Channel area probably resulted from treponemal infection. Walker et al. (2005:296–297) concluded that a new form of treponemal disease probably was introduced to the Chumash and other Native Californian groups by Spanish colonists as early as the sixteenth century. Although it is possible that syphilis and other treponemal diseases were present among native populations before Spanish contact, Walker et al. (2005:299) concluded that, overall, as determined from both osteological and ethnohistorical data, syphilis was introduced into Alta California by Spanish explorers during the Protohistoric period.

Recent study of mission records from across Alta California has also offered important insight into health, disease, and death trends of neophytes (Douglass and Stanton 2010; Johnson 1999a; Milliken 1995; Walker and Johnson 1992, 1994, 2002; see also Chapter 5, this volume and Volume 4 of this series). Using the ECPP database, Douglass and Stanton (2010) examined 850 death records collected by missions (from San Luis Obispo in the north to San Juan Capistrano in the south) that identified the causes of death of neophytes. It should be noted that the ECPP database contains only one type of data available for studying such trends. Considering that cause of death was recorded in death records only in certain cases, Douglass and Stanton's (2010) study ought to be used with caution. Causes of death were classified into four major categories: disease, trauma, natural, and indeterminate (Figure 141). Twenty-eight percent of the sample fell into the category of disease. Although slightly more than half suffered unspecified illness, four diseases—cholera, rabies, smallpox, and stroke—were specifically identified by the missions. In addition, other causes of death (some inferred on the basis of what was described in death records) included gastrointestinal upset, food poisoning, infections with skin lesions, and respiratory illness.

Another 30 percent of the mission sample died of trauma; homicide and animal-related deaths were the most common forms. Accidents and drowning were other common causes of death. Horses and bears were responsible for most animal-related deaths—a surprisingly large number of entries described the cause of death as attack by a bear. Other forms of trauma, including childbirth, burning, and heat exhaustion, were infrequently reported.

Only approximately 1 percent of the individuals in the sample were recorded as specifically having died naturally from old age. Such an observation may indicate that there were relatively few older individuals in the sample, although it may also indicate that those individuals were underrepresented in mission records because, for example, very old people may not have made it to the missions, or mission personnel may have misrecorded some ages. Alternatively, it may suggest that the sample used (entries in which cause

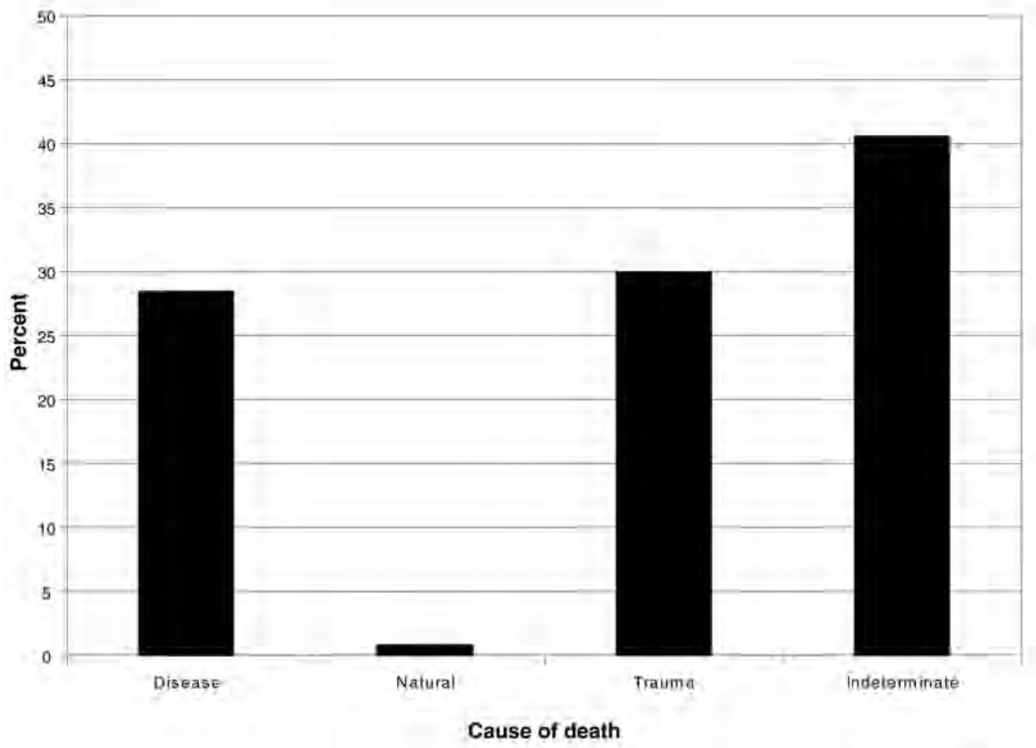

Figure 141. Interpreted causes of death, based on a study of mission death records available in the ECPP database, classified into four major categories: disease, natural, trauma, and indeterminate (after Douglass and Stanton 2010:Figure 2).

of death was stated) was biased toward accidental deaths or other out-of-the-ordinary causes (John Johnson, personal communication 2014). For example, other studies have indicated that at least 7 percent of the recruited population of *rancherías* (native villages) were considered old (depending on how "old" is defined) (see Cook and Borah 1979; McLendon and Johnson 1999). Finally, descriptions in the death records for 41 percent of the individuals were inadequate for determining cause of death. Such individuals were usually described as dying suddenly or unexpectedly.

Overall, then, Douglass and Stanton's (2010) study based on death records suggests that there were a number of causes of death for neophytes. Certainly, communicable diseases, such as smallpox, measles, and cholera, were very dangerous to Native Californians, because they had little resistance to those introduced maladies. As suggested below in the discussion of Cabuepet, there probably were many illnesses that were more mundane and were unidentified (such as respiratory diseases) but were just as deadly. Douglass and Stanton (2010) were surprised by the relatively high number of deaths caused by wild animals, including grizzly bears. In many instances, death records documented that individuals had been found after animal attacks and subsequently buried, probably in the countryside, and the description of the cause of death in some of the death records (*comida del oso*—literally, "bear food") suggests violence. Although the chance of catching a possibly deadly disease while living at a mission was high, the chance of dying in other ways, away from the mission confines, also existed. As discussed earlier, Hackel (2012) has also recently interpreted the mission records of Alta California—including 19 of the 21 missions—and has argued that the causes of death were indeed varied but that, by far, infectious diseases were the major contributing elements to the deaths of neophytes.

Mission records offer important insight into the nature of disease and death at native villages and the response of Franciscans to disease (Castillo 1999; Douglass 2009). The village of Cabuepet [Cahuenga], in the Los Angeles Basin, is a good example. Located along the Los Angeles River northwest of the Pueblo of Los Angeles, the native village of Cabuepet was recruited by both Missions San Gabriel and San Fernando Rey. Although there was a single baptism by a Mission San Fernando Rey padre performed at Cabuepet in 1798, over the course of a week in late December 1800 and early January 1801, 26 Gabrielino/Tongva individuals were baptized at the village. The first 2 baptisms in that string, on December 26, 1800, were performed by Mariano Verdugo, who had title to Rancho Cahuenga (in the vicinity of the *ranchería* of Cabuepet) (Mason 2004:29, 36). Both of the individuals died the following day. Within a week, 24 Gabrielino/Tongva individuals were baptized at Cabuepet by the priest Francisco Xavier Uría. Within 3 months, 8 of those 24 individuals had died. Given that mission records for many baptisms mentioned danger of death, it is likely that disease had spread through the *ranchería*. Perhaps after Mariano Verdugo baptized the first 2 individuals, he sent notice of illness spreading through the *ranchería* to Mission San Fernando Rey. As further evidence in support of that hypothesis, in January 1801, the commander at Presidio Santa Bárbara wrote that there were contagious fevers in Los Angeles and that the Native Americans "hardly have time to complain that they are sick before they die" (Mason 2004:36). Mariano Verdugo, the owner of Rancho Cahuenga, performed 6 baptisms at the *ranchería* of Cabuepet between 1796 and 1801; in every case, the individual died within days of baptism. It is clear that Verdugo took it upon himself to baptize native residents of Cabuepet who were in severe danger of death. This disease was likely the "*dolor de costado*" epidemic that took many lives at San Gabriel and elsewhere in southern California at that time (Castillo 1999; John Johnson, personal communication 2014). S. F. Cook (1976) suggested that the epidemic was diphtheria, but it may also have been caused by cholera (John Johnson, personal communication 2014). Castillo (1999:53) argued that the disease was diphtheria (*cerramiento de garganta*) and that 15 percent of the Gabrielino/Tongva population succumbed to the disease between 1800 and 1802.

Once they moved to the missions, neophytes were more likely to develop serious, and possibly fatal, illnesses than they had been in their home villages. However, in some cases, neophytes may have had a choice as to where they would die and be buried. Most neophytes died at their home missions and were buried there. Documentary evidence in death records indicated that not all were buried at an official Catholic cemetery. Mission San Gabriel death records showed similar trends of neophytes who probably chose to die away from missions. For example, some neophytes with records of baptisms have no corresponding death records. In those cases, neophytes had left the mission and were not in contact with it by the times of their deaths (Steven Hackel, personnel communication 2009). In other cases, mission records actually documented, many times via informants, the burial locations of neophytes at native villages or in other locations. It is unclear whether those neophytes had left the missions entirely or gone back to their home *rancherías* for a visit at the times of their deaths, because such visits were regularly granted by Franciscans. Mission San Gabriel records documented the burials of neophytes at a minimum of 36 *rancherías*, including the well-known Cucamobit, Topanja (Topanga), Pimubit, Jurupet, Guaspet, and Amuscopiabit. Mission San Gabriel death records revealed that about half of the *rancherías* have more than 1 neophyte each buried there. In each of almost all of those cases, an informant (presumably another neophyte) notified the mission of the deaths and burials. It is likely that many of the *rancherías* had traditional burial areas that continued to be used during the Mission period. It is also possible that the hundreds of neophytes for whom there were no death records were buried in a similar fashion at their *rancherías* of origin. The burial of a neophyte at the home *ranchería* can be interpreted as a strong statement of a continuity of traditional identity after having been baptized.

Newell (2009:162–164) analyzed similar types of data from Mission San Francisco. She argued that approximately 11 percent of the more than 6,000 neophytes at Mission San Francisco died and were buried outside the confines of the mission. Of those approximately 600 neophytes, more than 50 percent died outside the context of any colonial institution. Many of them, Newell (2009:152) detailed, died "in their lands," as described in mission documents. She argued that possibly, grave illness offered neophytes an opportunity to make decisions about where they might die and be buried (Newell 2009:163). And like Hackel (2003), she argued that neophytes resented the restrictions that Franciscans placed on them for the performance of traditional rituals, such as the mourning ceremony. By choosing to die and be buried at their home villages, neophytes gained greater probability that the mourning ceremony and other traditional rites would be performed (a full discussion of the mourning ceremony is offered in Chapter 6 in this volume). As Newell (2009:152–153) has argued in regard to Mission San Francisco, although mission documents suggest that some neophytes had strong investments in Catholic belief systems, the sheer number of neophytes who probably died in their home villages suggests that when near death, they created and pursued opportunities to die and be buried away from colonial institutions and that the deaths away from the missions illustrate the partial, or even complete, rejection of mission life and beliefs. It should be noted, however, that although rejection is likely one explanation, it should also be acknowledged that many who were baptized provisionally *in articulo mortis* or *in casu necesitatis* in their native *rancherías*—often by one of the mission interpreters, a neophyte relative, or a neighboring ranchero—never went to the missions at all, because they did not survive their illnesses (John Johnson, personal communication 2014). As illustrated by the Cabuepet example above, all of the Gabrielino/Tongva whom Mariano Verdugo provisionally baptized died within a few days. In some cases, there may not have been much "choice" involved for the Gabrielino/Tongva and other Native Californians who were baptized in danger of death or otherwise provisionally baptized, because they may never have entered the missions at all and were baptized at their home villages, where they had spent their lives. As a result, although Newell's argument may be true in some cases, it may not be true in every case.

Missions and Native Californians in the Greater Los Angeles Basin

Up to this point, the discussion of the Mission period has covered southern California in general. In the next few sections, we focus on the Los Angeles Basin and the two missions that served the area: San Gabriel and San Fernando Rey. Because subsequent chapters present various data on the missions and recruitment, here we present some general patterns and focus on aspects of recruitment and Native American/mission/pueblo interactions that are not discussed in Chapters 8 and 9 (in this volume).

Immediately after the founding of Mission San Gabriel in 1771 and the establishment of the Pueblo of Los Angeles 10 years later (1781), Native Californians in the greater Los Angeles Basin area felt their effects. Whereas the Gabrielino/Tongva were the dominant group in the Los Angeles Basin, the Serrano lived in the neighboring San Gabriel and San Bernardino Mountains; the Cahuilla were farther east, in the Banning Pass and Palm Springs area; the Luiseño lived to the south; the Ventureño Chumash occupied the northern reaches of Santa Monica Bay and areas farther north and west; and the Tataviam were north of the San Fernando Valley. Figure 142 illustrates the greater Los Angeles Basin, the approximate tribal boundaries (based on the work of Heizer [1978]), and the locations of various missions and the Pueblo of Los Angeles. It also shows the approximate locations of numerous Native Californian villages (*rancherías*) of the Gabrielino/Tongva and surrounding tribes, based on map data presented by Northwest Economic Associates and Chester King (2004) and John Johnson (2006a). SRI has transferred the digitized locations of villages from those maps to Figure 142.

It is important to note that various scholars (e.g., Bean and Vane 1995; Johnson 1997, 2006a; King 1994; King and Johnson 1999; Northwest Economic Associates and Chester King 2004) have argued that tribal boundaries were not static lines drawn in the sand but fluid divisions that ebbed and flowed through time with changes in the sociopolitical climate and the social organization of various tribes and social groups. The territorial map of southern California especially changed during the Mission period; Native Californian tribal populations collapsed, and more and more native villages were abandoned as residents either died or moved to the missions. Bean and Vane (1995), for example, argued that after the military raids in the San Bernardino area in 1811 and the subsequent movement of native groups from that area to the mission or *asistencia* in San Bernardino, the tribal boundaries in the area changed substantially. As another example, King (1994; King and Johnson 1999; Northwest Economic Associates and Chester King 2004) argued that during the Mission period, the traditional tribal boundary between the Chumash and the Gabrielino/Tongva along Santa Monica Bay was fluid. For example, there were Chumash surnames recorded in mission baptismal records for the village of Comicrabit, probably located near the modern city of Santa Monica (King 1994; King and Johnson 1999). Mission San Fernando Rey baptismal records informed us that one of the chiefs (*capitan*) at the Chumash *ranchería* of Humaliwo (Malibu) was actually born on Santa Catalina Island (Johnson 1999b), where Gabrielino/Tongva people lived. King (1994) argued that Humaliwo was a regional capital that controlled villages occupied by both Chumash and Gabrielino/Tongva along Santa Monica Bay and within the Santa Monica Mountains. Therefore, the territorial tribal boundaries shown on the map should be considered with caution.

Many of the important Native Californian villages (see Figure 142) are memorialized by modern names derived from Chumash and Gabrielino/Tongva place names. These villages include Humaliwo (Malibu), Topanja (Topanga), Tuhungna (Tujunga), Cucamobit (Cucamonga), Cabuepet/Cabuenga (Cahuenga), Jautbit/Jautvit/Jautibit/Houtg-na (El Monte), Simi (Simi), and Jurupet (Jurupa). Other important native villages are Guaspet (located along Ballona Creek, near Santa Monica Bay), Yabit/Yangna (located adjacent to the Pueblo of Los Angeles), Sibapet (the native village nearest to Mission San Gabriel), and Juyubit (a large village located along the San Gabriel River). Although all of these locations are approximate, King (1994), Northwest Economic Associates and Chester King (2004), and Johnson (2006a) based them on mission baptismal, marriage, and death records, which document the relationships between native villages that may have been influenced by the distance between them. Others, such as Earle and O'Neil (1994) and Johnson (2006a), have created maps showing the approximate locations of some of these same villages; the locations of some villages overlap with those noted above, and the locations of others do not.

Chapters 8 and 9 (in this volume) contain discussions of the interactions among Missions San Fernando Rey and San Gabriel, the Pueblo of Los Angeles, and local Native Californians during the Mission period. Therefore, in the rest of this chapter, we focus on other types of data regarding these relationships. First, we discuss the relationship between the local Gabrielino/Tongva and the residents of the Pueblo of Los Angeles, as indicated by baptismal and death records, to understand what roles the residents of these villages may have played in the pueblo and what these records may suggest about the decline of these native villages. Second, although much has been written by numerous scholars about recruitment to missions and the baptisms performed there, little research has addressed baptisms and recruitment that occurred *outside* mission contexts. Therefore, we focus on answering questions regarding the locations and frequency of baptisms at local villages as well as those who performed them. Third, we briefly discuss the effect on native villages of the establishment of some of the first ranchos in the greater Los Angeles Basin, as determined from case studies from Guaspet, Comicrabit, and Humaliwo (Malibu). We conclude this chapter with an overall discussion of the colonial context in Alta California during the Mission period.

The Pueblo of Los Angeles and the Gabrielino/Tongva

The Pueblo of Los Angeles was an important resource for Native Californians of the Los Angeles Basin and farther afield during the Mission period. As Hackel (2005) has argued previously as well as in Chapter 9 (in this volume), the pueblo

Figure 142. Map showing the hypothetical locations of selected Chumash and Gabrielino/Tongva native villages during the Mission period. Cultural boundaries are approximate and are based on the work of Heizer (1978). Hypothetical locations of native villages are redrawn from King (2004:Figure 2).

and its residents offered important economic opportunities for Native Californians.

One way of identifying Native Californians who probably worked at the pueblo is to discover who may have been baptized there, either at the pueblo church or at the *ranchería* adjacent to the pueblo (known as Yabit or Yangna). By doing so, one can gain a broad understanding of whether residents of some *rancherías* were drawn to the pueblo more strongly than the inhabitants of others by looking at the village origins of the individuals who were baptized. Of course, this baptismal information only suggests the identities of Native Californians who worked at the pueblo; there are no known primary sources that list Native Californians who worked there and from what *ranchería* they originated. Rather, these baptisms offer a possible sample of those who worked there but were baptized primarily in danger of death. The identities of officiants of those baptisms may also offer insight into connections between residents of the pueblo and specific native *rancherías*.

In Table 68, we offer information drawn from the ECPP on Native Californians baptized at either the Pueblo of Los Angeles or its adjacent *ranchería*, which is documented in Mission records primarily as Yabit. Not included in Table 68 are people listed as *gente de razón* and 31 individuals for whom origin was either illegible or not stated in Mission San Gabriel records.

Several important patterns emerged from these data. First and foremost, roughly one-third of the Native Californians baptized at Yabit or the pueblo were originally from Yabit. This, of course, is not surprising, in and of itself. The last complete record of the baptism of a Yabit resident, however, was dated 1807, nearly 20 years before the last Native Californian baptism at these locations. After a 14-year gap in baptisms, in 1821, there is one additional (incomplete) record of the baptism of an individual originally from Yabit. What do these records suggest about the *ranchería* of Yabit? That is unclear, partly because we know that the *ranchería* (perhaps at a different location) was still inhabited after 1807, as determined from historical documents, and other Native Californians originally from other *rancherías* were baptized at the adjacent pueblo well after 1807.

Table 68. Origins of Native Californians Baptized at Yabit/Yangna or the Pueblo of Los Angeles

Stated *Ranchería* Origin	Number of Baptisms	Baptismal-Date Range
Amupubit	1	1795
Batiquitos	1	1799
Cabuepet	4	1787–1793
Chaubit	2	1789–1792
Comicrabit	6	1790–1804
Guaspet	10	1791–1803
Diegueño/a	7	1818–1825
Geverobit/Jeberobit	2	1788–1800
Juatbit/Jautvit	14	1790–1818
Juyubit	1	1791
La Ysla	4	1803–1825
Pajbepet	1	1784
Pelbay cerca de San Diego	1	1797
Pigmaga/Pigmuga	1	1823
Pimubit/Pimuana/Pimuvit	3	1804–1821
Quinquina/Quinquipat	3	1818–1822
San Diego Hausquel	1	1796
San Dieguito	3	1800–1803
San Juan Capistrano del Viejo (Ychibit)	2	1796
Seobit	1	1790
Siuccabit	1	1785
Soabit/Soavit	4	1788–1818
Tobpet	1	1789
Toibitpet	1	1793
Yabit	33	1781–1807
Ychibit	1	1797

Second, in addition to Yabit, only three *rancherías* contributed numerous members to the baptismal rolls at Yabit or the pueblo: Jautbit/Jautvit (14), Guaspet (10), and Comicrabit (6). Jautbit, according to Chester King's (2004) reconstruction of the approximate locations of native *rancherías* (see Figure 142), was located due south of the pueblo, on a tributary of the Los Angeles River. The 14 baptisms of people in danger of death noted above constituted approximately 15 percent of all the baptisms from Jautbit/Jautvit/Jautibit, as determined from ECPP records from Mission San Gabriel. People originally from Jautbit began arriving at the pueblo at least a decade after its founding in 1781. Guaspet, located somewhere in the Ballona (and the focus of much of the discussion in the two subsequent chapters in this volume), had the second highest number of residents baptized at the pueblo or the *ranchería* of Yabit; Comicrabit, probably located just north of Guaspet, along Santa Monica Bay, had only slightly fewer. These two *rancherías*, located west of the pueblo and Yabit, had marriage ties and probably were relatively close to one another. So, it is probably not a coincidence that the overall patterns of baptisms are similar (Figure 143; see Table 68). However, as Hackel discusses in Chapter 9 (in this volume), the presence of residents of these *rancherías* suggests their interest in working in the fields or homes of the pueblo soon after its establishment.

Perhaps the most interesting resident of Comicrabit to be baptized at Yabit was its *capitán* (chief), who was baptized in 1804 (SG Bap 3662).[1] His native name was not recorded; instead, that man was baptized with the Spanish name Miguel by a neophyte named Gaspar, who was an interpreter for Mission San Gabriel. Miguel, who was approximately 70 years old at the time of his baptism in February 1804, was in danger of death at the time and died several weeks later. The presence of this chief of Comicrabit at Yabit may suggest that the former *ranchería* was deteriorating, as was its neighbor, Guaspet, by that time and that residents of both *rancherías* were seeking work at the pueblo. The *capitán* was baptized in 1804, and the last three residents of Comicrabit were baptized the following year, suggesting that the *ranchería* no longer functioned as a village around that time.

Third, among the records of baptisms at Yabit or the pueblo are those for several Gabrielino/Tongva individuals from either Santa Catalina Island (those from *rancherías* with Pimu-prefix names, and probably those noted as being from La Ysla [the Island]) or San Clemente Island (those from *rancherías* with Quinqui-prefix names). Although it may just be a coincidence, it is important to note that the *ranchería* of Guaspet had the strongest marriage ties to Santa Catalina Island of any mainland Gabrielino/Tongva *ranchería* as well as marriage ties with San Clemente Island (Johnson 1988a). Therefore, it is possible that ties with Guaspet (including ties through marriage) may have drawn people from the islands to the pueblo.

Fourth, not all the Native Californians baptized at the pueblo or at Yabit were from one part of the Los Angeles Basin. Among them were individuals from other *rancherías* (including Geverobit and Chaubit) that, like Comicrabit and Guaspet, probably were situated along Santa Monica Bay (see Figure 142) (although in the case of Chaubit, Mission San Fernando Rey records suggest that it was located along San Pedro Bay [John Johnson, personal communication 2014]). Individuals from two *rancherías* (Cabuepet and Siutcabit, both along the Los Angeles River) that were recruited to both Mission San Gabriel and Mission San Fernando Rey also were baptized at the pueblo or Yabit. Finally, individuals from Tobpet and Toibipet were also baptized; the latter *ranchería* probably was located farther east along the base of the San Gabriel Mountains, near the boundary between traditional Gabrielino/Tongva and Serrano territories.

Fifth, these records document that not all of the Native Californians baptized at the pueblo or the *ranchería* of Yabit were Gabrielino/Tongva. Among the descriptions of origins were those for Native Californians (Juaneños) from the San Juan Capistrano area, as well as 12 Native Californians (Diegueños) from the San Diego area. Although many of the latter baptisms were dated relatively late, several were from the early 1800s.

Last, when the baptismal dates are compared to the burial dates for both Gabrielino/Tongva individuals who hailed from Yabit and outsiders baptized at Yabit, it is clear that most people baptized were ill, because most of them died during the same year. Although there are notable exceptions, this suggests that many, if not most, gentiles working at the pueblo were baptized in danger of death by either padres at the pueblo church or devout *pobladores*.

We were surprised that more *rancherías* from near the pueblo were not represented, because almost all of the *rancherías* for which approximate locations are known (see Figure 142) were at least a day's walk from the pueblo. This may suggest that individuals from *rancherías* farther removed from the mission system's reach, at least early on, were able to become connected with the pueblo economy and were residing at Yabit. This connection to the rancho may in part be a function of distance from these *rancherías* to the mission, because Mission San Gabriel first recruited from *rancherías* nearby and then expanded to more-distant *rancherías*. As discussed by Hackel (2005:310–311), beginning in 1787, Governor Fages enacted new rules relating to the hiring of gentiles for work in the pueblos, including Los Angeles. One of the new guidelines prohibited Native Americans from living in the pueblo, because such proximity would result in too much "pernicious familiarity" (Hackel 2005:311). As a result, many gentiles probably lived at Yabit, adjacent to the pueblo. Overall, then, it is clear that Yabit was unlike most other native *rancherías* in the area, because Native Californians from many areas were drawn to Yabit, not only from nearby but also possibly from several days' walk along the coast, from the southern Channel Islands, and even from as far away as the San Diego area.

[1] Codes for mission records are as follows: Bap = Baptismal Record; SBV = Mission San Buenaventura; SFR = Mission San Fernando Rey; SG = Mission San Gabriel.

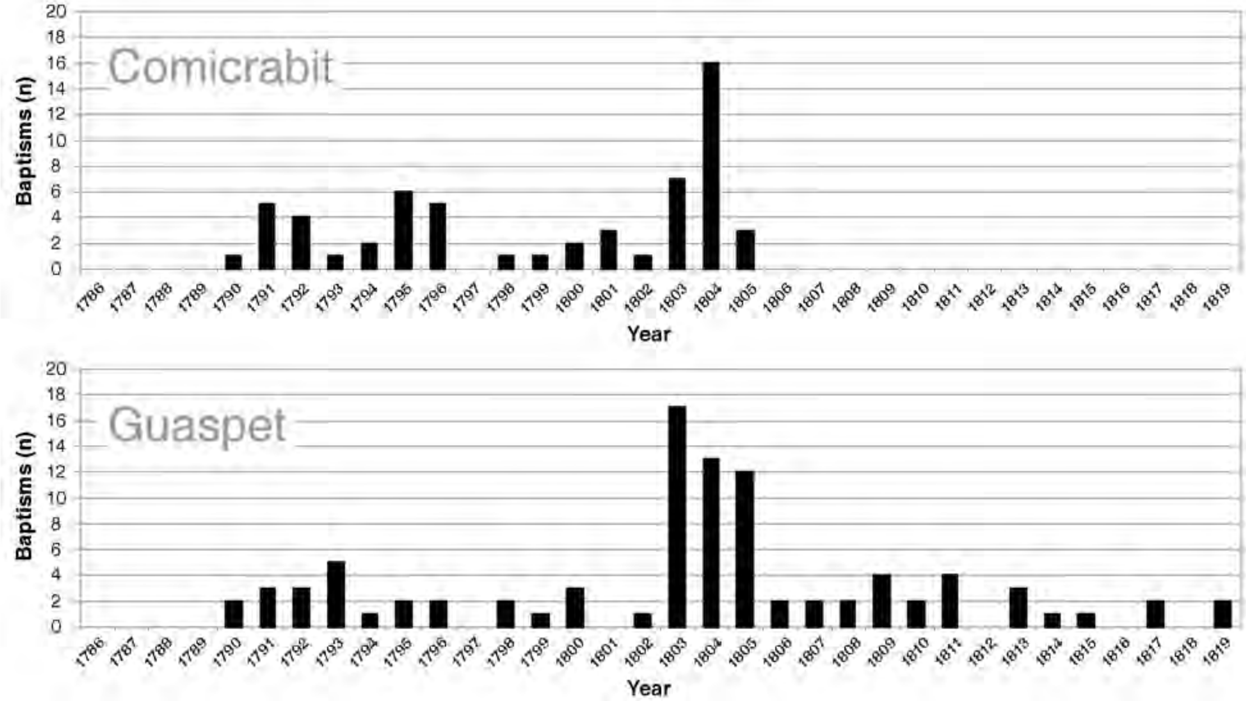

Figure 143. Patterns of recruitment (baptismal) of the Gabrielino/Tongva villages of Guaspet and Comicrabit to Missions San Gabriel and San Fernando Rey between 1790 and 1819 (source of data: ECPP database [http://www.huntington.org/Information/ECPPmain.htm]).

Baptisms Performed at *Rancherías* in the Los Angeles Basin

Recruitment to Missions San Gabriel and San Fernando Rey during the late eighteenth and early nineteenth centuries led to thousands of baptisms of Fernandeño, Gabrielino/Tongva, Serrano, and Cahuilla individuals, as well as a variety of other Native Americans. Most of these baptisms occurred at these two missions or at the pueblo church. However, research (presented here) showed that there were numerous instances in which Gabrielino/Tongva people and individuals from other tribal groups were baptized away from the institutional confines of the missions and the pueblo church, by both padres and lay (but presumably quite devout) members of the pueblo and surrounding ranchos. The primary objective of this section of the chapter is to examine baptisms at *rancherías* in order to understand their purpose, frequency, and officiators. In essence, were the baptisms at local *rancherías* different from those performed at missions? What were the circumstances of the rural baptisms?

We have researched these questions using data available from the ECPP, some of which are based on previous research by Douglass (2009). It is important to note that some findings of this work should be considered preliminary. For example, some *rancherías* have similar names yet may be unrelated to one another. As Johnson (2006a:4; see also Lightfoot 2005) has pointed out, because Native Americans came into the missions and the Pueblo of Los Angeles church speaking different languages, different names may have been used for the same *ranchería*. If an interpreter spoke more than one Indian language, then the interpreter may not have provided the name of the *ranchería* in the language of the person being baptized. To address this challenge, we have used data provided by Johnson (2006a:Table 1), partly to help understand the different names that may have been used for the same *rancherías* at Missions San Gabriel and San Fernando Rey.

Ranchería Baptisms Associated with Missions San Gabriel and San Fernando Rey

The data from both Missions San Gabriel (Table 69) and San Fernando Rey (Table 70) on baptisms performed at native villages offer important insight into recruitment patterns, based strictly on the numbers. In the case of Mission San Gabriel records, 31 *rancherías* hosted baptisms. At Rancho de San Bernardino/Junubabit, the total number of baptisms performed at the *ranchería* was higher than the approximate number of Native Californians baptized who originated from that *ranchería*. That case may be due to

Table 69. Mission San Gabriel Records of Native Californians Baptized at a Native Village *(Ranchería)*, Based on Data Available in the ECPP Database

***Ranchería* Name**	**Number of Baptisms at the *Ranchería***	**Approximate Number of People Baptized from the *Ranchería***
Ajubquebit/Asucsabit	1	1
Ajuibit	1	167
Cabuepet/Cahuenga/Cabuenga	2	9
Chaubit	1	33
Choquisbit	1	—
Geverobit	1	12
Guaspet	1	115
Guinibit	1	113
Jaibepet/Jaibepenga	3	64
Jaisobit	2	86
Jajamobit/Jajamovit	2	53
Jautbit/Jaubit	1	96
Jaysobit/Jaisobit/Jaysavit/Jaysovit/Los Coyotes	8	104
Juiubit/Juyubit	10	342
Jutucubit/Santa Ana	23	231
Nacauvit	1	—
Picuvit	2	3
"*ranchería de esta misión*" (Mission San Gabriel)	137	?
Rancho de Manuel Pérez	1	—
Rancho de Nietos	6	4
Rancho de la Puente	2	—
Rancho de San Bernardino/Junubabit	14	4
Rancho Santa Ana	7	3
Rancho de Santa Gertrudis	2	2
Seobit/Siyovit	11	38
Soabit	1	5
Toibit	1	1
Uchubit	4	129
Yabit	65	272
Total	312	1,887

Table 70. Mission San Fernando Rey Records of Native Californians Baptized at a Native Village (*Ranchería*)

Ranchería Name	Number of Baptisms at the *Ranchería*[a]	Approximate Number of People Baptized from the *Ranchería*[b]
Cabuepet/Cahuenga/Cabuenga/Caguenga	31	105
Calabazas	2	—
Ceegenga	1	6
Chaguayabit/Chaguayanga/Tacuyam	2	64
El Escorpión/Jucjauybit/Huam/Huama	2	74
Giribit	1	46
Humaliu/Omaliu [Humaliwo]	2	87
Maobit	1	—
Mujubit	1	15
Pachanga/Passenga	1	32
Piybit	4	16
Pujaubit	1	5
Quimisa	2	8
"*ranchería de esta misión*" (Mission San Fernando)	44	?
Rancho de Borregas de las Piedras	1	—
Rancho de Miguel Ortega	2	1
Rancho de San Francisco	1	—
Rancho de Tapo/Tapu/Taapu/Tapuu/Tapo	1	69
San Vicente	2	—
Sanja	1	5
Secpe	1	7
Semi/Simi/Semy/Simii	2	22
Sicocao	1	1
Siutcanga	1	68
Sumo	2	16
Tibimobit	1	22
Tochonanga/Tochonabit/Tochonanxa	4	64
Tujubit/Tujunga	1	94
Uanga	1	—
Total	117	827

[a] Data derived from the ECPP database.

[b] Data derived from McLendon and Johnson (1999:Tables 6.1, VIII.5, and VIII.6).

the Mission San Gabriel *asistencia*, located in the vicinity of San Bernardino. Ranchos de Nietos and Santa Ana also had totals larger than the numbers of those baptized who originated from those *rancherías*, but their overall numbers of baptisms were small. Although there were exceptions, as discussed below, baptisms performed at *rancherías* were relatively rare.

Overall, however, the number of baptisms performed at any of the 31 *rancherías* associated with Mission San Gabriel is relatively small. Disproportionately large numbers of baptisms, however, were performed at Jebit, Jutucubit, "*ranchería de esta misión*" (i.e., the *ranchería* associated with the mission), Seobit, Juyubit, and Yabit. It is not surprising that two of these *rancherías* hosted many baptisms; one ("*ranchería de esta misión*") was located adjacent to the mission itself, and the other (Yabit) was located adjacent to the Pueblo of Los Angeles. Cabuepet/Cabuenga was recruited by both Missions San Gabriel and San Fernando Rey, and baptisms recorded at both missions occurred at the *ranchería*.

The baptismal records at Mission San Fernando Rey indicated that baptisms occurred at 29 *rancherías*. As was true for Yabit, a disproportionate number of baptisms performed outside the mission occurred at the *ranchería* associated with Mission San Fernando Rey ("*ranchería de esta misión*"). In the San Fernando Rey records, the only other *ranchería* that hosted a large number of baptisms was Cabuepet/Cabuenga.

In the records for both Missions San Gabriel and San Fernando Rey, the stated causes for baptism at *rancherías* generally related to illness, danger of death, or other maladies associated with a critical need.

Case Studies of Baptisms Performed at *Rancherías*

This section highlights two *rancherías* that have particular patterns related to baptisms. These *rancherías* showed examples of high baptism numbers, had interesting outcomes after baptisms, or connected well with historical events.

Jutucubit/Santa Ana and Jaysobit/Jaisobit

On August 23, 1784, 23 baptisms were performed at Jutucubit, which was located by Northwest Economic Associates and Chester King (2004:Figure 2) along the Santa Ana River (see Figure 142; Table 69), as had been reported by Juan Antonio García Riobo, a priest from Mission San Gabriel. It is unknown why Padre García Riobo visited this particular village, but it is clear from mission records that church leaders irregularly traveled within the Los Angeles Basin and beyond, visiting native villages during their travels. The data suggest the possibility that the baptisms at this *ranchería* were designed to help increase recruitment from this area of the Los Angeles Basin. These 23 baptisms constituted nearly 10 percent of the total number of baptisms from this *ranchería*. By 1784, nearly a quarter of the approximately 231 baptisms from this *ranchería* had already been performed; therefore, this large village was an important source of baptisms for Mission San Gabriel. The reason given for baptism of these individuals was generally "in danger of death," which may suggest an outbreak of disease. Indeed, by the end of 1784, 5 of these recently baptized individuals (both children and adults) had died. Three of them died and were cremated together at Jutucubit on October 15, 1790, according to their death records. Approximately 75 percent of the 23 people baptized survived their illnesses and lived for decades after baptism.

On the same day, August 23, 1784, Juan Antonio García Riobo also baptized four adults and two infants at the nearby *ranchería* of Jaysobit/Jaisobit. According to the reported locations of these two *rancherías* (see Figure 142), however, they appear to have been farther apart than a short walk; they may have been closer together than they appear on the map, or the recorded date of these baptisms may be incorrect. Only eight individuals from this *ranchería* had previously been baptized at the mission. After the August 23 baptisms, the frequency and number of baptisms from this *ranchería* increased dramatically at Mission San Gabriel. Of the six individuals baptized on August 23, only one died soon after baptism—1 day before three baptized individuals from Jutucubit died and were cremated at their home *ranchería* (see above).

Seobit

The native *ranchería* of Seobit exhibited a pattern very different from patterns shown for Jutucubit and Cabuenga (discussed earlier in this chapter) and similar to those shown for many of the other *rancherías* recorded at both missions. A few baptisms were performed at this *ranchería*, which was located by Northwest Economic Associates and Chester King (2004:Figure 2) along the San Gabriel River, directly south of Mission San Gabriel (see Figure 142; Table 69). Between 1797 and 1807, 9 Gabrielino/Tongva individuals were baptized at Seobit, out of a total of 37 people from this *ranchería* whose baptisms were recorded at Mission San Gabriel. Reasons for baptism related to danger of death, grave illness, or extreme necessity. Of the 9 individuals, 6 died within days of baptism. During that time, 3 residents of the Pueblo of Los Angeles, 2 priests, a soldier, and a neophyte, performed these baptisms. Francisco Ávila, a *vecino* from the pueblo, baptized Gabrielino/Tongva individuals at Seobit on three separate occasions in a span of more than 2 years. It is clear that he knew the residents of the *ranchería* and interacted with them, given that he performed several baptisms at the same *ranchería* over time. We suspect that Ávila worked in the area as a rancher; at the very least, he spent considerable time in the area, considering his repeated interaction with the residents of this native village. Within a year of the last baptism at Seobit, he was godfather at Mission San Fernando Rey to 8 native people from the Chumash *rancherías* of Simi, Umaliu, and Taapu. It was also recorded that he was in this general area when he was found in bed with another man's wife at the nearby Rancho Cahuenga and was wounded in a subsequent struggle with the woman's husband (Mason 2004:39).

Lay People as Officiants of Baptisms

The data collected, as well as the case studies that we have discussed, make clear that priests were only one of several types of people who interacted with the inhabitants of *rancherías* across the greater Los Angeles Basin. Baptisms were performed by neophytes, ranchers, residents of the pueblo, and soldiers, among other people. The data showed that several neophytes performed multiple baptisms at *rancherías*. In at least one instance, there is evidence from Mission San Gabriel records of a neophyte's having traveled along the base of the San Gabriel Mountains, going from one *ranchería* to another on subsequent days, to perform baptisms. Neophytes certainly would have had better contact and communication skills with other Gabrielino/Tongva people than the Hispanic population in the basin would have had.

These data illustrate that lay ranchers, who were in close contact with the inhabitants of native villages, also performed a relatively large number of baptisms at *rancherías*. In all cases studied, danger of death or related themes were given as the reasons for baptisms that took place outside the missions and the church. As discussed earlier in this chapter with respect to Cabuepet/Cabuenga, Mariano Verdugo performed baptisms at the *ranchería*, near his rancho, for 6 Gabrielino/Tongva individuals who died shortly thereafter. The Pico family, who owned Rancho Simi, is another good example of ranchers who baptized within their land concessions. The Pico family, consisting of the father, Santiago, and his two sons, Francisco Xavier and Patricio, conducted a total of 17 baptisms, probably all at *rancherías*, between 1784 and 1821. Santiago was a retired soldier from Presidio San Diego who came originally from San Javier de Cabazán, Sinaloa, Mexico, as documented in the 1790 *padrón* for Los Angeles (Mason 1998:85). In 1795, Santiago was given a concession to Rancho Simi, to the west of Mission San Fernando Rey. His younger son, Francisco Xavier, was responsible for the cattle at Rancho San Pedro until 1790, when he enlisted in the military for a decade with Presidio Santa Bárbara. Mission San Fernando Rey baptismal and godparent records indicate that by 1798, the older son, Patricio, was living at Rancho Simi. By 1808, the rancho was being run jointly by Patricio and Francisco Xavier (Mason 2004:44).

Santiago was the first of the family to be listed as baptizing (in 1784) a Gabrielino/Tongva, an inhabitant of the *ranchería* of Uchubit. Several years later, in January 1790, he baptized an individual at Chaubit; at the end of the year, his son Francisco Xavier baptized an infant at Guaspet, as detailed in Chapter 8 (in this volume). In 1795, Santiago again baptized a Gabrielino/Tongva, this time at the Pueblo of Los Angeles. Santiago's older son, Patricio, baptized a total of 13 Native Californians (many of whom probably were Chumash and/or Fernandeño) between approximately 1802 and 1818 at Rancho Simi. Although some of the mission-record entries offered little information, it was clear that during this period, he probably was baptizing Chumash in danger of death from the *rancherías* of Semi, Tapu, Secpe, Cayegues, and Quimisa. According to a map produced by Johnson (2006a:Figure 2), Semi, Tapu, and Quimisa were all within several kilometers of one another, and all probably were in the area of Rancho Simi. In addition to baptisms at *rancherías*, the father and sons were witnesses to several marriages, and Santiago and Patricio were godfathers to numerous Native Californians—Santiago to 10 individuals and Patricio to 39. The records from Mission San Fernando Rey indicated that Patricio was a godparent to native people from a variety of *rancherías*, most of which were near the ranchos where he lived. For example, during the early part of the 1800s, while a resident of Rancho Simi, he was godparent to 13 native people from Tapu as well as to natives from Simi and Quimisa, among other *rancherías*. In sum, then, Patricio had much contact and interaction with Native Americans living near where he lived and worked.

Discussion: Baptism at *Rancherías*

As indicated by records from both Missions San Fernando Rey and San Gabriel, the underlying purposes for almost all baptisms at *rancherías* were illness, danger of death, or extreme necessity. Many people who were baptized at their home *rancherías* died within a short time after baptism. When a relatively large number of people were baptized in a group at a *ranchería*, it is likely that disease spreading through the area was the main motivator. That being said, it is interesting that there were not more instances of that pattern in baptismal records, considering that there probably were a number of instances of disease spreading through the Los Angeles Basin over time. That may offer additional support for Walker's (2001:283) argument that the evidence in historical records that there were large epidemics in Alta California before the Gold Rush era is inconsistent.

Baptisms performed outside mission or church contexts were quite rare during the Mission period, at least in the greater Los Angeles Basin. In the records of both Missions San Gabriel and San Fernando Rey, baptisms took place at approximately 30 *rancherías*, and for the most part, only a few people were baptized at each place. The *rancherías* that hosted most of the baptisms were located at the mission proper and at Yabit, adjacent to the pueblo. If one were to take those two *rancherías* out of the sample, only one or two people were baptized at most *rancherías*, and usually when an individual was in imminent danger of death. Of course, there are a few important exceptions, as discussed above. Some of these baptisms may have related to the wishes of Mission San Gabriel padres to increase recruitment at particular large villages. In the case of Jaysobit, the rural baptisms by a priest may have set in motion increased recruitment at this large village, because the frequency and quantity of baptisms at Mission San Gabriel from Jaysobit increased almost immediately after those performed at the *ranchería*.

There were several different patterns to these baptisms. In a few cases, it seems likely that the mission was notified of disease spreading through a *ranchería*, and as a result, a padre was dispatched to baptize individuals who were seriously ill. Both missions had at least one example of such cases. In the other instances, it appears that individuals from *rancherías* were baptized primarily by people who probably had knowledge of the area and contact with the native inhabitants. At the *rancherías* adjacent to the missions, baptism officiants were almost all either priests or, in a few cases, neophytes. In more-rural areas, those who officiated at baptisms primarily were local ranchers who worked in the area, residents of the pueblo, or other laypeople. Some people, like Mariano Verdugo of Rancho Cahuenga and the Pico family from Rancho Simi, appeared to be heavily involved in the lives of the native inhabitants of the land that they ranched. In a few cases, officiants were neophytes deeply invested in a particular mission. Additional study of some of these other officiants, such as some of those who were *vecinos* of the pueblo, is needed in order to understand how they became involved with the inhabitants of these rural *rancherías*. In conclusion, it appears that although baptisms at *rancherías* were few compared to the many thousands of baptisms at Missions San Gabriel and San Fernando Rey, these cases do offer insight into the interrelationships among the missions, the inhabitants of the pueblo, the ranchers, and the native peoples who lived in the rural areas of the Los Angeles Basin.

Rancho Establishment and the Life Cycle of Native Villages

Ranchos were an important part of the settlement of the Los Angeles area, partly because they provided important economic goods for local use or export as well as economic opportunities for the Native Americans who lived within their boundaries (see Hackel 2005; Mason 1998, 2004). As discussed earlier, for example, Rancho Cahuenga (sometimes called Caguenga or Cahuanga [Mason 2004]) was named for the Gabrielino/Tongva village of Cabuepet, which was located within the boundaries of the rancho. Some native residents of Cabuepet worked on the rancho performing a variety of tasks, probably including housework, working in fields, and herding, among other things. The relationship between the native village of Cabuepet and the surrounding Rancho Cahuenga was not unique in the greater Los Angeles Basin. Whereas there probably were many economic benefits to Native Americans from working on ranchos, the ranchos also appear to have had a significant effect on the life cycles of native villages. In this section, we briefly explore the life cycles of native villages to illustrate how the establishment of ranchos may have impacted them. To do this, we look at two case studies: the Chumash villages of Humaliwo (Malibu) and Talepop and the two neighboring Gabrielino/Tongva villages of Guaspet and Comicrabit.

Humaliwo and Talepop

As discussed earlier in this chapter, Humaliwo, located on the northern shore of Santa Monica Bay, was a Chumash village that was the regional political head village for the area, including both Chumash and Gabrielino/Tongva *rancherías* (King 1994). Partly on the basis of analysis of early Historical period artifacts from its burial area, scholars have argued that some residents of Humaliwo probably worked on local ranchos and were paid in glass beads or other goods. The village of Humaliwo was located within the boundaries of Rancho Topanga Malibu Sequit, given as a concession to José Bartolomé Tapia in 1801. Many scholars (Bickford 1982; Gamble 2008; Martz 1984) have suggested that the residents of Humaliwo worked for this local rancho. Douglass and Stanton (2010) investigated that possibility and searched for alternatives, using baptismal and godparent mission records from Missions San Buenaventura, Santa Bárbara, and San Fernando Rey.

Douglass and Stanton (2010) detailed strong connections between the native residents of Humaliwo and both Ranchos Topanga Malibu Sequit and Las Vírgenes, also known in mission records as Rancho Talepop. For example, three baptisms were performed at the village of Humaliwo—two by José Bartolomé Tapia and one by Bartolomé Miguel Ortega, the owner of Rancho Las Vírgenes. This latter baptism (SBV Bap 1869) held particular significance, because it was performed in 1803 for the dying infant daughter of the chief (*capitán*) of Humaliwo, Saplay, which suggests a strong relationship between Ortega and the residents of Humaliwo, including its leader. Ortega was clearly a devout person; he baptized a total of five Chumash individuals over the years, probably all at their home *rancherías*. Ortega's first wife was María Rosa, a neophyte from Mission San Buenaventura, and jointly they were godparents to a number of Chumash from Humaliwo and surrounding Chumash and Gabrielino/Tongva *rancherías*, including Sumo, Simi, Encino, Comicrabit, and Talepop. The marriage of María Rosa, a Chumash neophyte, and Ortega would have created stronger ties with Chumash villagers (see Newell 2009:144). María Rosa died in June 1805; soon afterward, Ortega married a recent neophyte from Humaliwo named Ana Antonia, creating further ties with the village of Humaliwo. Given this history, it is reasonable to argue that there was a connection between Humaliwo and Ortega and his nearby Rancho Las Vírgenes. These relationships suggest that residents of Humaliwo may have worked at both Ranchos Las Vírgenes and Topanga Malibu Sequit in the first years of the nineteenth century.

Although the marriages furthered ties between Ortega and the residents of Humaliwo, it is likely that Humaliwo had disintegrated by the time of his marriage to Ana Antonia in 1805, only a few years after Tapia was given a land concession that surrounded Humaliwo. On February 23, 1805, 41 members of Humaliwo were baptized at Mission San Fernando Rey (Figure 144) (it should be noted that the total number of baptisms from Humaliwo, in addition to these from 1805, in the ECPP data differs from the data presented by McLendon and Johnson [1999:Appendix XIII]). Although several more members of this community were baptized after that date, it is telling that the first of the 41 members baptized on that day in 1805 was none other than the *capitán* of Humaliwo, noted in different mission records as Saplay or Chapray (SFR Bap 1379). The baptism of 41 individuals from Humaliwo, having been led to conversion to Catholicism by their chief, probably indicates that the village of Humaliwo was depopulated by that time, with the last members of the village having moved

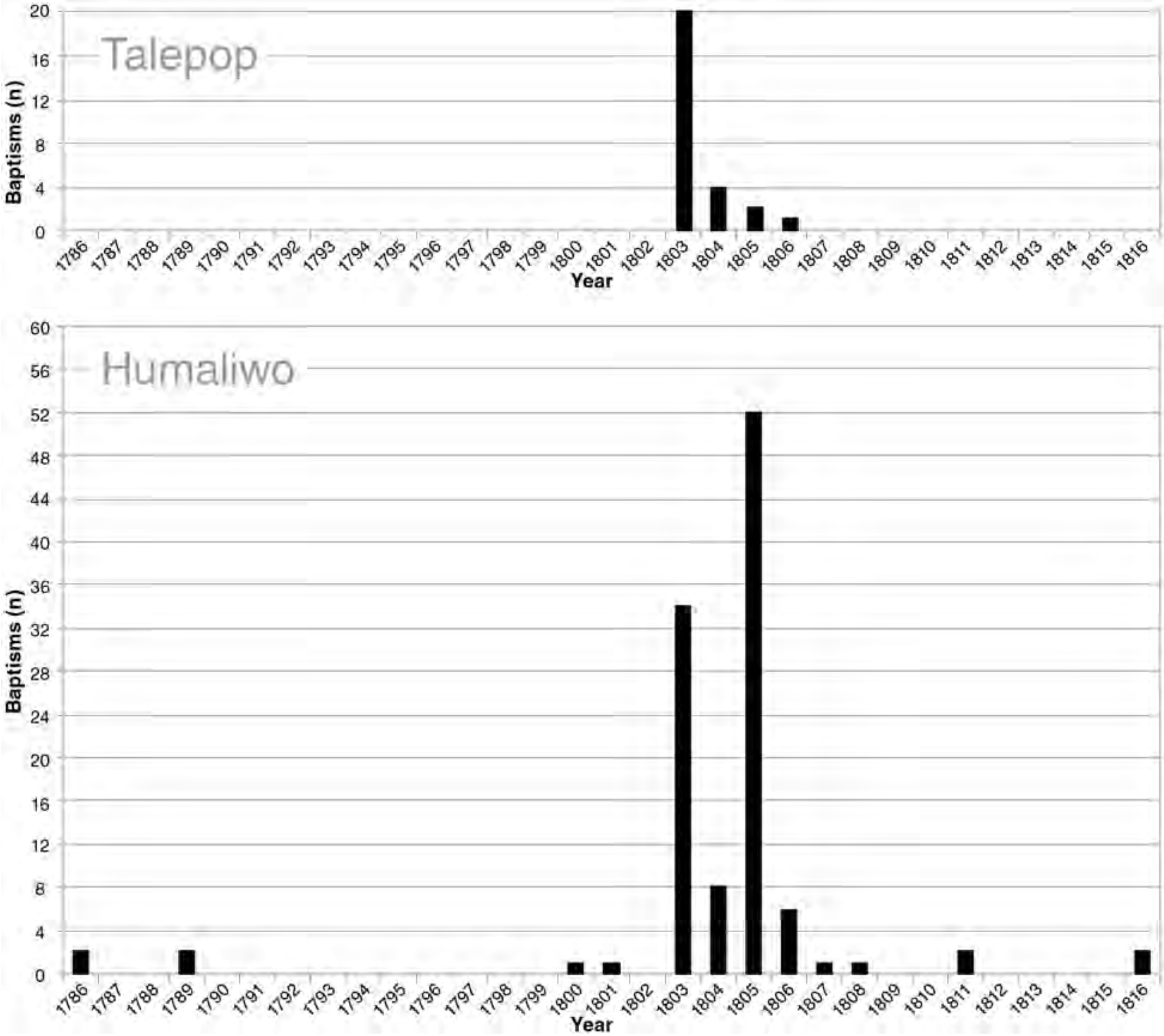

Figure 144. Patterns of recruitment (baptismal) of the Chumash villages of Humaliwo (Malibu) and Talepop to Missions San Fernando Rey, San Buenaventura, and Santa Bárbara between 1786 and 1816 (sources of data: ECPP database [http://www.huntington.org/Information/ECPPmain.htm] and McLendon and Johnson [1999:Tables 6.1, VIII.5, and VIII.6]).

to Mission San Fernando Rey. The ultimate reason for the abandonment of the village of Humaliwo will likely never be known, but the formal establishment of ranchos in the area surrounding the village is likely fundamental to the answer.

Not as much is known about the village of Talepop from baptismal records. There are only 18 recorded baptisms of Chumash individuals from that village in Mission San Fernando Rey baptismal records, based on data in the ECPP database (it should be noted that the number of baptisms from Talepop in the ECPP data differs slightly from data presented by McLendon and Johnson [1999:Appendix XIII]). It is clear that Miguel Ortega took a close interest in the residents of the village of Talepop, as well. Miguel Ortega was godfather for 7 of the 18 recorded baptisms; his son, José Antonio Ortega, was godfather for 4, and Miguel's wife, María Rosa, was godmother to another resident of Talepop. As a result, members of the Ortega family were godparents to 12 of the 18 baptisms from that village, all of which took place between 1803 and 1805. In addition, Miguel Ortega was the officiant for 3 baptisms of Native Californians in danger of death in 1803, probably at their home *rancherías*, because that would have been the only likely scenario in which a layperson like Miguel Ortega would have been allowed to perform a baptism. The origin of 1 of the individuals was listed as a village on Ortega's rancho, and the origins of the other 2 (a mother and her newborn infant) were not recorded. Because the locations and origins of these 3 baptisms were not documented, they are not included in Figure 144. As Figure 144 illustrates, although there were not many baptisms from Talepop overall, they began 3 years after Ortega established the rancho in 1800 and ended 6 years after that date, in 1806. The last baptism of an individual from Talepop suggests that it was no longer a functioning village after 1805.

Guaspet/Comicrabit

It is likely that Gabrielino/Tongva living in the Ballona during the early Historical period and interested in rancho work would have worked at Rancho de los Quintos (also known as Rancho Los Quintos), located in the Ballona from approximately 1803 to 1809 (Mason 2004). The Quinto Zúñiga family included a neophyte wife and several children of partial Native American ancestry. Pío Quinto Zúñiga, the patriarch, had been a soldier at San Juan Capistrano, where he met and married his neophyte wife. It is important to note that this marriage between a *gente de razón* and a neophyte was extremely unusual. As of 1801, there were only 24 such marriages in Alta California (Newell 2009:120). Such marriages, however, became catalysts for contact and interaction between Hispanic and Native American groups (Newell 2009:120–122). Baptismal and godparent records documented ties between Pío Quinto Zúñiga and his family members and residents of Guaspet; Quinto Zúñiga family members served as godparents to several Guaspet residents, and Pío Quinto Zúñiga himself baptized a Guaspet resident in danger of death at the native *ranchería* of Yangna (Stoll et al. 2009). The picking of Quinto Zúñiga family members as godparents by residents of Guaspet created and/or reinforced personal alliances and allegiances (see Newell 2009:144).

Baptismal records from Guaspet as well as the nearby village of Comicrabit offer important insight into the life cycles of native *rancherías* after the establishment of early ranchos on land that contained those *rancherías*. Northwest Economic Associates and Chester King (2004) and King and Johnson (1999) have identified the location of Comicrabit as along Santa Monica Bay, just north of the Ballona. Marriage ties between Guaspet and Comicrabit suggest that they were near each other and had important interactions. As shown in Figure 143, baptismal records for the two villages are uncanny in their similarity: initial recruitment from both villages began during the same year, and spikes in baptisms are evident between 1803 and 1805, during the likely establishment of and interaction with Rancho de los Quintos. Several years after the establishment of Rancho de los Quintos, recruitment of both villages dropped off dramatically. Comicrabit recruitment ended in 1805, suggesting that it was largely depopulated by that year. Further evidence suggesting the end of Comicrabit as a village by 1805 is revealed by the baptism, in 1804, of the *capitán* (leader) of Comicrabit, in danger of death, at the native village of Yabit. Like many baptized at the pueblo or at adjacent Yabit, the leader of Comicrabit may have been at Yabit looking for work, having left his village during its decline.

The decline of a native village just years after the establishment of a nearby rancho is a pattern also observed at the well-known site of Malibu (Humaliwo). Just years after Tapia was given title to Rancho Topanga Malibu Sequit, approximately 50 of the residents of Humaliwo, the most important village within the boundaries of the rancho, were baptized at Mission San Fernando Rey, led by their *capitán* (Douglass and Stanton 2010). It is unclear why Guaspet continued to survive for perhaps a decade after the establishment of Rancho de los Quintos while Comicrabit did not; the important ritual nature of the burial ground at LAN-62, which may have been used until around the mid-1810s, may offer a partial answer.

What, then, can be seen as a connection between the life cycle of a native *ranchería* and the establishment of ranchos nearby? For Gabrielino/Tongva, four major responses were available during the colonial period:

- Become involved with the missions, become baptized, and no longer reside at a native village.
- Become economically involved with the pueblo as a laborer and continue to live at a native village, either the village of one's origin or one close to the pueblo (such as Yangna).
- Become economically involved with a local rancho established near a native village.
- Reject all aspects of the new colonial structure as much as possible, and either stay at one's village of origin, or move to a more remote area and join a refuge community.

These case studies clearly suggest that within just a few years of the establishment of ranchos, native villages often disintegrated. It is likely that some of the native inhabitants left their native villages to live on the ranchos themselves, as workers, but it appears that a large number of those residents left their native villages for the missions, probably never to return. In all of these cases, key personnel on ranchos (including Tapia, Ortega, Pico, and Quinto) were either officiants of baptisms for people from affiliated native villages or godparents to those baptized, indicating a strong spiritual connection with Native Californians probably interacting with, if not working at, these ranchos. It is likely that the rapid demise of *rancherías* following the establishment of a rancho nearby was not without exceptions, but the general pattern highlighted in these case studies strongly suggests that ranchos were important catalysts for migration to the missions and the pueblo. As detailed above in the discussion of baptisms by lay officiants, many rancho owners, including the Pico and Verdugo families, appear to have been quite devout in their beliefs and to have practiced what they believed. Although they needed native labor for their ranchos, they also obviously believed in the importance of converting Native Americans to Christianity.

Conclusions

The early colonial period in southern California was a time of rapid change, and the changes had very different effects on the colonists and the Native Californians. In a relatively short period, the colonists constructed towns, missions, and military forts and dramatically altered the landscape to help achieve their goals of agriculture and herding. Alta California provided an opportunity to create a new life and identity far away from the core of Spanish control. Following Gosden's (2004) terminology, the Spanish viewed Alta California as *terra nullius*, or a land without social constructs. Hispanic colonists viewed the extremely varied Native Californian tribes as politically devoid and, therefore, needing to be saved through Christianity. At the same time, Alta California was the stage for constructing a colonial extraction economy. That creeping colonialism, to use Ferris' (2009:168–170) term, was a long-term process that led to the permanent relocation of neophytes from their native villages to missions and the ultimate demise of their former homes. For the native inhabitants of California, whether they were Gabrielino/Tongva, Chumash, or other tribal groups, it was a tragically difficult time as they negotiated the colonial expansion into Alta California. The new colonial institutions and interactions were resources for new goods and ideas but were also detriments to traditional ways of life.

All groups in Alta California—both colonists and Native Californians—likely underwent some form of ethnogenesis as well as persistence during the colonial era. In the case of colonists, as Voss (2008a, 2008b) and Haley and Wilcoxon (1997, 2005; see also Haas 1996, Mason 1998) have pointed out, their ethnogenesis was in part due to their wishes and abilities to transform themselves into different castes and ethnicities so far away from the mother colony in central Mexico. From an early time in the colonial New World, categories of race and an individual's place within a caste system were very important aspects of colonial society. Many of the colonists were mestizos from Sonora, Mexico; in Sonora, they had to abide by the strict caste system, but as colonists in Alta California, they had an opportunity to alter their identities and transform themselves. For example, most members of the Anza Expedition were of mixed race, and roughly 20 percent were of mulatto ancestry. Once settled in Alta California, these and other colonists began reinventing their identities, identifying themselves more as Spanish (*español*) and less as having mixed Indian (mestizo) or African (mulatto) ancestry. Haley and Wilcoxon (2005:438) have argued that soon after 1790, the caste system in Alta California began to be of less importance, because, as they have put it, many of the settlers had racial backgrounds that they wished to hide or mask (see also Johnson and Lorenz 2010). As a result, after 1790, most census data did not include information about the complex caste system in place in central Mexico and elsewhere in the Spanish empire and, instead, included simple information about those who were *gente de razón* or *indio* (Hackel 2005:60; Haley and Wilcoxon 2005:438; Mason 1998).

Native Californian interaction with colonial institutions varied. Whereas many Gabrielino/Tongva in the Los Angeles area, for example, were recruited to the mission, it is clear from direct archival sources as well as less-direct evidence that some native groups interacted primarily with the *pobladores* and rancheros rather than with church institutions. The reasons that Native Americans were drawn to different colonial institutions—or, alternatively, what caused some, including the Gabrielino/Tongva, to withdraw from those same institutions as best they could—were multiple and diverse. Although many scholars—as well as some Franciscan padres from the colonial era—have argued that the lack of food and the destruction of native habitat were driving forces in pulling Native Californians into the missions and other colonial institutions, the situation was much more complex. Following Spielmann et al. (2009), the Gabrielino/Tongva, much like Pueblo groups in the American Southwest, reacted to colonialism in diverse and varied ways that were shaped by a wide range of short-term and long-term histories. Whether local native groups were recruited to the missions, worked in the fields of the pueblo or local ranchos, or attempted to disassociate themselves from Spanish colonists altogether, the ethnogenesis and persistence of those groups were inevitable as they wove their way through the colonial experience. Because of the rapid establishment of colonial institutions (ranchos, the Pueblo of Los Angeles, and missions) in the Los Angeles area, traditional cultural boundaries of native tribes ebbed and flowed as natives were recruited and as social integration among different groups probably increased. For many Native Americans, entering the colonial political economy, which was created by pluralistic communities, was a choice to adapt and change in order to survive and, along the way, to create new identities rather than simply assimilating or acculturating to the new colonial order (see Stein 2005:25). As Peelo (2011:661) has suggested, that creation of new identities—that ethnogenesis—was continuously being reformulated and was multifaceted and situational. As Panich (2013) has argued persuasively, while there was transformation of native identity, there was also persistence of cultural identity in the face of colonialism. Rather than being reactive to colonial situations, native groups like the Gabrielino/Tongva actively chose solutions to the new and diverse challenges they faced. Those solutions were based partly on the long-term histories and traditions of those groups.

As discussed earlier in this chapter, Native Californians had four general options in the face of the colonization of Alta California: (1) be recruited to a mission, (2) work at the Pueblo of Los Angeles and adjacent fields as a laborer, (3) work at a rancho, or (4) move to the edges of the colonial sphere of influence, and become a refuge community—or move elsewhere, in general. Although each of these options had different results associated with it, Option 1 (be recruited to a mission) led to the most-restrictive outcome in terms of the continuity of native traditions. This chapter has described the fundamental framework for the Mission period in the greater Los Angeles Basin and has offered a broad overview of interactions between Native Californians and colonists from a variety of perspectives. Certainly, thousands of Gabrielino/Tongva people were recruited to Missions San Gabriel and San Fernando Rey, and many more likely worked on ranchos or around the Pueblo of Los Angeles and in its adjacent fields. Many scholars have argued that although food was an important variable in mission recruitment because of the destruction of native habitat and traditional lifeways, it was one of many reasons why a Gabrielino/Tongva individual may have chosen to undergo conversion. Indeed, archaeological evidence suggests that at least until the late Mission period (post–a.d. 1800), there was not significant environmental destruction in the Ballona area (see Chapter 4 in this volume). That said, it is unknown how the Gabrielino/Tongva *perceived* environmental destruction and its impact or potential impact on their available food resources.

The subsequent three chapters in this volume, Chapters 8–10, offer more-detailed information on two topics. In Chapter 8, Stoll and her colleagues detail the ethnohistoric data available for the *ranchería* of Guaspet, located in the Ballona and likely associated with the archaeological sites LAN-62 and LAN-211. They offer detailed information about Guaspet from various primary and secondary documents, including nineteenth-century correspondence and sacramental mission records for Guaspet. Important details and connections between Gabrielino/Tongva residents of Guaspet and local ranchos, missions, and the Pueblo of Los Angeles are developed and discussed. In Chapters 9 and 10, Hackel offers a view of Guaspet residents in terms of how they were impacted by the introduction of glass beads, which became an important medium for the exchange of goods and labor during the Mission period. Hackel offers important details of how glass beads arrived in Alta California as a result of requests from various colonial institutions and how and why they eventually found their way into the possession of native populations. Hackel focuses a part of his discussion on the Pueblo of Los Angeles and the important relationships it had with Gabrielino/Tongva gentile laborers. These two subsequent chapters offer important insight into how and why Native Californians made the choices they did based on the options available to them, as well as what effects those decisions had on their existence.

The Early Historical Period in the Ballona

Anne Q. Stoll, John G. Douglass, and Richard Ciolek-Torello

The line between prehistory and the Protohistoric period is an arbitrary one. Protohistory is defined as beginning with European contact in a.d. 1542 and proceeding until the establishment of Mission San Gabriel in 1771, when direct and recurrent contact began between the Gabrielino/Tongva and the Spanish (Lightfoot and Simmons 1998:140). The early Historical period (also known as the Mission period) followed, dating from 1771 until secularization in 1834.

Understanding native settlement of the Los Angeles Basin during the Protohistoric period is problematic, because Protohistoric period components have been recognized, much less carefully studied, at so few sites. As Hudson wrote in his work on the proto-Gabrielino, "booming construction has almost totally transformed the aboriginal setting to one of lofty buildings and patchwork areas of tract house developments" (Hudson 1971:51). Based on many assumptions and very few data, the Protohistoric period indigenous population of the greater Los Angeles Basin is conservatively estimated at "more than 5,000 people living in 50 to 100 towns and settlements on the mainland and the southern Channel Islands" (McCawley 1996:3). As Hudson summarized, the coastal subsistence pattern was one of year-round migrations in pursuit of resources, and occupation of coastal *rancherías* in protohistory varied from seasonal to continuous (Hudson 1971:53). Novel trade goods, vague reports of the sighting of foreigners, and perhaps waves of contagious disease may have presaged the arrival of European settlers (Erlandson and Bartoy 1995; Preston 1996, 1998, 2002; but see Lightfoot and Simmons 1998; Johnson 2011). Prehistoric patterns of subsistence and social interaction in the Los Angeles Basin are believed to have persisted until the first permanent settlement was established at the founding of Mission San Gabriel.

Prior to the recent documentation of extensive Protohistoric and early Historical period remains at LAN-62 and LAN-211, the known archaeological evidence dating to these periods was scant in the Ballona. During the 1980s, Archaeological Associates (Van Horn 1987; Van Horn and Murray 1985) identified a small handful of glass trade beads dating to the Mission period at LAN-61 and LAN-63, both located on the bluff tops above the PVAHP area. In addition, reanalysis of Archaeological Associates' published findings and additional data recovery at LAN-61 by SRI (Douglass and Ciolek-Torrello 2007) suggested a stronger Native Californian presence at those sites during the Mission period than had been previously documented. Archaeological Associates, for example, excavated features at both sites that contained *comales* (flat griddles made of steatite) that have been identified as dating to the Mission period (Harrison 1965:163; see also Hudson and Blackburn 1983:196–197). Macrobotanical analysis of a midden at LAN-61 by SRI also suggested Mission period occupation, because domesticates associated with the Mission period were identified (Douglass and Ciolek-Torrello 2007). As discussed in this chapter and others, the archaeological analysis of features and middens at LAN-62 and LAN-211 has offered much more robust and distinct evidence of occupation during the Protohistoric through Mission period than has previously been found in the Ballona.

Mission Records

Of the many innovations brought to Alta California by the Franciscan missionaries, the introduction of writing stands out as one of the few to have left an enduring beneficial legacy. The ability to read and write, believed by some native people to be a magical skill, gave the padres the power to preserve a record of native lifeways. Without the records of the missionaries in general, and those of Missions San Gabriel and San Fernando Rey in particular, we would know almost nothing of the Native Californians of the Los Angeles Basin during the critical time of transition from 1771 to 1834.

That is especially the case for the people of the Ballona, about whom historical records are almost entirely silent. In October 1542, Juan Rodríguez Cabrillo and crew encountered natives on Santa Catalina Island. They also saw them later on the shore in San Pedro Bay but sailed north past the mouth of the Ballona without comment, as did Sebastián Vizcaíno in 1602. The first land expedition to cross the Los Angeles Basin, led by Gaspar de Portolá, apparently passed to the east and north of the Ballona in early August 1769 without ever seeing it or its inhabitants (Bancroft 1884 I:142–143).

When Padres Cambón and Somera arrived 2 years later to establish the new Mission San Gabriel, they found themselves surrounded by "a great multitude of savages" (Engelhardt 1927a:4), attesting to the area's populous nature. Who were those so-called "savages," and were any of them residents of the Ballona? From these first records, they acquired the name "Gabrielino," after the mission's name.

Despite Mission San Gabriel's less than auspicious beginning, during which the wife of a chief was raped and the avenging husband was murdered by one of the Spanish soldiers (Engelhardt 1927a:6), the padres persevered, and a single baptism was recorded for 1771. After that, the "harvest of souls" at Mission San Gabriel progressed rapidly, each name carefully scratched in ink in the padres' leather-bound *tomos*. In their books, the padres of Mission San Gabriel recorded the family names and relationships, the births, the marriages, and the deaths of 4,953 native people, some unknowable, but a significant fraction of the many thousands who once occupied this part of southern California. Frustratingly incomplete though they are, mission records remain the best primary sources of written data about native people. As pointed out by anthropologist Clement Meighan in 1976,

> nearly all of the tribal groups . . . became extinct or heavily changed in their way of life by the time of the American period. . . . First-hand information on these groups is therefore very fragmentary, and we are fortunate in having the testimony of the mission fathers. It must be remembered that the missionaries were the only people to see these California tribes in their true original condition, unaltered by external peoples. Further, the missionaries lived intimately among the natives, particularly during the early days of founding the missions, and their observations are based on daily contact, often over periods of many years and involving detailed study on the part of the missionaries, many of whom spoke the native languages. The missionaries provided the only body of direct observation of many native tribes that will ever be available to us [Geiger and Meighan 1976:3].

The most complete and informative of the mission sacramental records were those made at baptism. Marriage and death records clarify previously recorded data and create a more rounded impression of native life in the mission. Two additional books have proven useful for cross-checking Mission San Gabriel documents: the register of confirmations and the *padrón* of 1824.

Catholic confirmations were conducted periodically at San Gabriel beginning in 1778 and continuing through 1831, with gaps of many years when, after the death of Junípero Serra, the authority to confirm was restricted (Engelhardt 1927a:272; see Hackel 2013:223–226). The 1824 *padrón*, properly entitled *Estado y Condición de las Personas de la Misión de San Gabriel*, recorded the marital status of natives, mainly in the later years of the mission. The book features the names and baptismal numbers of *viudas* and *viudos* (widows and widowers) and *solteros* and *solteras* (single men and women), each listed separately (Santa Bárbara Mission Archive-Library).

Using mission records involves some conjecture, of course; no account of a Native Californian baptismal interview has come to light; so, the exact induction process is not known. In theory, natives entering the mission for the first time were fed, clothed, and tended if ill or injured and were then given basic instruction in Catholic doctrine and practice. By edict, instruction was to be given in Spanish, although that was not always enforced (Beebe and Senkewicz 2001:272). After the teaching, the initiate or "catechumen" was given a new Spanish name and then was baptized as a "neophyte," or beginner, in Christianity.

Theoretically, any person over the age of 9 years required catechistical training before neophyte status could be attained. That requirement could be suspended, but only under special, extreme circumstances. The short time interval between a baptism and the date of burial observed in many Native Californian mission-register entries, along with the occasional note, such as "*in casu necessitatis*" or "*in articulo mortis*" or "*en peligro de muerte*" (in danger of death), meant that a provisional baptism had been performed because the person (most frequently an infant, a *parvulo,* or "innocent") appeared to be dying, and a soul was about to be lost for all eternity. If that occurred outside the immediate mission context, a layperson (always a male) would perform the baptism. As has been documented elsewhere (Douglass 2009), approximately 10 percent of all baptisms were performed outside the mission, primarily by lay ranchers or inhabitants of the pueblo. If a child survived, godparents would be chosen, and the provisional baptism would be completed in a separate ceremony at the mission.

Reflecting these practices, native baptismal records at Mission San Gabriel invariably included the individual's Spanish name and the all-important baptismal number assigned by the recording padres. That number functioned something like today's Social Security number and served to distinguish neophytes that had been given the same common Spanish names, such as Juan, José, or María. The baptismal number was also essential for tracking people through the other sacraments of confirmation, marriage, and last rites at death. Beyond the basic level of identification, the baptismal record also usually included ethnicity ("Yndio" or "Indio" for native), gender, baptismal date, the name(s) of the church officiant and recorder, the death number, and the date of when the person was buried, usually in the mission cemetery. Other data were also sometimes recorded, including parents, age at baptism, native name, godparents, relatives, and place(s) of baptism, marriage, and burial, etc. Marital status at baptism was almost never noted, because the church did not recognize native marriage as such. Age at baptism was apparently a best guess, and when recorded, an abbreviation was frequently used, such as "p" for *parvulo* or "a" for *adulto*.

Native Origin from Mission Records

For the purposes of research into the people of the Ballona, the single-most-important component of the baptismal record is the listing of native origin. The questions for the potential neophyte must have been something like "Where were you born?" or "Where are you from?" The answers captured precious information about the world beyond the immediate individual that was literally available from no other source.

The padres recorded the names of over 100 native-origin places, or "*rancherías*," in the greater Los Angeles area; quantifying exactly how many is made difficult by problems with transcription and orthography. For example, a *ranchería* written most commonly in the baptisms as *Geverobit* is also spelled *Geberobit*, *Geberovit*, *Heverabit*, *Jeberobit*, and *Geveronga*. Different spellings could represent distinct settlements or could have been the results of "mistakes" (misunderstandings, misspellings, and so on) on multiple levels. The search results for Ballona *ranchería* names in the mission records presented special problems in that regard. A discussion of the problem as related to the village of Guaspet is detailed further below.

After some accommodation for spelling variation is made, the problem becomes determining where on the landscape the names belong. For well over a century, researchers have been attempting to locate/place known Gabrielino/Tongva settlements on the map of the Los Angeles area. Unfortunately, although the padres were excellent record keepers, they appear to have had little interest in cartography and thus have not been of much assistance in that endeavor. A photographic copy of a single roughly drawn Mission period map, the "Carta de Rancherias de Indios, San Gabrielinas," is located at the Santa Bárbara Mission Archive-Library (Figure 145). Depicted at an impossible relative scale are Missions San Gabriel, San Fernando Rey, San Buenaventura, and Santa Bárbara. Several major travel routes and ranchos are also shown, along with topographic features, such as mountains, rivers, and the seashore. However, despite its promising title, only 11 native villages were clearly labeled. At the bottom, the map reads "*Hay muchas mas; pero estas son las mas principales*," meaning "there are many more [*rancherías*], but these are the principal ones." The original of the map has been lost, and almost nothing is known about it. Because Mission San Fernando Rey was included on the map, it must date to after the mission's founding in 1797, although it could have been much later.

No specific mention of named Native Californian *rancherías* near Mission San Gabriel has been found in the translated reports and correspondence of the three early Fathers Superior of the California Missions: Junípero Serra, Fermín de Lasuén, and Francisco Palóu (Palóu 1966; Lasuén 1965; Serra 1955a). Large numbers of Native Californian villages in the Los Angeles Basin were described in general terms, as, for example, in a report by Palóu dated December 10, 1773, just 2 years after the mission's founding. Palóu was pleased that Mission San Gabriel had been successful in growing corn and beans, because

> this will be a great inducement, as the Indians are very poor, on account of the scarcity of wild seeds and game. And they lack fish because they are about eight leagues distant from the beach. This distance is all level country populated with many villages which maintain among themselves constant wars, making it impossible for them to go to fish, although they say there is a very suitable beach on the bay of San Pedro, where barks can anchor in safety.
>
> The rest of the broad plain is well populated with heathen in all four directions from the mission, with good sites, timber, an abundance of water and pasture for all kinds of cattle, and even to establish other settlements if it should be judged desirable. . . . Toward the west there is a large grove of live oaks, with much land and several streams of water.
>
> A league and a half farther along the same road is the river of Nuestra Señora de Los Angeles de Porciúncula, which carries all the year enough water to irrigate the large extent of land there, and other streams no less appreciable, all populated with so many heathen that it will be impossible to provide for all who may go to live at the mission [Palóu 1966:III:219–220].

In their work of ministering to the "poor, miserable creatures . . . the aborigines whom we are teaching to be men," as Lasuén (1965:II:220) wrote, the Franciscans amassed a great deal of knowledge about native language, family life, pagan beliefs, and traditional ceremonies. Much of it was compiled via a questionnaire sent to each mission and responded to between December 31, 1813, and August 11, 1815. Those extraordinary *preguntas y respuestas* (questions and answers) were discovered in the archives and translated by Maynard Geiger in modern times (Geiger and Meighan 1976). Although rich with important information about the Gabrielino/Tongva as the padres saw them, the *respuestas* contained nothing about local *rancherías* or their distribution.

Rancherías of the Los Angeles Basin

It was not until 1852, in the early American period, that the first list of native place-names for the Los Angeles area was published. Assembled by Hugo Reid, a Scotsman married to a Gabrielino/Tongva woman, the list of 28 *rancherías* with "corresponding present local names" was featured in the first of a series of 24 weekly articles about local native practices printed by the *Los Angeles Star* newspaper. It has long been assumed that Hugo Reid's informant was his Gabrielino/Tongva wife, Victoria. Curiously, his wife's home *ranchería* of

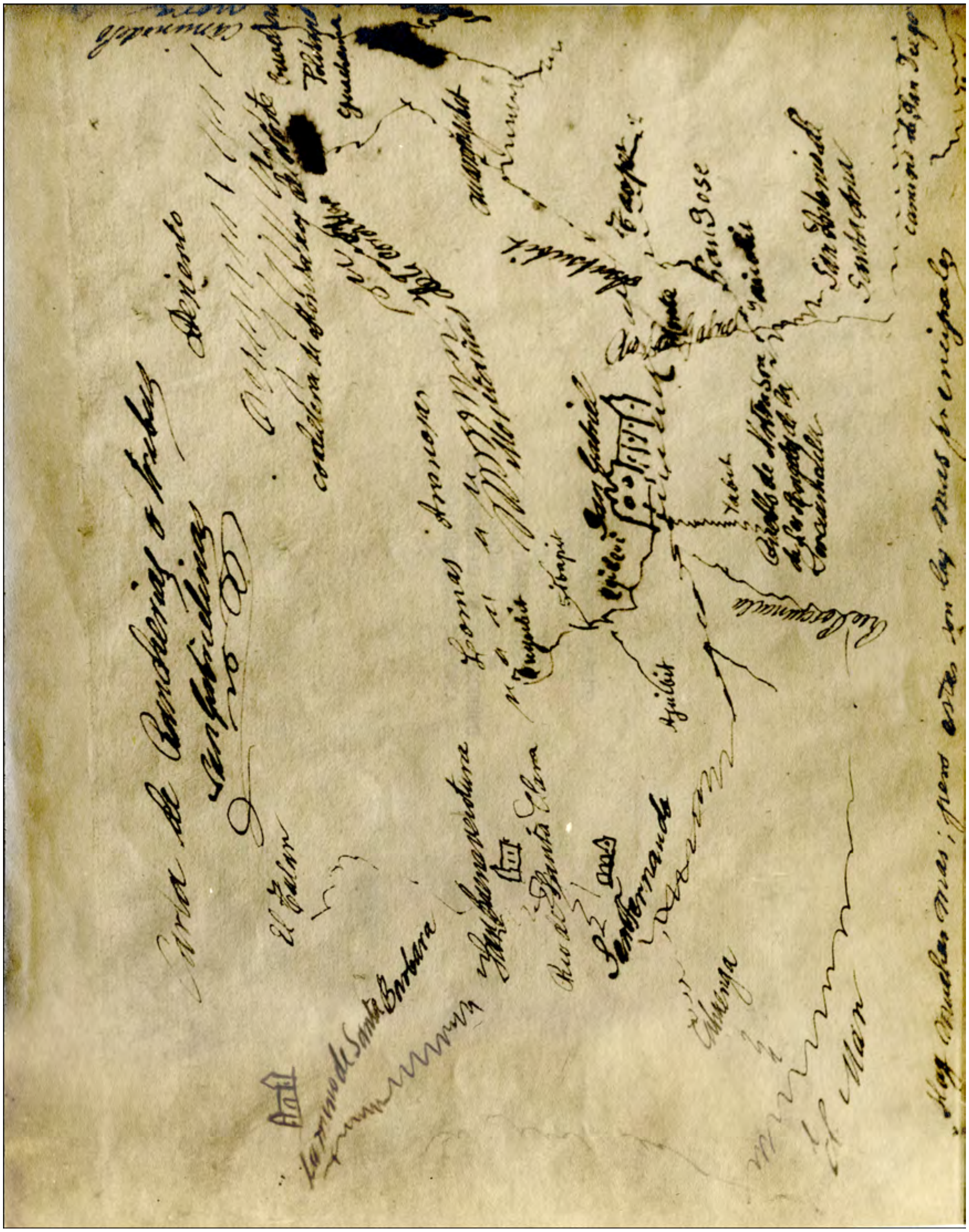

Figure 145. Photographic copy of a map created during the Mission period, showing the locations of rancherías in the greater Los Angeles area (courtesy of the Santa Bárbara Mission Archive-Library).

Comicrabit, which was likely near Santa Monica (King 1994; King and Johnson 1999; Northwest Economic Associates and Chester King 2004), was not included on his list. However, given that the list was published in 1852, Comicrabit—as well as almost all other *rancherías*—would have only been a memory at the time.

Reid's letters have been reprinted at least three times since 1852. Anthropologist Robert Heizer made the most insightful analysis of Reid's data and subsequently published it with the Southwest Museum (Reid 1968). Heizer's cognates and annotations to Reid's letters include the notes that W. J. Hoffman made in 1884 and the work of Alfred L. Kroeber as published in 1916 and 1925 and make reference to Bernice Johnston's 1962 book on the Gabrielino. In addition, McCawley (1996) and King (1994, 2004) offered possible locations for many of these and other *rancherías* in their expansive work on the Gabrielino/Tongva. For his review of mission records, Heizer relied on data that he found in the manuscripts of twentieth-century anthropologist C. Hart Merriam. In 1920, Merriam worked with archivist Stella R. Clemence to comb the registers of Missions San Fernando Rey and San Gabriel, compiling *ranchería* names and noting various spellings and frequencies. Merriam's study, including the mission-record data, remained unpublished in the University of California's archives in Berkeley until Heizer edited it for publication by the Archaeological Research Facility (Merriam 1968).

Among the original papers of Reid's friend Antonio F. Coronel, five different handwritten versions of Reid's list were found. A draft entitled "The Indian Villages, 1849," which apparently was not in Reid's handwriting, provided alternative spellings and additional *ranchería* names not printed in the *Los Angeles Star* (Coronel 479, Seaver Center for Western History Research, Natural History Museum, Los Angeles). Table 71 is the list of *rancherías* Reid published in 1852 augmented by unpublished versions of Reid's names and locations. Also listed are the cognates suggested by Reid (1968), King (1994, 2004), and McCawley (1996). The suggested locations in the table are from their work and that of John Johnson (2006a).

As Heizer pointed out, mission records included many more names than were published by Hugo Reid. From Merriam's research, Heizer found that "there are over 40 Gabrielino villages listed in the San Fernando and San Gabriel Mission baptismal records which [*sic*] do not occur in Reid's list" (Reid 1968:111 n. 25). Two additional *ranchería* lists for the Los Angeles area published early in the twentieth century were also based on work with mission records. The Reverend Father Eugene Sugranes, after "diligent research" in the registers, published his 1909 "souvenir of Mission San Gabriel history," which included 114 *ranchería* names, over four times as many as in Reid's list (Sugranes 1921:104). Unfortunately, Reverend Sugranes did not attempt to update Reid's correspondences to known place-names. Father Zephyrin Engelhardt reprinted his colleague's list in his book on Mission San Gabriel in 1927 but likewise left it merely a list (Engelhardt 1927a:356).

In compiling their summaries of *rancherías* in the Los Angeles Basin, both King (1994, 2004) and McCawley (1996) used those same sources but, in addition, gave special emphasis to the unpublished work of J. P. Harrington, as well as studying the mission records themselves. Even with those data, the effort to locate/place Gabrielino/Tongva settlements on the modern map requires skill, educated deductive reasoning, and perseverance. McCawley glumly concluded that, "unfortunately, little or no locational information is presently available for many of the communities named in the mission registers" and that archaeological investigations had been "of limited value in identifying even the largest Indian communities in southern California" (McCawley 1996:32). He did, however, offer some ideas of general locations in his work (e.g., McCawley 1996:Maps 5–8).

In the Ballona, however, diligent archival research has connected the area of the Ballona with a known Gabrielino/Tongva *ranchería* called Guaspet or Guasna. Although we investigated two subsurface deposits with dense Mission period remains, we can only hypothesize that they were directly connected to that village, because it is likely that such a direct link can never be made. Not surprisingly for such a difficult task, the first steps in archival research and village names headed in the wrong direction. Initially, the search in the Ballona was for a village called Sa'angna.

Sa'angna and Suangna

Even though the name never appears in the registers of Mission San Gabriel, conventional twentieth-century ethnographic wisdom placed a Gabrielino/Tongva village named Sa'angna somewhere in the Ballona. Anthropologist A. L. Kroeber started the search for the village when he marked the Gabrielino/Tongva word *Sa'an* at the shoreline near modern Playa del Rey. He based his placement on information from "an old Luiseño informant" who connected Sa'an to Rancho la Ballona (Kroeber 1907:143–144). A decade later, J. P. Harrington changed the spelling to *Saa'an* and shifted its location to the Machado Ranch in Culver City. According to Harrington's informant, the "old Machado Ranch at La Ballona was Saa'an, location of *saanat*, pitch, tar" (McCawley 1996:61).

Thus, the groundwork was laid for an interpretive leap that initially sidetracked the hunt for named *rancherías* in the Ballona. Despite Kroeber's caution that native names were sometimes "designations of the principal village on the concession, others of the particular spot on which the ranch headquarters were erected, still others of camp sites, or hills, or various natural features" (Kroeber 1907:616), this Gabrielino/Tongva word for "tar seep" (perhaps correctly applied to oil-rich portions of the Ballona and Baldwin Hills, as evidenced by the area's hosting hundreds of oil wells during the Historical period) was transformed into a proper place-name by Bernice Johnston in her widely read Southwest Museum publication, *California's Gabrielino Indians* (Johnston 1962). She added the Gabrielino/

Table 71. Hugo Reid's List of *Rancherías* of the Los Angeles Basin, with Modern Cognates and Suggested Locations

Reid's *Ranchería* Name	Possible Cognates	Reid's Location	Suggested Location
Acurag-na	Acurabit, Akuuronga, Akurangna	The Presa (dam)	near the dam, between La Presa Street and San Gabriel Boulevard, on the northern side of Huntington Drive (M), north of Mission San Gabriel (K)
Aleupkig-na, Alcupkig-na	Almpquia-na, Aluupkenga, Ahapchingas	Santa Anita[a]	Arcadia, Sierra Madre area (M)
Asucsag-na	Asucsabit, Acuzabit, Ashuukshanga	Azusa	south of the mouth of San Gabriel River canyon (M)
Awig-na, Ahuig-na	Awizna, Ajuibit, Ajuinga, Ahwiinga, Ajuenga	La Puente	Puente Hills (M)
Cahueng-na, Cabueg-na	Cabuepet, Cabuenga, Caguenga	Caliuenga [*sic*]	at Universal City, near Cahuenga Pass (M, K)
Chokishg-na	Chokiishnga	The Jabonería, Governor Gage's	the "soap factory," on the west bank of the San Gabriel River, in Bell (M)
Chowig-na, Chohuig-na	Chaubit, Chaubipet, Chaawvenga, Tsauvinga	Palos Verdes	near San Pedro (M)
Cocomog-na, Cucomog-na	Cucamonga, Cucamobit. Cucamobuit	Cucamonga Farm	Rancho Cucamonga
Hahamog-na	Haahamonga, Jajamobit, Hahaonuput, Jajamonga	Rancho de los Verdugos	Rancho San Rafael, north of Griffith Park (M); Rancho La Zanja, Portezuelo (K)
Harasg-na	Haraasnga		San Nicolas Island? (M), near San Pedro?
Houtg-na	Huutnga, Jautbit	Ranchito de Lugo	also near La Jabonería (the soap factory), Bell Gardens? (M); Jautbit was at El Monte (J)
Hutucg-na, Hurtucg-na	Hotuuknga, Jutucubit, Jutubit, Jutucunga	Santa Ana *arriba* (Yorbas)	site of the Bernardo Yorba Adobe, Santa Ana Canyon (M)
Isanthcag-na	Iisanchanga	Mission Vieja	Whittier Narrows area (M)
Kinkipar, Rimkipar	Kinki, Guinguina, Guinquipat, Kiinkenga	San Clemente Island	San Clemente Island (M)
Maug-na	Maawnga, Mauga, Mauvit	Rancho de los Felis	near Griffith Park, at Los Corralitos (M, J)
Nacaug-na	Naxaaw'nga	Carpenter's Farm, Carpinteria Ranch	site of the Nieto Carpenter Adobe in Los Nietos (M)
Pasecg-na	Pasheeknga, Passenga, Pasecuvit, Pasiknga	San Fernando	just east of Mission San Fernando (M, J), Porter Ranch sites (K)
Pasinog-na, Pasunog-na	Pashiinonga	Rancho del Chino	near modern Chino (M) or near Santa Ana? (M)
Pimocag-na	Pimocabit	Rancho de los Ybarras	Walnut (near Pomona) (M), Los Coyotes?
Pineug-na, Pimeug-na	Pimugna, Pimubit, Pimunga, Pumunga, Pima	Santa Catalina Island	Santa Catalina Island (M, J)
Pubug-na	Pububit, Puvuvit, Povuu'nga	Alamitos	site of the Rancho Los Alamitos headquarters (M)
Sibag-na	Sibapet, Sibanga, Sibap, Shevaanga, Simbanga	San Gabriel	in a ravine near Mission San Gabriel (M)
Sisitcanog-na	Siutasegena, Siutcabit, Siutcanga, Siuccabit	Pear Orchard	Encino (M, J); Ventura and Balboa Boulevards (K) or near San Marino (M)
Sonag-na	Sonaanga	Mr. White's farm	Michael White ranch in South Pasadena (M)
Suang-na	Soabit, Suanga	Suanga	Long Beach (M), Wilmington (K)
Tibahag-na, Fibahag-na	Tibajabet, Tivajavet, Tiba, Tibajanga	Serritos	Rancho Los Cerritos headquarters, Long Beach (M); Torrance (K)
Toybipet, Tobybipet	Toibipet, Toibit, Tooypinga	Rancho San Jose	Pomona area (M), near Los Angeles County Fairgrounds, Pomona (K)
Yang-na	Yanga, Yabit, Yavit, Yaanga	Los Angeles	near the Civic Center (M); downtown, near Union Station, Olvera Street, and the Plaza church (K)

Key: K = King 2004; J = Johnston 1962; M = McCawley 1996.
[a] King (2004:67) equated Jaibepet with Santa Anita.

Tongva locational suffix, *-gna* to *Sa'an* and thereby created the "traditional village" of Sa'angna, which she placed on top of the Westchester Bluffs on her map (Johnston 1962:94).

When archaeological work on and below the bluffs began in earnest in the 1980s, the search logically began for the village site of Sa'angna. In 1983, King and Singer proposed to test the Peck site (LAN-62), located at the base of the Westchester Bluffs, believing it to be the site of "Suangna" (King and Singer 1983). Although they may have had the right idea about the location of a significant village site, those investigators did not pursue the project. Instead, they created another layer of error to the search by adding to the mix Suangna (or Suanga), properly the name of the ethnographically known village located just north of the modern city of San Pedro.

In the late 1980s and early 1990s, the hunt for Sa'angna shifted farther north from the bluffs to the Ballona lowlands. During investigations at the Admiralty site (LAN-47), located in Marina Del Rey, a possible connection to Sa'angna was carefully investigated (Altschul, Homburg, and Ciolek-Torrello 1992). Through radiocarbon dating and analysis of artifacts, the authors demonstrated that LAN-47 had been abandoned by a.d. 1200, more than 550 years before the Portolá expedition, and thus, that site could not be the remains of an early Historical period village. Politics overruled science, however, and the Los Angeles Cultural Historical Commission declared the Admiralty site to be Sa'angna, Historic-Cultural Monument No. 490.

The consensus today among ethnohistorians is that there never was a Gabrielino/Tongva *ranchería* named Sa'angna. No such name has been found in the mission records or on any list of ethnohistoric villages in the Los Angeles area. John Johnson, who undertook a review of the question in 1991 for the PVAHP, wrote:

> All the speculation regarding *Sa'angna* is apparently based on Kroeber's and Johnston's publications, which were in turn based on very late ethnographic research (probably from a single Gabrielino consultant, José de los Santos Juncos, who was interviewed by both Kroeber and Harrington in the early twentieth century). I have searched to no avail for *Sa'angna* in the lists of Gabrielino village names recorded in mission registers (Merriam 1968; Munoz 1982). My suspicion is that *Sa'angna* is either (1) simply a Gabrielino place-name instead of a village or (2) the Gabrielino name for a settlement of Indian laborers associated with one of the Spanish/Mexican ranchos in the Ballona vicinity [Johnson 1991:1].

So the question remained: was there *any* Gabrielino/Tongva settlement in the Ballona that persisted into recorded time, and if so, if not Sa'angna, what was its name? The answer becomes important when the connection to the mission registers is understood, as previously explained. If the *ranchería* name can be determined, the link can be made to its Historical period inhabitants via the mission's sacramental records in which birth origins were listed. Real people with names, ages, and family ties could thus be connected to archaeological remains in the ground. As research began to expose the sites at Playa Vista, the hunt resumed to bring the correct *ranchería* name for the area to light. After the Admiralty site excavations, and early on in the history of the PVAHP, the presence of a Mission period settlement wasn't clear. Although there had been some Mission period remains found by Van Horn and colleagues on the bluffs overlooking the PVAHP area, the evidence was scant (Van Horn 1987; Van Horn and Murray 1985). Later, during the late 1990s and early 2000s, when Mission period artifacts were found at LAN-211 and LAN-62 in solid contexts, it became clear that there had been such a settlement present.

From Waachnga to Guaspita to Guaspet

The simple fact is that the correct name for the Gabrielino/Tongva *ranchería* located in the Ballona, *Guaspet*, has never been lost. It has been omitted, overlooked, discarded, and confused but not quite completely lost from recorded memory. Like the archaeological deposits to which it is likely related, the name *Guaspet* has amazingly survived the centuries in its proper location in the Ballona.

A faint recollection of the name was alive in 1912. The source of the following quote was a single sheet of paper found in the archives of the Natural History Museum of Los Angeles County. Dated February 16, 1913, it was written by an unknown hand at "the Palms, Los Angeles County," and accompanied a donation of human remains. The letter (with original grammar and spelling preserved) reads:

> In January, 1912, the [Los Angeles] County employees were working on the County Road leading to Playa del Rey, and while excavating they dug these bones that were buried in the adobe soil. This is the reason of the bones being black. These bones are of an Indian. Not far from this place, it was known that there was a ranchería, now [near] where the motordrome was located at Playa del Rey. This Indian tribe is unknown, but it is presumed it belongs to the Ca-wee-a tribe. [Note: This appears to have been a confusion with the Cahuilla, a tribe related to the Gabrielino.] According to information of one of the old-timers, Sr. Reyes, reports that in early history there was a ranchería at the entrance of the Inglewood Canyon and this ranchería was known as Wa-cha. These Indian bones I present were found by Sr. Ramon Urquidez and Sr. Antonio S. Machado [Donation 330, Natural History Museum of Los Angeles County, Anthropology Department].

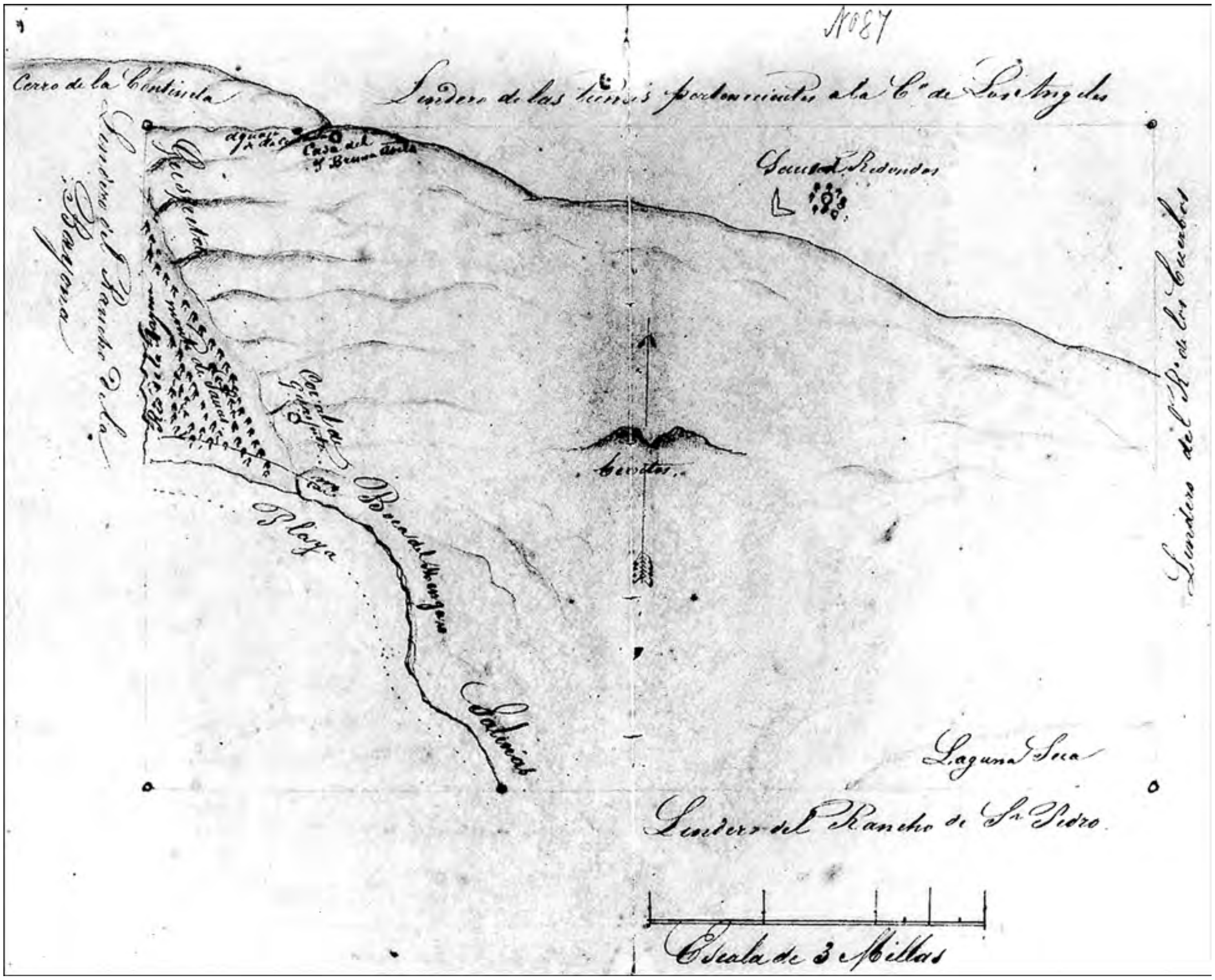

Figure 146. Diseño of Rancho Sausal Redondo. Note the locations of Guaspita and Coral de Guaspita in the upper-left corner of the map (courtesy of the California State Archives, Sacramento).

Thus, in 1912, local people remembered that Native Californians lived in the Ballona at possibly two locations: at the mouth of Inglewood Canyon and near the Motordrome. The city of Inglewood is several miles east of the PVAHP area, whereas the Motordrome (an early automobile-racing track dating to the early 1910s) was located in Area B of the project area, near the intersection of Culver and Jefferson Boulevards. This information suggests that the village called "Wa-cha" was located *below* the Westchester Bluffs.

In his book on the Gabrielino entitled *The First Angelinos,* William McCawley presented several arguments by Harrington's informant, José Zalvidea, in favor of locating a *ranchería* named "Waachnga" on top of the Westchester Bluffs, above the Ballona. Conflicting information had been obtained that also placed Waachnga "not far from Long Beach" and near a Catholic church in Wilmington (McCawley 1996:61). There was also a similar village name associated with the San Bernardino/Redlands area (see discussion below). However, comparing the many spellings of the name with which he was familiar, McCawley made the connection between Waachnga, Guashna, Guashpet, and Guaspet with Guaspita, a place-name shown on the bluffs on the *diseño* (land-grant map) for adjoining Rancho Sausal Redondo (Figure 146). Earlier, King (1994) had made a similar connection, arguing that the *ranchería* was somewhere in the Ballona area, based in part on a corral associated with the name *Guaspita* on the Ballona *diseño* and the title *Rancho Guaspita* associated with Rancho Sausal Redondo (see our discussion of these documents below). McCawley concluded that "the similarity of names suggests that Guaspita was derived from the earlier Gabrielino place name, and that the grant included the site of Waachnga within its boundaries" (McCawley 1996:63). Although current research has favored a slightly different interpretation, in fact, McCawley was on the right track.

There was opposition to that interpretation, however. Within the year following the book's publication, archaeologists David Van Horn and Laurie White, excavators of several sites on top of the Westchester Bluffs, challenged the identification of Guaspita as Waachnga (Van Horn and White 1997a). They

Table 72. Names Omitted from Reid's 1852 Published List of *Rancherías*

Indian Name, as Written in 1849	Place Name, as Written in Spanish in 1849
Mocobeg-na	Mocovenga
Huaspig-na	Guaspita
Malig-na	Maligo
Nihuil	Niguil
Tajevla	Tojavte

felt that McCawley had misread the orientation of the Sausal Redondo *diseño* and that because "no dot accompanies the label," the word *Guaspita* must represent a topographic feature, not a specific location (Van Horn and White 1997a:4). They felt that "Guspita" (or Guaspita) was "a Spanish diminutive of the Indian word Guacho meaning 'highland' or something similar" and that it was not connected to Waachnga. They concluded that "Guspita was a descriptive term and did not refer to a village location" (Van Horn and White 1997a:4).

Historical period documents in the Coronel Collection dispute that conclusion. As discussed above, for unknown reasons, Hugo Reid did not publish everything he knew about Gabrielino/Tongva *ranchería* names and locations in 1852. The last five entries on the 1849 version of Reid's list are the *ranchería* names shown in Table 72. Although all of the names in Table 72 merit further investigation, the second entry is the one relevant to this study. Reid unequivocally depicted a direct correspondence between the phonetically written *ranchería* name *Huaspig-na* (Waachnga) and the place name *Guaspita.* That connection was made in 1849 by Reid's original informant.

McCawley listed five variations in spelling for the name *Waachnga* based on Merriam's (Clemence's) research in the mission records: Guasna, Guashna, Guaspet, Guachpet, and Guashpet (McCawley 1996:61). In fact, Merriam listed nine cognates for *Guaspet* and three for *Guasna* (Merriam 1968:109) and apparently was the first to understand that those names represented two distinct villages—a source of endless frustration for Harrington and subsequent researchers (McCawley 1996). The most frequently found spelling in the mission records for the *ranchería* in the Ballona was *Guaspet*, whereas the other *ranchería*, located in San Bernardino County near Redlands, was frequently written *Guaschna*, *Guaaschna*, or *Guahaschna* (see Bean et al. 1995:V-149), with a second, or longer-sounding, "a" in the name as well as without. However, the orthography of the many variations of the two village names brings them even closer in appearance and harder to separate. For example, the double "a" and the "p" sound are present in cognates of both place-names. As will be discussed below, even with the distinctiveness of the two names based on a double "a" or additional "ha" in the middle, mission recorders at times mixed the two spellings in baptismal, marriage, and death records for the same individual or recorded unique cognates. A full review of baptismal, death, marriage, and related mission records for each individual entry was necessary to determine the connections between villages along the coast and those in the interior of the Los Angeles Basin.

Resolving the question of the proper spelling(s) of *Guaspet* requires a full-circle return to the Mission San Gabriel records. Only one method for distinguishing the two villages from one another has proved reliable: tracking each individual who might have lived at Guaspet through all available sacramental records and comparing the data. For example, a native person baptized at Mission San Gabriel whose origin was recorded as Guachpet might later have her/his origin listed as Guaspet or Guaschna on a marriage or death register. A simple list of all people with Guaspet as the origin at baptism does not reveal the important interconnections among individuals or orthographic changes in the place-name through time. In several cases, individuals within the same family had origins with different spellings of the same village, making clarification difficult, including spellings that normally suggest the *ranchería* in the San Bernardino area. For example, as shown for Guaspet Family 2 in Appendix 8.1, five out of six family members (three generations, including grandparents, parents, and children) had Guaspet listed as their origin in baptismal records, whereas the sixth family member (José María, SG Bap 4449[1]), was listed as being from Guaaspet. That is interesting, partly because José María's brother, José Ygnacio, was baptized immediately before José María but had a different spelling for the same village. By identifying family members from Guaspet and cross-checking their recorded baptismal records with subsequent marriage, confirmation, and death records, we have been able to come to conclusions about origins with greater confidence than had we simply used baptismal data alone (Figure 147). One padre in particular, Father José M. Zalvidea, who officiated from 1806 to 1827, was a particular source of confusion in the spelling of *Guaspet* vs. *Guaschna*. All factors had to be considered in reconstructing the population of Guaspet (see Appendixes 8.1–8.3). Table 73 summarizes the correct variant spellings for Guaspet, the *ranchería* in the Ballona, from all available sources.

Guacha to Guacho to Guaspet

Diverse spellings of the name *Guaspet* seem to be more the norm than the exception. For example, it was spelled *Gaucha* on the 1937 Kirkman-Harriman map (Figure 148). That spelling clearly transposed the "a" and the "u"; the corrected version should have been *Guacha* or *Guacho*. On the map, Gaucha and a teepee symbol representing an "Indian settlement" were placed in the Ballona, west of Lincoln Boulevard.

1 Codes for mission records are as follows: Bap = baptismal record; Death = death record; LA = Pueblo of Los Angeles church; Marriage = marriage record; SG = Mission San Gabriel; SJC = Mission San Juan Capistrano.

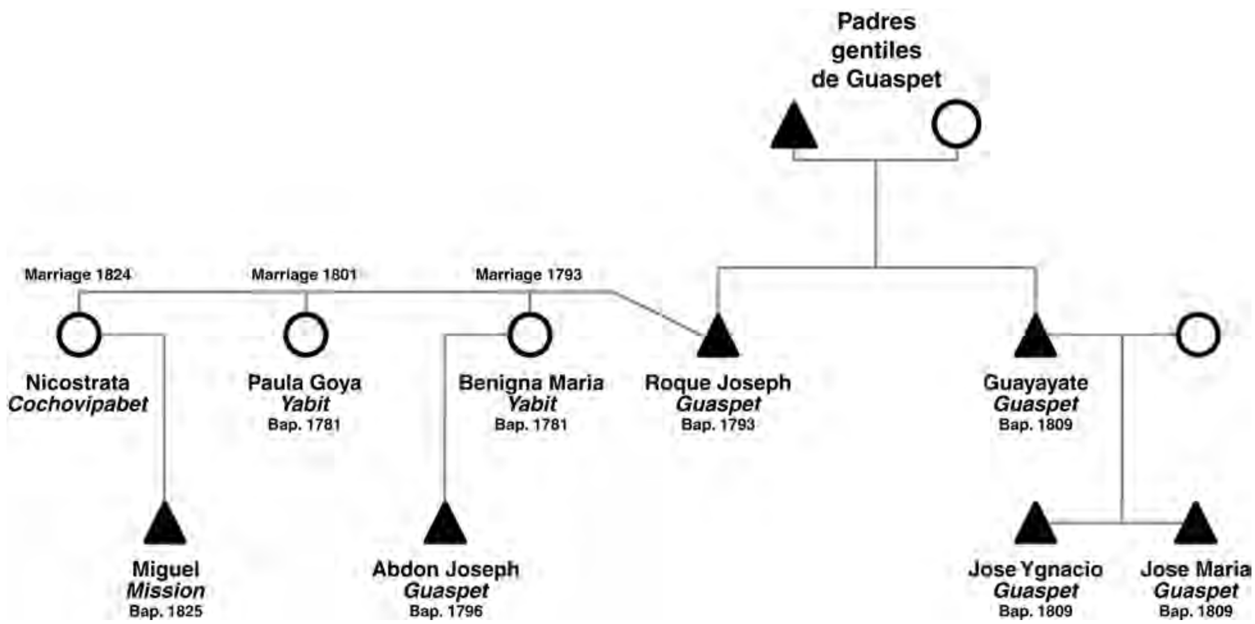

Figure 147. Family tree of Guaspet Family 2 (see Appendix 8.1 for all Guaspet families).

Table 73. Variations of the Name *Guaspet*

Linguistic Spelling	1839 *Diseño*[a]	Reid 1849[b]	1913 Source[c]	San Gabriel Mission Registers
Waachnga	Guacho, Guacha	Huaspig-na	Wa-cha	Guaspet, Guaspez, Guaspit, Guaaspet, Guachspet, Guachpet, Guasapet, Guaharpet, Guahaspet, Guasna, Guaschna, Guashna, Guahasna, Guashpet, Guhaaspet, Guaguanbit, Guaspe, Guaasna, Guaaschpet, Guachsna, Guaspete, Huaspet

[a] 1839 *diseño* for Rancho la Ballona (see chapter text).

[b] Hugo Reid's list of *rancherías* (see chapter text).

[c] Natural History Museum of Los Angeles County (1913).

The line of the cliff was not shown, but both Centinela and Ballona Creeks were clearly depicted. The teepee symbol was placed alongside Centinela Creek.

Thus, *Guacho*, as another cognate of *Waachnga*, denoted a specific, named Gabrielino/Tongva *ranchería* in the Ballona. But might it also have evolved into a descriptive term meaning "highland," as Van Horn and White (1997a:3) maintained? Apparently, W. W. Robinson's informant Cristóbal Machado thought so (Robinson 1939b). Robinson (1939b) stated that "on old maps the cliffs of Ballona's easterly boundary are labeled 'Guacho,' [and] sometimes 'Huacho,' an Indian term meaning high place." The word was clearly used to denote the bluff itself, the vertical cliff face (*not* the bluff top), because Robinson continued that "it was against these cliffs that the Indians built their brush-and-mud huts" (Robinson 1939a:104, 1939b:1). The name *Guacho*, derived from *Guaspet*, appears to have been a topographic referent, one specifically used for the area below the bluff, after the *ranchería* of that name had ceased to exist. Examination of land-trial records from the 1840s suggested that high points on the landscape in the Ballona were routinely used as reference points for rancho boundaries, and the terms *Guacho* and *Huacho* were specifically used in those documents (see below). Robinson continued with the comment that Cristóbal Machado knew of two separate settlements of Native Californian laborers living below the bluffs on the Rancho la Ballona, the Mexican land concession that formerly occupied the area. One Native Californian settlement was near the Machado residential complex, and the other was below present-day Loyola Marymount University (Robinson 1939b:6).

Robinson, a thorough researcher with access to the vast archives of his employer, Title Guarantee and Trust, seems also to have used the original *expediente,* or land-case file, for Rancho la Ballona. Depositions were taken in that case, and in testimony given in 1840 by Policarpio Higuera, *Guacha* was used to denote the bluff. Higuera described the land as "bounded in the direction of *the Guacha*." José Juan Baldez's testimony from the same *expediente* used the word slightly differently.

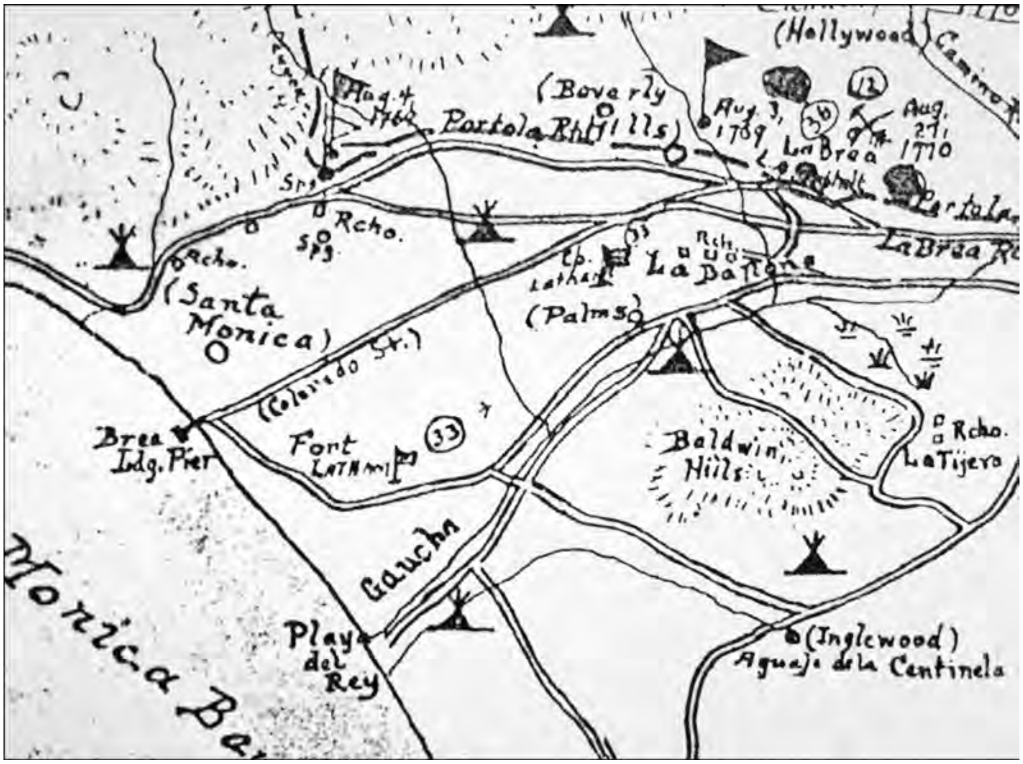

Figure 148. Map showing the location of Guacha (adapted from the 1937 Kirkman-Harriman pictorial and historical map, Charles Von der Ahe Library, Loyola Marymount University).

He was quoted as saying that "the land is bounded . . . along the banks of *the Huacha* as far as the mouth of the Estero" (Expediente 184, California State Archives, Land Case Files, Southern District of California, Sacramento). Both of those sources used the term *Guacho* to refer to the bluff face.

Two versions of the original La Ballona *diseño* that accompanied the land case are on file at the California State Archives in Sacramento. In the sketchier, less-detailed version, *Guacho* is written on the western side of the eastern rancho boundary, perhaps demarking the base of the bluffs (Figure 149). On the cleaner, more-finished version, the word *Guacho* appeared to refer to land on top of the bluff (Figure 150). Placing Guacho on top of the bluffs has led to considerable confusion since the Historical period.

Guaspita and the Sausal Redondo

From the arguments presented above, the direct link between the names *Guacho*, *Guaspet*, and *Guaspita* has been made clear. Do all these names refer to the same place? The answer is a qualified "yes." The confusion stems from documentary evidence that appeared to place Guaspita and a corral of that name on top of the Westchester Bluffs, whereas *Guacho* apparently referred to a settlement below the bluffs. In fact, distinguishing the two may be splitting hairs, because native Guaspet was likely not one location but a broad area in the Ballona that included all the habitation sites both above and below the bluffs. However, the source of the label *Guaspita* is a rancho land map and not a mission record, as was the case with *Guaspet*; thus, the idea that it might refer to an occupied place needs to be examined.

The name *Guaspita* is associated with the Spanish land concession Sausal Redondo, which adjoined Rancho la Ballona on the south, now the site of the present-day city of Westchester. The *diseño* for the Rancho Sausal Redondo showed the names *Guspita* and *Coral de Guaspita* in two separate locations, at what appears to be the very edge of the bluff, overlooking the "Rio de la Bayona" (Ballona Creek) (see Figure 146). The name *Guaspita* was not shown on any map of Rancho la Ballona, although an unnamed "corral" was clearly depicted below the bluff on both *diseños* for that rancho (see Figures 149 and 150).

Antonio Ignacio Avila, born about 1781 in Villa del Fuerte, Mexico, arrived with his family in Alta California in 1783. Cornelio Avila, Antonio's father, initially settled the family in Santa Bárbara. By 1798, the Avila family was living in the Pueblo of Los Angeles (Mason 2004:75). Antonio Ignacio Avila served as *regidor*, or elder in pueblo civic affairs, in 1820 and 1821. He pursued a career as a ranchero until 1835, when he was appointed *Juez de Campo*, a position of some responsibility. He served in that capacity until 1848

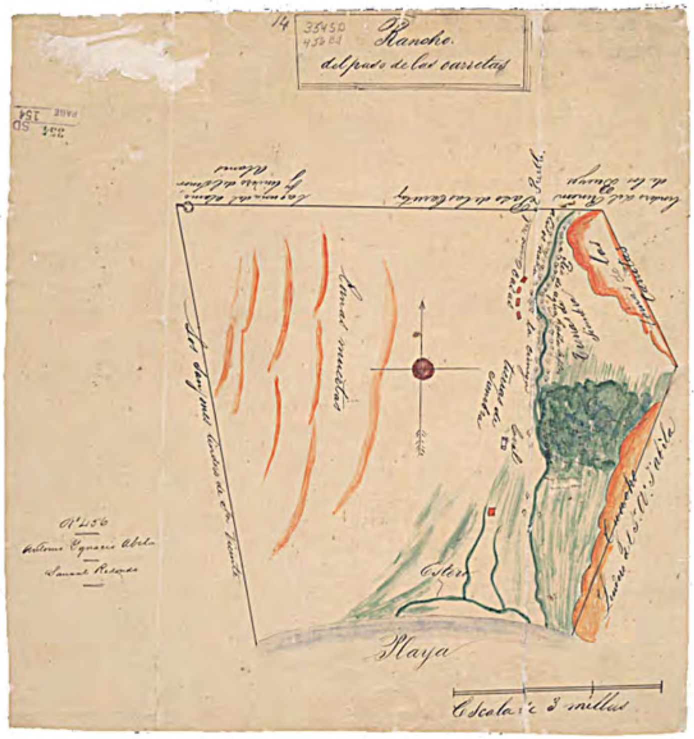

Figure 149. Location of Guacho on one version of the 1839 diseño for Rancho La Ballona (courtesy of the California State Archives, Sacramento).

(Northrop 1987:53–55). As Cleland related, "the Juez de Campo, or Judge of the Plains, presided over each rodeo [roundup], settled disagreements involving the ownership of cattle or the interpretation of some rule or custom, and had authority to order the arrest of cattle thieves and of 'vagrants, vagabonds, and dangerous and suspicious persons.' The office was therefore one of recognized dignity and responsibility" (Cleland 1941:77).

In 1822, the year Mexico won its independence from Spain, Avila asked for and received a provisional concession to the Rancho Sausal Redondo, a desirable tract of pueblo land of some 5 leagues in extent (Cowan 1977:96). Avila's claim was repeatedly challenged, and at the time of his death in 1858, the grant had still not been confirmed (Northrop 1987:53). According to testimony from a dispute in 1836, three named locations were included in the concession: "Ojo de Agua de la Sentinela" (the abundant waters later known as the Aguaje de Centinela, which eventually became a separate concession), "las Salinas" (the salt ponds located on the border of Rancho San Pedro), and "Guaspita," or "Coral de Guaspita," a communal corral for holding cattle and horses collected during the annual rodeo (Expediente 87, California State Archives, Land Case Files, Southern District of California, Sacramento). Those resources had traditionally been part of the *ejido*, or common land of the pueblo, since its founding and were supposed to be kept available for use by all settlers (Mason 2004). Although the terms of the concession stated that access would be allowed, on the ground, the actual control was in Avila's hands.

No mention of Native Californian settlements could be found in either of the two *expedientes* (Expedientes 87 and 354, California State Archives, Land Case Files, Southern District of California, Sacramento) for Sausal Redondo, but that was not surprising, because acknowledging a resident native presence could have further jeopardized Avila's claim. An important step in petitioning for a land grant was establishing that the land was vacant and "not claimed by the Indians" (Aviña 1932:20). Litigation between Avila and Ygnacio Machado over the border between Sausal Redondo and Aguaje de Centinela produced the information that Guaspita was occupied by "diverse individuals," but unfortunately, no additional description of Guaspita was included.

> The land petitioned for is distant from the City, two leagues, a little more or less; it is irrigable, and adapted to sowing and grazing purposes; it includes on the Western side, some places occupied by diverse individuals, who have stock upon the same; among these are the lands called Guaspita, Corral of the same name, Manu de Sausal, the boundaries of la Bayona, and that of the Sitio de la Centinela [Expediente 87, California State Archives, Land Case Files, Southern District of California, Sacramento].

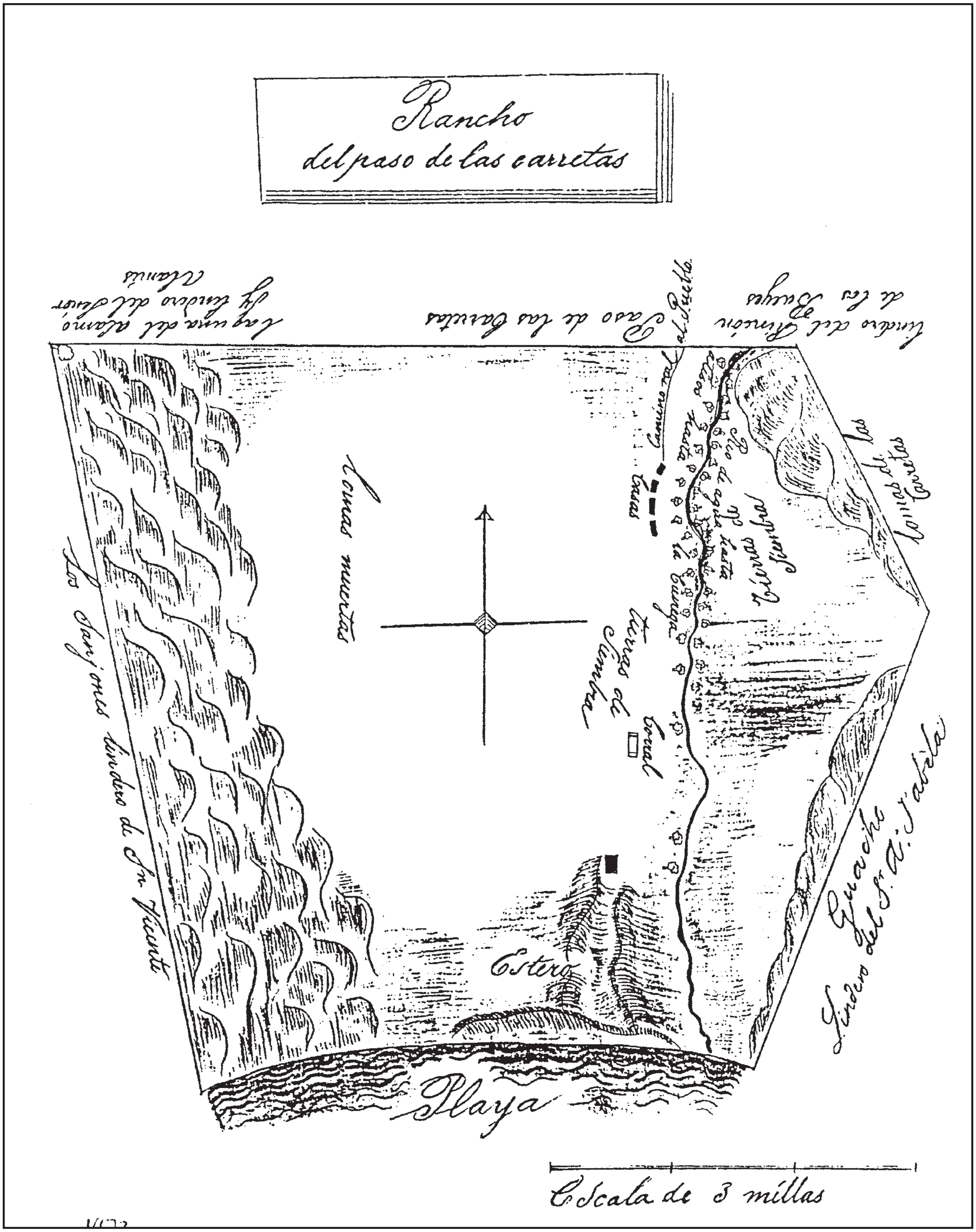

Figure 150. Location of Guacho on a different version of the 1839 diseño for Rancho La Ballona (courtesy of the California State Archives, Sacramento).

In subsequent depositions relating to Sausal Redondo, the only reference to Guaspita was found in testimony regarding the use of the *salinas*, or salt ponds. In 1857, the dispute centered on which side of a boundary line the *salinas* were located. In his statement concerning the border between Sausal Redondo and San Pedro, José del Carmen Lugo related that

> about the close of the year 1833 and at the beginning of 1834, my father bought a part of the cattle of Gutiérrez. When he had chosen those cattle he put me [to] work on the Rancho of San Pedro and he marked out ____ [illegible] and showed to me where I was to take . . . these Gutiérrez cattle, and he particularly instructed to me not to pass over this line dividing the Rancho of San Pedro from the Common Lands of Los Angeles. And he told me that whenever I was planning to have a Rodeo on the other side of this line that I should apply to the Judge of the Plains, that he might give [announcement of] Rodeos upon those Lands lying to the north of the line. . . . [The rodeo places were] on the Salinas or near them and at "Guaspita" and at a small hill on the plain called "Cerrito" [Expediente 354, California State Archives, Land Case Files, Southern District of California, Sacramento].

The deposition of Juan Ramirez, taken January 19, 1857, added slightly more information about Guaspita:

> I have known the line [between Sausal Redondo and San Pedro] about 26 or 27 years. . . . I have been a cattle herder. I was three years acting as Mayordomo on the rancho of San Pedro for Gutiérrez and had charge of the cattle of Gutiérrez and also the cattle of the Dominguezes on said rancho. This was about 24 or 25 years since. [The rancho on the north side of the line is] the Rancho of Guaspita, Sentinella, Sausal Redondo, and the Salinas. These are different localities on the Rancho Sausal Redondo where they had corrals, for herding cattle [Expediente 354, California State Archives, Land Case Files, Southern District of California, Sacramento].

His testimony made clear that perhaps as early as the 1820s but certainly by the 1850s, the name *Guaspita* referred specifically to a corral located within the boundary of the Rancho Sausal Redondo. As discussed above, the corral was shown on both the Ballona and Sausal Redondo *diseños*. About the second place marked on the *diseño* with the name *Guaspita*, north of the corral near the Aguaje de Centinela, nothing more is known.

In addition to these two *expedientes* that are clear, in the California State Archives with Sausal Redondo's Expediente 87, there was an additional odd, undated *diseño* purporting to represent Guaspita that created more questions than it answered. No structures or settlements were shown, and it was of questionable relation to the Ballona (Figure 151). The translated legend that accompanied the *diseño* read:

> Explanation that clarifies this simple plan:
>
> From the number 1 to the number 5, [the latter] being the lake of the Rosa de Castilla, it is a league and a half [or] a little less. From the number 1 to the number 11, it is less than half a league. From the number 2 to the number 4, the former being the mesa of the Abilas and the latter the Potrero Grande, it is less than a quarter of a league. From the number 3 to the number 2[?], the former being the pasture of the governor and the latter being the arroyo of the [illegible], it is half a league. The number 2 consists of the marsh, the number 11 is the beach.
>
> Note that the numbers 6 and 7 are lakes that are named of the [illegible]. The number 5, which is the Rosa de Castilla, has, as distance from number 11, which is the beach, half a league.

Although the legend mentioned the "mesa of the Abilas" (after Avila), which could be the Westchester Bluffs, it also contained two references to the Rancho Rosa de Castilla, formerly located on Eastern Avenue (Cowan 1977:69), now miles to the north of the Ballona, perhaps in the El Sereno district of Los Angeles. The discussion of the "pasture of the governor" may have related to common land (*ejido*) used by the residents of the pueblo that had originally included the Ballona (Mason 2004). If only the "explanation" did clarify the "simple plan."

The People of Guaspet

With the name *Guaspet* more firmly associated with the greater Ballona area through documentary sources, mission records could be queried via the ECPP database (http://www.huntington.org/Information/ECPP.htm) for information about the people who lived there during the early Historical period (see also Temple [1962] for abstracted data).

Working with Merriam's numbers, Reid (1968:112) estimated that 91 individuals "from Guaspet" were baptized at Mission San Gabriel. Based on additional data from all sacramental registers plus the *padrón* of 1824, we came to a total of 92 people (see Appendix 8.3 for a list of the 92 residents; for more-detailed data on relationships among those residents, see Appendixes 8.1 and 8.2). That is to say, 92 people listed Guaspet or one of its cognates in their origin statements in the mission's baptismal records (Table 74). In addition, those 92 people also included several people who had alternative origins listed in their mission baptismal records but whose

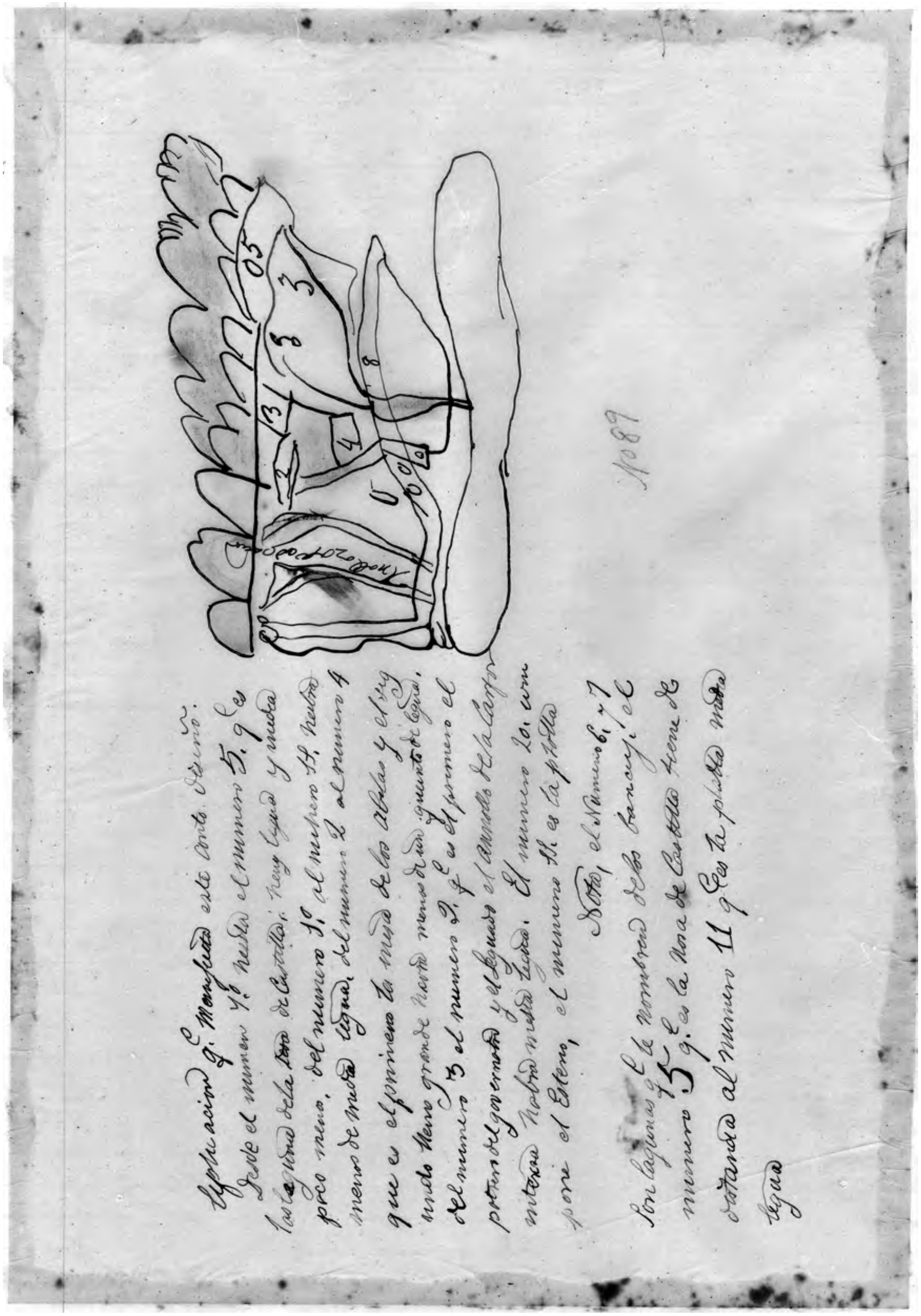

Figure 151. Possible alternative diseño for Rancho La Ballona (Expediente 87-2, courtesy of the California State Archives, Sacramento).

Table 74. List of 92 Residents of Guaspet Baptized at Missions San Gabriel and San Fernando Rey between 1790 and ca. 1820

Baptismal Mission	Baptism No.	Death Mission	Death No.	Baptism Date	Burial Date	Baptismal Origin[a]	Baptism Place[a]	Baptismal Gender and Age
SG	1941	SG	821	12/18/1790	1/7/1791	Guaspet *y* Jautbit	Los Angeles de Porciúncula, Pueblo de la Reyna de	male child
SG	1953	SG	819	12/31/1790	12/31/1790	Guaspet	Guaspet, *ranchería*	male infant
SG	2024	SG	1833	2/23/1791	11/18/1800	Guachpet, *ranchería*	*yglesia*	male, 26 years old
SG	2091	SG	922	5/7/1791	12/4/1791	Guachpet, *ranchería*	*yglesia*	male infant
SG	2180	SG	2392	11/28/1791	4/28/1805	Guachpet, *ranchería*	*yglesia*	female, 15 years old
SG	2202	SG	1004	2/7/1792	11/15/1792	Guachpet, *ranchería*	*yglesia*	male infant
SG	2226	SG	1030	4/14/1792	2/10/1793	Guachpet	*yglesia*	female infant
SG	2280			11/18/1792		Guachpet, *ranchería*	*yglesia*	male infant
SG	2360	SG	5591	7/12/1793	7/14/1832	Guaspet, *ranchería*	*yglesia*	male, 17 years old
SG	2391	SG	1086	10/31/1793	11/4/1793	Guaspet, *ranchería*	Los Angeles de Porciúncula, Pueblo de la Reyna de	male infant
SG	2396	SG	1092	11/XX/1793	11/16/1793	Guaspet, *ranchería*	Los Angeles de Porciúncula, Pueblo de la Reyna de	male infant
SG	2397	SG	1312	11/XX/1793	8/22/1796	Guaspet, *ranchería*	Los Angeles de Porciúncula, Pueblo de la Reyna de	male infant
SG	2398	SG	1099	11/XX/1793	11/20/1793	Guaspet, *ranchería*	Los Angeles de Porciúncula, Pueblo de la Reyna de	male infant
SG	2441	SG	1219	4/14/1794	6/20/1795	Guaspet	*yglesia*	male infant
SG	2627	SG	1625	11/15/1795	3/17/1799	Guaspet	*yglesia de esta misi*ón	female infant
SG	2650	SG	1262	12/24/1795	12/29/1795	Guaspet, *ranchería de*	San Gabriel, *ranchería de esta misión de*	female, 70 years old
SG	2694	SG	5190	2/24/1796	10/25/1827	Guaspet	*yglesia de esta misi*ón	male infant
SG	2742	SG	1361	8/19/1796	1/27/1797	Guaspet, *ranchería de*	*yglesia*	female infant
SFR	136	SG	5063	8/10/1798	3/2/1826	Guaspet, *ranchería de*	*yglesia de esta misi*ón	male, 19 years old
SG	2977	SG	3829	10/28/1798	1/26/1817	Guaspet, *ranchería de*	*yglesia*	female, 1 year old
SFR	221	SFR	1698	11/17/1799	5/XX/1826	Guaspit, *ranchería de*	*iglesia de esta misi*ón	male, 20 years old
SG	3160	SG	2125	10/XX/1800	9/1/1802	Guaspet, *ranchería*	Los Angeles, *ranchería immediata al Pueblo de la Reyna de*	female adult
SG	3179	SG	1852	11/19/1800	11/23/1800	Guaspet	Los Angeles, *Pueblo de la Reyna de*	female infant
SG	3185	SG	1861	11/26/1800	11/27/1800	Guaspet	Los Angeles, *ranchería immediata al Pueblo de la Reyna de*	female adult
SG	3384	SG	2131	10/4/1802	10/5/1802	Guaspet	Los Angeles, Pueblo de la Reyna de	male infant
SG	3408	SG	3120	1/13/1803		Guaspet	[*iglesia*]	male, 3 years old
SG	3409	SG	5059	1/13/1803	2/21/1826	Guaspet	[*iglesia*]	female, 1 year old
SG	3462	SG	5112	3/1/1803	11/20/1826	Guaaspet	*yglesia de esta misión*	female, 23 years old

Baptismal Mission	Baptism No.	Death Mission	Death No.	Baptism Date	Burial Date	Baptismal Origin[a]	Baptism Place[a]	Baptismal Gender and Age
SG	3464			3/2/1803		Guaspet	*yglesia de esta misión*	male, 1 year old
SG	3465	SG	2229	3/2/1803	11/2/1803	[Guaspet] *dicha ranchería*	*yglesia de esta misión*	male infant
SG	3466	SG	2167	3/2/1803	3/29/1803	Guaspet	*yglesia de esta misión*	male infant
SG	3496	SG	2183	4/17/1803	5/4/1803	Guaspez	*yglesia*	male infant
SG	3497	SG	2321	4/17/1803	7/4/1804	Guaspez	*yglesia*	male infant
SG	3498	SG	2226	4/17/1803	10/30/1803	Guaspez	*yglesia*	male infant
SG	3499	SG	2212	4/17/1803	8/22/1803	Guaspez	*yglesia*	male infant
SG	3500	SG	2184	4/17/1803	5/7/1803	Guaspez	*yglesia*	female, 3 years old
SG	3505	SG	2182	4/17/1803	4/28/1803	Guaspez	*yglesia*	female, 1 year old
SG	3506	SG	2213	4/17/1803	8/23/1803	Guaspez	*yglesia*	female infant
SG	3524	SG	2671	4/30/1803	5/24/1806	Guaspez	*yglesia vieja de esta misión por haberse imposibilitado la nueva*	female, 22 years old
SG	3532	SG	2188	5/XX/1803	5/25/1803	Guaspez	*ranchería immediata*	female, 30 years old
SG	3533	SG	2191	5/15/1803	6/5/1803	Guaspez	pueblo, *ranchería del*	female child
SG	3557	SG	3056	7/7/1803	2/17/1811	Guaspez	[*iglesia*]	female, 22 years old
SG	3677	SG	4790	2/10/1804	3/4/1824	Guaspet, *ranchería*	*yglesia de esta misión*	female, 40 years old
SG	3741	SG	2413	4/28/1804	7/9/1805	Guaspez	*yglesia de esta misión*	female infant
SG	3742	SG	3279	5/5/1804	10/3/1812	Guaspet	*yglesia de esta misión*	male child
SG	3743	SFR	2419	5/5/1804		Guaspet	*yglesia de esta misión*	male child
SG	3744			5/5/1804		Guaspet, *ranchería*	*yglesia de esta misi*ón	male child
SG	3749	SG	2696	5/7/1804	8/5/1806	Guaspet, *ranchería*	*yglesia de esta misi*ón	male, 14 years old
SG	3750	SG	3954	5/7/1804	1/28/1818	Guaspet, *ranchería*	*yglesia de esta misi*ón	male, 14 years old
SG	3751	SG	2697	5/7/1804	8/16/1806	Guaspet, *ranchería*	*yglesia de esta misi*ón	female, 13 years old
SG	3755	SFR	1503	5/10/1804	12/28/1822	Guaspet, *ranchería*	*yglesia de esta misi*ón	male child
SG	3756	LA	298	5/10/1804	11/27/1836	Guaspet, *ranchería*	*yglesia de esta misi*ón	female, 8 years old
SG	3760	SG	2345	5/20/1804	9/24/1804	Guaspet	*yglesia de esta misi*ón	female infant
SG	3792	SG	2691	8/30/1804	7/22/1806	Guaspet, *ranchería*	*yglesia de esta misi*ón	male infant
SG	3793	SG	2631	8/30/1804	3/16/1806	Guaspet, *ranchería*	*yglesia de esta misi*ón	female infant
SG	3916	SG	5132	2/14/1805	5/27/1827	Guaspet, *ranchería*	*yglesia de esta misi*ón	male, 32 years old
SG	3917	SG	4744	2/14/1805	10/29/1823	Guaspet, *ranchería*	*yglesia de esta misi*ón	male, 25 years old
SG	3918			2/14/1805		Comicravit, *ranchería*	*yglesia de esta misi*ón	male, 28 years old
SG	3919			2/14/1805		Guaspet de Quinquina, *ranchería*	*yglesia de esta misi*ón	male, 20 years old
SG	3920	SG	4695	2/14/1805	4/21/1823	Guaspet, *ranchería*	*yglesia de esta misi*ón	male, 30 years old
SG	3927	SG	5594	2/21/1805	7/31/1832	Guaspet, *ranchería*	*yglesia de esta misi*ón	male, 32 years old

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Baptismal Mission	Baptism No.	Death Mission	Death No.	Baptism Date	Burial Date	Baptismal Origin[a]	Baptism Place[a]	Baptismal Gender and Age
SG	3952			3/27/1805		Guaspet, *ranchería*	*yglesia*	female, 50 years old
SG	3966	SG	4151	4/19/1805	5/25/1819	Guaspet, *ranchería*	[*iglesia*]	male, 30 years old
SG	3974			5/6/1805		Guaspet	*yglesia*	male infant
SG	3979			5/26/1805		Guachpet, *ranchería de*	[*iglesia*]	male, 22 years old
SG	3980			5/26/1805		Guachpet	[*iglesia*]	male, 24 years old
SG	4016	SG	2440	11/1/1805	11/11/1805	Guaspet	*yglesia de esta misi*ón	male, "recently born"
SG	4063	SG	2630	2/16/1806	3/16/1806	Guaspet	*yglesia*	female, "recently born"
SG	4080	SFR	821	8/30/1806	9/9/1809	Guaspet, *ranchería llamada*	*yglesia*	male, 25 years old
SG	4116			3/15/1807		Guasna, *ranchería*	*yglesia de esta misi*ón	male infant
SG	4171	SG	2874	9/14/1807	2/26/1809	Guaspet	*yglesia*	female infant
SG	4195	SG	3442	3/6/1808	3/17/1814	Guaspet	*yglesia de esta misi*ón	female infant
SG	4220	SG	3358	7/17/1808	7/1/1813	Guaschna, *ranchería de*	*yglesia de esta misi*ón	male, 22 years old
SG	4265			3/14/1809		Guaguanbit	*yglesia de esta misi*ón	male infant
SG	4284			3/28/1809		Guaspet, *ranchería de*	*yglesia de esta misi*ón	male infant
SG	4448	SG	2956	10/XX/1809	10/29/1809	Guaspet	[unstated]	male infant
SG	4449	SG	2971	10/28/1809	1/16/1810	Guaaspet	[*iglesia*]	male infant
SG	4565	SG	5162	7/XX/1810	8/25/1827	Guaspet, *ranchería de*	[unstated]	female, 45 years old
SG	4579	SG	3282	12/22/1810	10/9/1812	Guaschna	*yglesia de esta misi*ón	female infant
SG	4661	SG	4658	3/21/1811	2/27/1823	Guaspet, *ranchería de*	[*iglesia*]	female, 60 years old
SFR	1830			3/26/1811		Guasna, *ranchería de*	[*iglesia*]	female, 35 years old
SG	4685	SG	3268	3/31/1811	7/31/1812	Guasna	*yglesia de esta misi*ón	male infant
SFR	1963			5/11/1811		Guasna, *ranchería de*	[*iglesia*]	female, 40 years old
SG	5272			5/13/1813		Guaspet	*iglesia*	female, 35 years old
SG	5273			5/13/1813		Guaspet	*iglesia*	male, 30 years old
SG	5279	SG	4748	5/13/1813	11/4/1823	Guaspet	*iglesia*	male, 28 years old
SG	5602	SG	5894/5901	9/XX/1814		Guaschna	Santa Barbara	male, 40 years old
SG	5728	SG	3659	5/13/1815	8/10/1815	Guaspet	*iglesia*	male, 34 years old
SG	5929	SG	3832	1817?	2/9/1817	[Guaspet]	[missing]	female adult
SG	6084	SG	5630	1817?	11/16/1832	[Guaspet]		female
SG	6276			3/19/1819		Guashna	[*iglesia*]	male, 40 years old
SG	6544	SG	4350	1819? 1820?	11/28/1820	[*misi*ón/Guaspet]		female infant

Note: Table is organized by baptism date. Source of data: ECPP database, http://www.huntington.org/Information/ECPP.htm, accessed 2006.
Key: LA = Pueblo of Los Angeles church; SFR = Mission San Fernando Rey; SG = Mission San Gabriel.
[a] Data are transcribed from the original records as shown in the ECPP database.

Table 75. The Top 10 Most Frequently Recorded *Ranchería* Names in the Mission San Gabriel Baptismal Register

Ranchería Name	Approximate No. of Entries	Cognates (in Addition to the Main Name)	Clemence's Count (Merriam 1968)
Ajuibit	192	Ajuivit, Ajuinga, Ajuybit, Ajunga	188
Asucsabit	211	Asucsavit, Asuhsabit, Asusabit	228
Cucamobit	104	Cucamovit, Cucamonga, Cucamobuit	102
Guaspet[a]	92	Guaaspet, Guahaspet, Guachpet, Guaschpet, Guaaschpet, Guhaaspet	91
Guinibit	121	Guinivit	125
Jutucubit	240	Jutucuvit, Jutucunga, Utucubit	241
Juyubit	376	Juyuvit, Juiuvit, Juiubit, Juubit, Juyunga, Juiunga	347
Paimabit	111	Pamabit, Paymabit, Paaimabit, Pamiavit, Pamaibit, Paimavit, Pamiavit, Paaymabit	171
Uchubit	137	Uchuvit, Uchunga	141
Yabit	250	Yabit, Yavit, Yanga	166

[a] See Table 8.3 for additional variations of *Guaspet*.

marriage, death, or confirmation records included evidence that strongly suggested they were from Guaspet. What percentage that number represents of the actual total of residents living at Guaspet during the early Historical period can only be estimated. King (2004:33) was likely correct in his assertion that the numbers of people who were recruited or entered the mission from any given *ranchería* did not represent "a direct measure of population size at particular time periods that allows for simple comparison of settlement size over large areas."

Table 75 presents the 10 most frequently recorded *ranchería* names in the Mission San Gabriel baptismal registers, ranked by approximate numbers of entries. In the overall ranking, Guaspet claimed tenth place, perhaps a reflection of its relative importance within the mission's sphere of influence. Its position underscores that 92 was a significant number of neophytes to have come from *any* location in southern California; few *rancherías* yielded greater numbers.

Again consulting the ECPP database, when the Mission San Gabriel data were queried for interrelatedness, an even more revealing total was produced. For families with children, the offspring and spouses of individuals with Guaspet origins were also identified, producing an additional 132 children, grandchildren, and spouses with baptismal origins other than Guaspet (see Appendixes 8.1 and 8.2). All combined, including individuals with baptismal origins of Guaspet and their related family members, there were 223 people with ties to Guaspet in the records of Missions San Gabriel and San Fernando Rey.

The Families of Guaspet

A "family" is defined here as either (at least) one parent and one child or two siblings. A careful scan of Mission San Gabriel records produced a total of 30 families comprising 174 people from Guaspet (see Appendix 8.1). Based on the documentation of families, roughly one-third of those families comprised three generations, whereas the other two-thirds comprised two generations. Generations were created based entirely on mission records—if parents of a generation were listed as gentiles from Guaspet (even if unnamed), then they were listed as the first generation.

The first generation in the family was sometimes referenced as *padres gentiles* (non-Christian parents), with an occasional name and origin (Guaspet) supplied, but no additional data were presented. If parents were listed as such, they were noted in Appendix 8.1 as the first generation; if no parents were listed in mission records, then they were not counted as the first generation. The records of the following second and sometimes third generations were in many ways the most informative, because those individuals personally experienced the transition from native life to mission life. All Guaspet people in the mission followed a traditional exogamous marriage pattern and chose mates from different *rancherías*, not from Guaspet. The largest single source of mates for people from Guaspet was Pimubit, the *ranchería* on Santa Catalina Island. Quinquina, on San Clemente Island, also contributed several spouses. In several cases, only "La Ysla" was listed as the origin, which could refer to either island. On the mainland, the most frequently listed villages providing mates for Guaspet people were Juyubit and Yabit, respectively. Yabit, also called Yangna, was located along the Los Angeles River, alongside the Pueblo of Los Angeles. Juyubit was likely located along the San Gabriel River, southeast of Yabit, according to King's (2004) map of approximate locations of Mission period *rancherías*.

Much has been made by King (1994, 2004) (see also King and Johnson 1999) and others of the linkages based on marriages that are assumed to have existed between *rancherías*. King (1994), for example, argued that Guaspet had more marriage ties to Santa Catalina Island (noted in mission records by the names *Pimu*, *Pimuabit*, *Pimubit*, etc.) than any other *ranchería* in the mission system. In the case of Guaspet, the tie

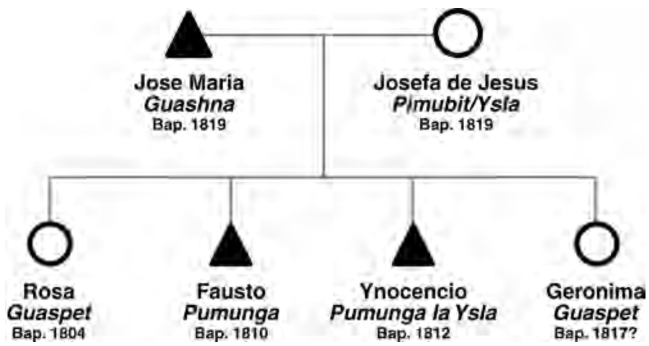

Figure 152. Family tree of Guaspet Family 7 (see Appendix 8.1 for all Guaspet families).

between coastal and mainland villages was a strong one that predated the Mission period, because it was clear from mission records that parents with their origins in Pimu and Guaspet arrived with their offspring at Mission San Gabriel and were baptized and married there. Marriage ties between different villages may not have necessarily predated the Mission period and could have been, instead, a result of forced interaction at the missions. Lightfoot (2005:200–202), for example, argued that innovative marriage ties that had not necessarily existed previously were created by neophytes and gentiles residing in mission settings. In that same vein, Johnson (1997:259–260) argued that by the 1830s, neophytes from Mission San Fernando Rey were married to spouses from different ethnic and linguistic backgrounds. Johnson (1997:260) also argued that the mission system in general created "melting pots" wherein people of diverse cultural identities were brought together at the mission. Prior to the end of the Mission period, the number of more-distantly related groups cohabitating at missions increased yearly, and in some cases, increases were steep. One such increase occurred at Mission San Gabriel in 1811, when large numbers of Serrano and Cahuilla Indians were forced to leave their native villages for the mission, as Spanish retribution for the 1810 attempted rebellion at the mission (see Bean et al. 1995). Although there were other native villages with ties to Santa Catalina Island, the village of Guaspet had the strongest ties to that southern Channel Island. As a result of the increased intermarriage of individuals from increasingly culturally diverse backgrounds during the Mission period, King, Johnson, and other scholars have focused their research on the marriages of couples that lived together as husband and wife *prior* to their baptisms. In the marriage registers, such indigenous marriages were almost always identified explicitly and were clearly differentiated from those in which the husband and wife were newly entering into matrimony after having become acquainted within the mission community (John Johnson, personal communication 2014; see Johnson 1988b:10, 27). In addition, in some cases, husband and wife that were baptized and married in the Catholic Church already had a number of children, indicating that they had been together well before baptism (see discussion, below, of the family depicted in Figure 152).

Guaspet Family 7 is a good example of that pattern (see Figure 152; Appendix 8.1, Guaspet Family 7). A gentile couple, Yamaot (José María, SG Bap 6276) and Ycaipo (Josefa de Jesús, SG Bap 6277), lived both on Santa Catalina Island and at Guaspet during the Mission period, prior to being baptized, and subsequently married at the Mission San Gabriel. The couple likely lived at Guaspet in 1804, when the first of their four children, daughter Rosa (SG Bap 3793), was baptized at Mission San Gabriel. Their next two sons, Fausto (SG Bap 4485) and Ynocencio (SG Bap 5134), were baptized in 1810 and 1812, respectively, and had origins on Santa Catalina Island (Pumunga la Ysla). Their second daughter, Gerónima (SG Bap 6084), was baptized much later, in 1832, at the time she was married. Their mother and father were listed as the parents of all four children. In 1819, nearly a decade after they had their first child baptized, Yamaot and Ycaipo were each baptized and married to each other on the same day. Although their two parents, Yamaot from Guaspet and Ycaipo from Pimubit, had been baptized and married at Mission San Gabriel, there was documentation going back 9 years of a connection between Guaspet and Santa Catalina Island. Based on the varying origins of their children, it is likely that the family moved back and forth between Guaspet and Pimubit and had family connections in both communities. In that way, this one example makes clear that couples (some already with children) with long-standing ties to both Guaspet and Santa Catalina Island villages arrived at Mission San Gabriel and subsequently were baptized and married and that the connection between Pimu and Guaspet predated the Mission period.

Information about most of the family members from the third generation told a sad story. The origins of the vast majority were listed as "mission" or left unstated. Their personal connections to Guaspet were gone, and no native names were ever recorded for them. When death data were provided, many were shown to have died as infants. Of the 39 baptized individuals from Guaspet not identified as family members, approximately one-third died as infants or young children (see Appendix 8.2).

The largest family from Guaspet recorded at Mission San Gabriel, with 14 members, belonged to Sucaraguit (Cristoval, SG Bap 3966) (Figure 153; see Appendix 8.1, Guaspet Family 6). Likely born at Guaspet ca. 1775, Sucaraguit was 30 years old at baptism on April 19, 1805. His wife, Pimuuma (Christovala) (SG Bap 3981), was a native of Pimuunam (also Pimubit) and was about 10 years younger than him. Between 1804 and 1814, Sucaraguit and Pimuuma had six children (who were baptized and, thus, of whom we have records), including twin boys with the Spanish names of Juan Antonio (SG Bap 5497)

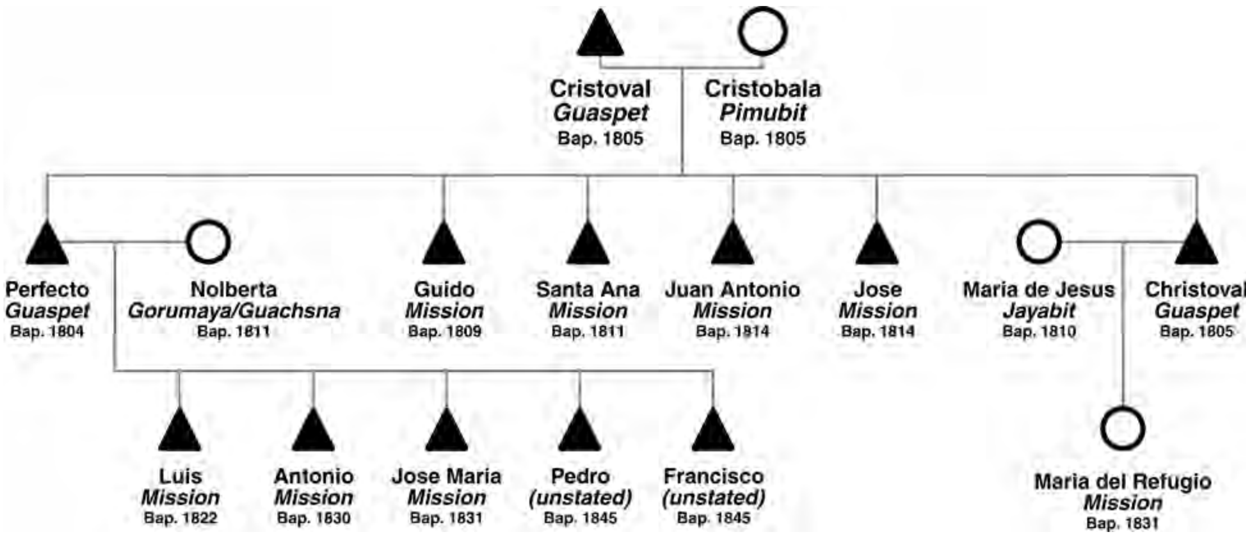

Figure 153. Family tree of Guaspet Family 6 (see Appendix 8.1 for all Guaspet families).

and José (SG Bap 5498). Their two eldest sons, Perfecto (SG Bap 3744) and Pipuyas (Cristoval) (SG Bap 3974), born in 1804 and 1805, respectively, were both listed as being from Guaspet and were likely born there just before the family moved to the mission. The next four children listed "*misión*" as their place of origin. Sucaraguit died at age 44 in 1819, after which Pimuuma remarried; she died in 1828.

In 1820, Sucaraguit's son Perfecto married Piyacmin (Nolberta) (SG Bap 5053), daughter of the leader or *tomeamor* from Gorumuya (Goroumaya), likely located east of the Santa Ana River, south of Riverside. Nolberta was also listed as connected to Guaschna (in the San Bernardino area), and it may have been that the couple lived in Nolberta's *ranchería* and raised their family there; there was little evidence to suggest that Guaspet still existed as a Native Californian settlement in the Ballona by 1820. Together, between 1822 and 1845, they baptized five sons. Sucaraguit's second son, Pipuyas (Cristoval), married María de Jesús from Juyubit (SG Bap 4527) in 1825. They had one child together, a daughter named María del Refugio (SG Bap 7751), born and baptized in 1831.

The Sucaraguit family may not have been typical of Guaspet families, because they had a relatively high reproductive rate. Perhaps closer to the norm for offspring and their fates was the six-member family of Asuguirareit (Rufino, SG Bap 3927) (Figure 154; see Appendix 8.1, Guaspet Family 10). The matriarch of that family, Gununuiba (Rufina) (SG Bap 4661), was baptized at age 60 in 1811, which means that she was born at Guaspet in ca. 1751. No marriage was recorded for her; she died a very old woman of about 72 in 1823. Her son, Asuguirareit (SG Bap 3927), was baptized in 1805 (as so many men from Guaspet were that year). He was 32 years old at the time and reputedly the "*capitán*" of the *ranchería*. Asuguirareit had four wives, serially, and three marriages were recorded by the padres. He was already married to the first, Rufina from Comicrabit (SG Bap 3928), when he entered the mission, because they were baptized one after another on that same day in 1805. He married his second wife, Donula (SG Bap 4081) from La Ysla (Santa Catalina Island), at the mission in 1810. With his third wife, Godula, of unstated origin (SG Bap 2798), he had two children, Gabriela (SG Bap 6114) and Rufino (SG Bap 6673), both of whom died in infancy. He married his fourth wife, Cesilia of Amupiavit (SG Bap 3857) in 1825. Asuguirareit apparently died in 1832, at about age 59. Although Asuguirareit and his mother, Gununuiba, were certainly long lived for people of any ethnicity at that time, that quality was apparently not something he was able to pass on to his progeny, likely because of disease and infection associated with the missions. The person from Guaspet of greatest age at baptism was María Ana de la Natividad, who was 70 when she became a neophyte in 1795 (SG Bap 2650). She died that same year, without a husband or recorded offspring.

For many of the people of Guaspet, going to the mission to be baptized meant leaving their villages, never to return, because many died shortly after arrival in San Gabriel (Stoll et al. 2009). Some may have returned in death to become residents of the burial ground at LAN-62, because there were a number of baptized individuals for whom there were no death records. In such cases, it is likely that the individuals died away from the mission's influence (Steven Hackel, personal communication 2008). Only one baptized person is known to have been buried at Guaspet: an infant named Joseph (also *Josef*, SG Bap 1953), who was baptized on December 31, 1790, and buried that same day. He was only the second individual from Guaspet to have been baptized and was unique as the only person listed as having been born, baptized, and buried at Guaspet. Joseph was baptized by a local rancher named Francisco Xavier Pico, because the child was in danger of death (see below for a discussion of Pico's relationship to the Ballona).

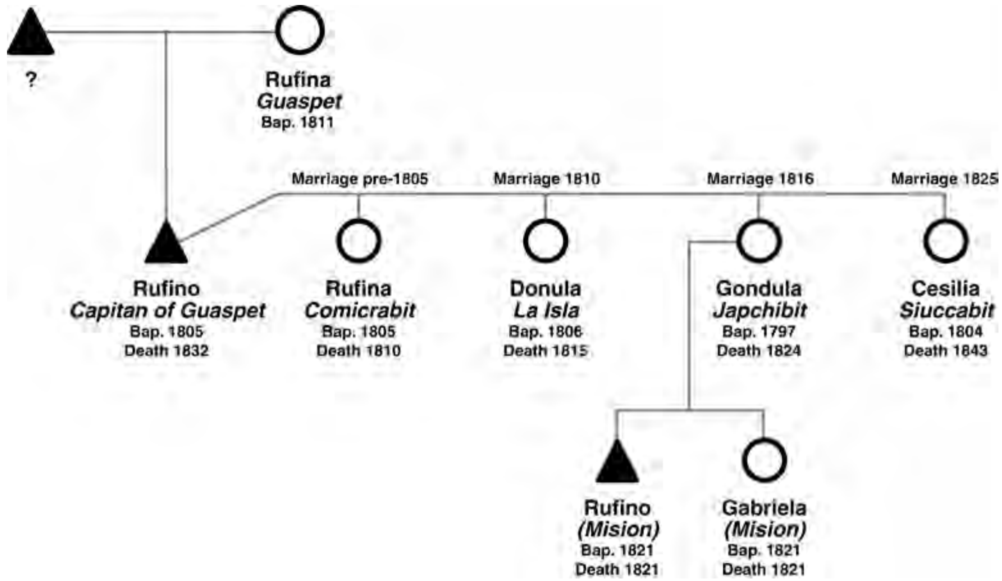

Figure 154. Family tree of Guaspet Family 10 (see Appendix 8.1 for all Guaspet families).

Based on baptism dates and numbers of entries, the initial response to mission life by the people of Guaspet appears to have been relatively lukewarm (Figure 155). Between 1790 and 1802, in total, 27 people were baptized, coming mainly in twos and threes. Then abruptly, beginning in 1803, there was a major spike in the number of Guaspet baptisms. That year, there were 17 baptisms, followed by 13 in 1804 and 12 in 1805. The numbers tapered off again to 2 in 1806 and remained low until a smaller peak of 5 was reached in 1809; numbers remained low after that until the final baptism in ca. 1820. Events in the Ballona, as will be described, likely contributed to the first early peak in baptisms and the eventual decline and cessation of baptisms from the native settlement by 1820.

The Issue of the Village Named Guaschna

Mission San Gabriel records included many references to a *ranchería* with a very similar name to Guaspet, most consistently written *Guaschna*, *Guaaschna*, or *Guaschpet*, which may have been variant spellings of the village of Guachama (John Johnson, personal communication 2014), located near today's city of Redlands (Bean et al. 1995:V-144), (see Figure 145). In addition to cognates of the village name *Guaschna*, villages whose names have similar spellings to Guaspet but with a double "a" (such as Guaaspet) are also thought to have been near the San Bernardino area (see McCawley 1996:Map 7). Cross-checking Mission San Gabriel records revealed affinal and familial connections between Guaschna and a number of Serrano or Cahuilla *rancherías*, including Jurupet, Amuscopiabit, Apuimiabit, Apinjaibit, Apiambit, Apiacobit, Cayubit, Coronobabit, Guapiabit, and Tusicabit in San Bernardino County (Figure 156). As Bean et al. (1995) discussed in detail, the cultural affiliations and makeup of those villages and geographic areas were fluid during the Mission period. The date range for the Guaschna and Guaschna-derived baptisms, 1800–1832, with by far the most conducted in 1811, covers the period when Spanish military campaigns to suppress gentile uprisings in the hinterlands led to a roundup of Native Californian men and the flight of women, children, and the elderly into the missions (Bean et al. 1995:V-145; Mason 2004:46). Mission San Gabriel records reflected that upheaval in the baptisms from those years.

At times, we were able to identify that there appeared to be misspellings or misunderstandings of village names in mission records. In those cases, we were able to make a decision that although one individual in a larger family had a baptismal origin of a village name we thought was in the San Bernardino area, the preponderance of evidence from a family may have suggested otherwise. For example, there was a single entry of a person with an origin listed as Guaschna that we included as likely being from the Ballona. José María (SG Bap 6276) was a relatively late baptism (1819), and his baptism origin was recorded as Guaschna, whereas his marriage origin was listed as Guaipet. Although neither of those village names indicated an origin in the Ballona, the origins of his wife and children did. For example, his wife, Josefa de Jesús (SG Bap 6277), was from Pimubit/Ysla, indicating Santa Catalina Island. Their two daughters were listed in their baptismal records as being from Pimubit, whereas their sons were listed as being from Guaspet. Given the large number of ties between Guaspet and Pimu (on Santa Catalina Island), it seems reasonable to argue that José María was from Guaspet, even though the mission records indicated slightly different names. Another example was Revocata (SG Bap 3462), whose baptismal origin was

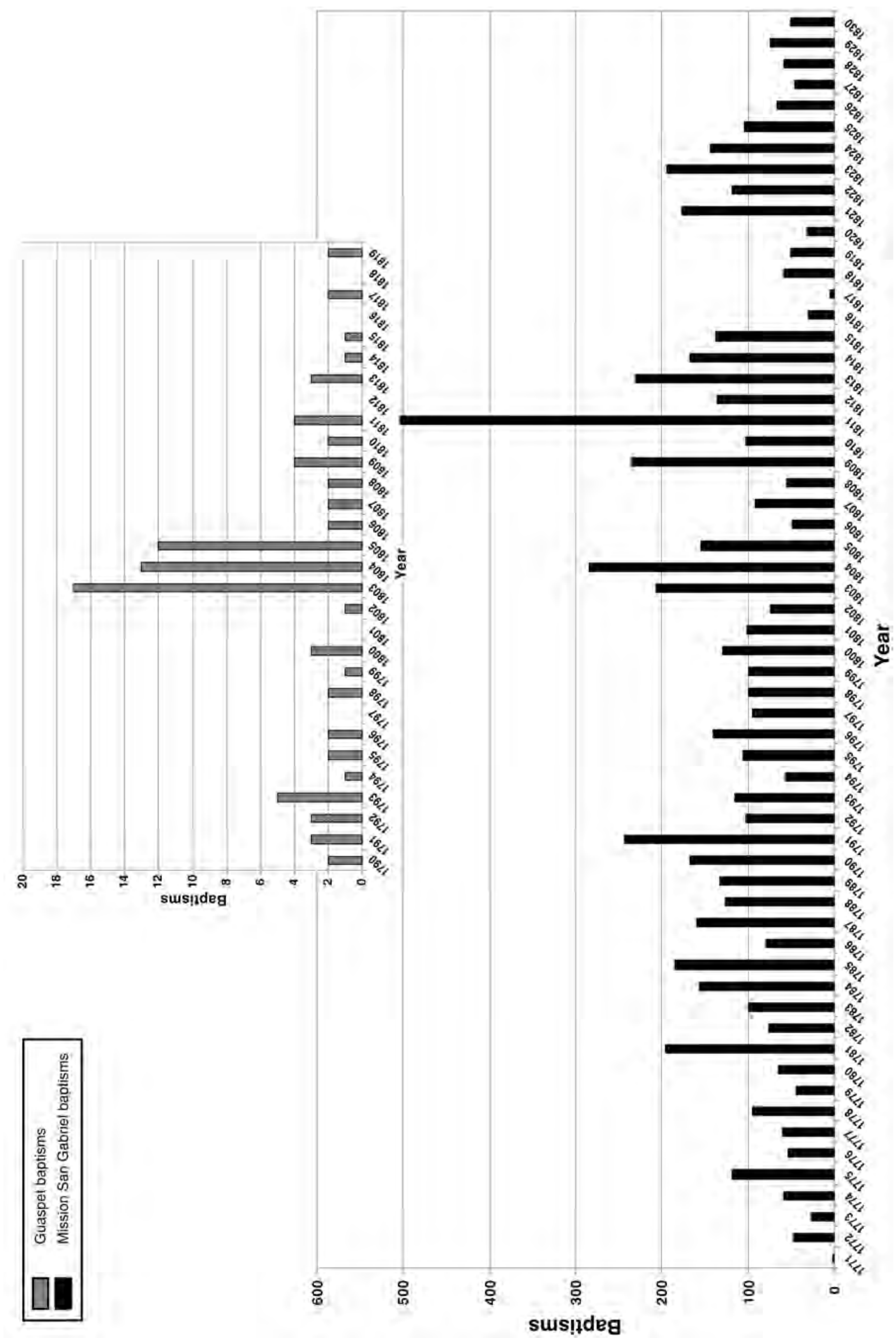

Figure 155. Figure showing the distributions of (top) Guaspet recruitment to Missions San Fernando Rey and San Fernando between 1790 and approximately 1820, in comparison to (bottom) overall recruitment to Mission San Gabriel between 1771 and 1830.

Figure 156. Map showing the hypothesized locations of rancherías in the greater Los Angeles Basin area (based on data presented by King [2004]).

listed as Guaaspet. A review of all documents suggested that she was from Guaspet, because her marriage and death origins were recorded as such, and her son's marriage origin was listed as Huaspet.

In addition to marriage ties with Serrano and Cahuilla villages, some of the Guaschna entries included other evidence to suggest that the individuals did not live in the Ballona. A number of individuals with origins of Guaschna, for example, were extremely late in the Mission period (ca. 1830–1832), at a time well after the Talamantes and Machados began ranching in the Ballona, and there was no evidence of Gabrielino/Tongva occupation in the Ballona at that time. Baptismal records from that period did indicate, however, that some Native Californians from the San Diego area were working in the Ballona. In addition, Juan Alvarado, the *mayordomo* for San Bernardino, was listed in a number of those entries as a godparent, as an officiant of baptisms of people from Guaschna in danger of death, or as an informant of a Native Californian's death. These types of data, together with other information, strongly suggested that with one exception, Guaschna and villages with similar names were located in the San Bernardino area rather than along the coast.

Guaspet in Transition

Based on mission records, the active years for Guaspet during the early Historical period were ca. 1790–1820. That time span appears consistent with the glass-bead data (see Chapter 6, Volume 3, this series). Documentary evidence pointed to an end of native lifeways at Guaspet by 1819, if not before—the date when the Talamantes and Machados began running cattle in the Ballona. Glass-bead data suggested that Native Californian occupation of the Ballona terminated sometime in the 1810s. The Ballona may have been completely abandoned by the residents of Guaspet at that time, although it is also possible that a few Guaspet people remained in the area to be employed as rancho workers. Baptismal evidence from ca. 1830, however, suggested that Native Californian ranch hands in the Ballona were from other parts of southern California, including the San Diego area. A few ceramic trade beads dating to the 1830s and 1840s have been identified from LAN-193 and LAN-2768, suggesting that there may have been Native Californian laborers living in the Ballona during that time. If there were ranch hands from Guaspet working in the Ballona, they would likely no longer have lived a native life, but many of their belief systems and practices might have remained unchanged, particularly their traditional burial customs. Although unoccupied native dwellings would not have lasted long on the surface, the memory of a burial ground might have endured. For example, the following was written in 1884: "Between Los Angeles and the coast, near San Pedro, [native] gravestones were erected to the memory of the deceased, or, perhaps simply to identify the body, so that his friends might come to offer food, and to mourn" (Reid 1968:123).

To explore the question of Guaspet's fate through the nineteenth century, we look beyond mission records to the documents of the Spanish and Mexican administrations in southern California. The documentary evidence indicated that the Gabrielino/Tongva slowly left their camps and village sites as disease, loss of access to food resources, and cultural upheaval caused them to flee, killed them outright, or forced them into the missions, where survivors merged with other displaced populations. Between 1781 and 1831, the mean death rate was estimated at 95 per 1,000 individuals, compared to a mean birth rate of 44 per 1,000. Mean life expectancy at birth during that interval was only 6.4 years (McCawley 1996:197). The traditional Gabrielino/Tongva way of life was slowly disappearing.

Pueblo of Los Angeles

Faced with tremendous, incomprehensible change and likely pressured from all sides for the land they occupied, what options did the people of Guaspet have, besides becoming neophytes at the Mission San Gabriel? Undoubtedly, some did abandon southern California altogether. Bean and Smith (1978:541) asserted that after secularization and the breakup of the mission system in 1833, "Gabrielinos are scattered as far north as Monterey and south to below San Diego, while many are living with groups in the remote interior . . . . [Between 1840 and 1850] most Indians in Los Angeles area are other Mission groups." Hugo Reid insisted that by 1852, the Native Californians of Los Angeles had left the area, heading north. He stated, "[Y]ou will at present find more of them in the county of Monterey than in this" (Reid 1968:100). Some Gabrielino/Tongva settled in the Soboba area (John Johnson, personal communication 2014).

Some also apparently went to the Pueblo of Los Angeles. Founded on September 4, 1781, almost 10 years after the Franciscan missionaries arrived in San Gabriel, the Spanish authorities established the pueblo, not as a move to colonize Alta California or as a secular response to the mission presence (Engelhardt 1927a:48; Mason 2004:12). Rather, the pueblo was planned from its inception as an agricultural colony with the specific goal of raising food for the Spanish military presidios in California and shipping specific surplus, such as grain, back to central Mexico through the port of San Blas (Hackel 1998). Shipping food to the soldiers of Alta California was prohibitively expensive, and the missions protested that their products were needed for their Native Californian neophytes. The original *pobladores* (settlers) of Los Angeles were farmers who were former soldiers, paid in land, tools, seeds, and animals. There were expectations about improvements and the amount of land the settlers were to cultivate and irrigate. High hopes were held for their crop yields, and detailed accountings were made every year. They were not allowed to live just anywhere but were expected to remain in the pueblo unless given permission to travel, even in search of stray livestock (Mason 2004:20). From the beginning, there also was a need for Native Californian labor.

The Spanish governor of Alta California in 1781 was Felipe de Neve, who, from his *Reglamento,* or edicts for governing the pueblo, was a farsighted but apparently naive administrator. In his correspondence, de Neve described a close and friendly relationship between the settlers and the "very docile and friendly" Native Californians of nearby Yabit, where he himself converted several gentiles in advance of establishing the pueblo. In blatant opposition to Franciscan mission policy, de Neve felt that Christian Native Californians should remain living in their *rancherías*, where they would "practice a degree of self-government, and return to the missions from time to time for religious instruction" (Kelsey 1976:328–329). That type of self-governance of recruited gentiles and neophytes was policy in Baja California missions under the Jesuits (Wade 2008:133). Further, he wanted the settlers in Los Angeles "to attract the Indians joyfully by the practice of true justice and good example to the knowledge of our Sacred Religion" (Kelsey 1976:328–329).

From the outset, native labor was vital to the tiny hamlet's success, and it is quite likely that among the first to arrive in the pueblo were Native Americans from Guaspet. As Phillips (1980:437) observed, "seeking work, Indians began drifting into the pueblo of Los Angeles almost from the day it was founded. Thus settlers and Indians quickly established an economic relationship that continued for nearly a century." Elaborating on that theme, Mason (1975:94) stated that "the importance of Indian labor in the pueblo cannot be underestimated, particularly during the earlier years, when there were but eight or nine settlers and four or five older sons" to perform the essential agricultural work. A quote from the correspondence of Governor Pedro Fages (de Neve's replacement), dated April 1784, suggested that without the aid of the gentiles, that year's food crop would not have been planted. The missionaries were well aware of that use of the natives and bitterly lamented it:

> In the town and on the ranchos the people of the other classes, both men and women who are pagans, assist in the work of the fields. Also they are employed as cooks, water carriers and in other domestic occupations. This is one of the most potent causes why the people who are called *gente de razón* are given to so much idleness. Since the pagan Indians are paid for their labor by a half or a third of the crops they remain constant in the service of their masters during the season of planting and harvesting. The latter, with few exceptions, never put their hands to the plow or the sickle. As a result of this another drawback arises, namely, that the [Indian] adults delay having themselves baptized. In the service of their masters they live according to their pagan notions and practices. This freedom which they lose by adopting Christianity, inspires them with a great disaffection for Christianity. The only thing we gain is baptizing the children in immediate danger of death [Geiger and Meighan 1976:129].

Baptisms of 10 individuals claiming Guaspet as their place of origin were conducted at the pueblo between 1791 and 1802, during the early period of the settlement's history. Four of those 10 baptisms (SG Baps 3185, 3160, 3532, and 3533) actually took place at the *ranchería* immediately adjacent to town (presumably Yabit, more commonly known as Yangna). One of the baptisms was actually performed by Pío Quinto Zúñiga, the owner of Rancho de los Quintos in the Ballona. It was likely no accident that Pío Quinto Zúñiga performed that baptism; he likely did so as a way of creating spiritual and personal ties with the residents of Guaspet (see Chapter 7, this volume, for additional information on this baptism). These baptisms could represent relocated Guaspet people (or their offspring) who had become part of the seasonal labor force residing near the pueblo.

Within a decade of its founding, natives had flocked to Los Angeles in such numbers that Governor Fages felt obliged to establish guidelines for their treatment and employment as laborers (Mason 2004:19–22). The intent of his *Reglamento* was to ensure just and humane treatment of the natives, partly to reduce the security risk and to discourage "pernicious familiarity," meaning sexual relations with Native Californian women (Hackel 2005:311). Today some of Fages's rules seem somewhat petty, and all must have been to some degree unenforceable. For example, Native Californians were not permitted to enter houses, and if they needed to stay overnight in the pueblo for work, they were to be gathered together next to the guardhouse, so they could be watched. Based on baptisms performed at Yangna, it is clear that Gabrielino/Tongva from across the Los Angeles Basin—as well as members of other tribal groups—likely resided at or visited Yangna during the Mission period, likely related to work in and around the pueblo (Douglass 2009). In addition, no Christian Native Californians from the mission were allowed in the pueblo without permission (Mason 2004:22). Despite those rules,

> Gabrielinos also toiled in Los Angeles as vaqueros, cooks, muleteers, water carriers, and domestic servants. By the mid-1790s, the presence of so many Indian laborers led to considerable acculturation between the Indian and Spanish communities. Many Indian laborers spoke Spanish and dressed like their employers, "clad in shoes, with sombreros and blankets." Moreover, many settlers spoke the Indians' language; some even married Indian women [Hackel 2005:311].

Ranchos near the Ballona

What of the possibility that some Guaspet natives remained in the Ballona and were absorbed as laborers on one of the local ranchos? Although no settlements were described in the *expedientes*, perhaps other documentary evidence exists.

From the first years after the pueblo's founding, livestock raising was highly successful. By 1784, the need for additional grazing land for the *pobladores*' growing herds had become acute. In correspondence dated November 20, 1784, Governor Fages stated that "the stock continues to increase, so that it being necessary to extend the grants [concessions] of land of various people, I have conceded provisionally some *sitios* to Juan José Domínguez . . . Manuel Nieto . . . and to the sons of the widow of Ygnacio Carrillo the land of Arroyo Hondo" (Bancroft 1884:609; Tays 1939:45). Thus, Juan José Domínguez, a soldier from Presidio San Diego, received one of the first documented concessions of a *sitio*, or grazing lands with water, in what is now known as Palos Verdes and San Pedro, in the Los Angeles area.

Domínguez's huge concession, known as Rancho San Pedro, extended over 16 square leagues, or 75,000 acres, of pasture land at the lower part of the San Gabriel River, near the ocean (Cleland 1941:12; Harlow 1976:19). Originally, the concession included the Palos Verdes Peninsula (Cowan 1977:86). As was the practice for all early rancheros, Juan José Domínguez maintained a residence in town (in his case, both Los Angeles and San Diego) and left the management of the property to a *mayordomo.* Reputedly, his management style was a bit too casual; cattle were allowed to roam unbranded, and "brood mares were left unherded," causing friction with his neighbor, Manuel Nieto (Cleland 1941:12). Those herds must have presented some opportunity to the remaining native residents of the coast. A report of Native Californian activity in the area dated 1787 stated the following:

> In July came a report that some Indians who lived on the ocean (evidently near Santa Monica) had killed and eaten some cattle belonging to persons living in Los Angeles. After reporting the incident, a month later it was decided that [*Comisionado* Vicente] Felíz was to investigate the cattle-theft by the Indians and was to submit a report [Mason 2004:22].

The cattle referred to may have belonged to the free-roaming herds of Juan José Domínguez. There was a tenuous but interesting connection between Domínguez's cattle and Guaspet found in correspondence from 2 years later. In December 1789, "a robbery or theft" (presumably of livestock) was reported to *Alcalde* Sinova by Francisco Xavier Pico, who had been caring for Domínguez's rancho when the theft took place (Mason 2004:24). The connection to Guaspet was made through Francisco Xavier Pico, the *mayordomo* of Rancho San Pedro between 1787 and 1790. Born in San Xavier de Cabazán, Sinaloa, Francisco Pico was the son of Santiago Pico and Jacinta Bastida. Francisco served in the military until his discharge on September 14, 1787, and in 1790, he reenlisted in the army in Los Angeles for a 10-year stint and apparently left the Ballona area (Mason 2004:25–26). He died in Santa Bárbara in 1835 (Northrop 1984:205). According to the baptismal registers, *Mayordomo* Francisco Xavier Pico was the officiant at the very first baptism of a person from Guaspet and the only baptism to take place at the *ranchería*—that of baby Joseph. The record (SG Bap 1953) reads, "*En 31 de Diciembre 1790 enterraron los gentiles de Guachspet el cuerpo de un parvulo*," which translated reads, "on December 31, 1790, the gentiles of Guachspet buried the body of an innocent [boy] child." Pico must have reported the baptism at the mission, where the child was given the name Joseph. Clearly, Pico visited Guaspet and knew the people well enough to perform that ceremony.

It is also possible that the cattle eaten by the Native Californians (of Guaspet?) in 1787 belonged to a *poblador* or *agregado* (an ex-soldier settler) from Los Angeles who was grazing them in the Ballona, which at that time was considered to be common land pasture (*paraje*) belonging to the pueblo. A "misunderstanding" of Governor Fages's instruction to establish a pueblo "the extent of four leagues in a square" was taken in the 1780s to mean four leagues *on a side*, an area of 16 square leagues (Harlow 1976:18). That interpretation, which held sway legally until 1846, allowed the boundaries of the pueblo to include immense common acreage stretching south to the seashore, including the lands that became Rancho de la Ballona and, directly to its south, Sausal Redondo. The actual, much smaller borders of the City of Los Angeles were not formally defined until after California achieved statehood on September 9, 1850, and redefining the city's borders predictably resulted in prolonged legal headaches.

That the lands of the Ballona initially had been claimed by the pueblo and thus were part of an *ejido*, or communal ownership system, goes a long way toward explaining why neither missions nor land-hungry rancheros were immediately able to grab any of the coastal strip or well-watered basin lands of the Ballona. Mission San Gabriel lands extended to the east, ultimately into the San Bernardino Valley, and the first ranchos claimed land in the San Fernando Valley and east of the San Gabriel River (Bancroft 1885:111; Harlow 1976:19). The Ballona, at least for a few years at the end of the 1700s, remained unclaimed—a sort of no-man's land.

Rancho de los Quintos and the Quinto Zúñiga Family

As described above, the first rancho near Guaspet and the Ballona was the large Rancho San Pedro, concessioned in 1784 (Cowan 1977:86). In the same time frame, "private ranchos, of which there would be more than fifty in the vicinity, all with similarly indeterminate boundaries" were founded in clusters around the Pueblo of Los Angeles (Harlow 1976:19). In nearly all histories of the Ballona, the beginning of the rancho period has always been dated from the petition of 1819 by its presumed first claimants, Agustín and Ygnacio Machado and Felipe and Tomás Talamantes. In fact, a prior claim was made by Pío Quinto Zúñiga, who apparently named it Rancho de los Quintos (or it was known as such because his family lived there) (Mason 2004).

In February 1795, Felipe de Goycoechea, *commandante* of Presidio Santa Bárbara, wrote a description of the four officially permitted ranchos of Los Angeles in existence at that time. In addition to that of Domínguez, there was La Zanja (also called San Rafael), belonging to José María Verdugo; Manuel Nieto's huge spread, originally known as Los Nietos; and the *sitio* of El Encino, owned by *Alcalde* Francisco Reyes (Cowan 1977:52, 62, 87; Farris 1999:173; Mason 2004:29). No new concessions were made in the Los Angeles area until later in 1795, when Mariano Verdugo, brother of José María Verdugo, was concessioned to Portezuela, and the family of Santiago Pico (including his sons Francisco Xavier and Patricio) established their claim to Rancho San José de Gracia de Simi. In 1797, Reyes's rancho became the site of the new Mission San Fernando Rey. According to archival sources, those were the only ranchos to receive official approval through the end of the century. The lands of the Ballona adjacent to Baldwin Hills and the Westchester Bluffs were not parts of any claim at that time.

In 1800, a number of retiring presidio soldiers (*invalidos*) arrived with their families to adopt the life of the *vecino,* or civilian resident, of Los Angeles. José Manuel Machado, former soldier, arrived in California with the Rivera Expedition in 1781 (Mason 2004:65). Bringing his sons Agustín and Ygnacio and the rest of the family, Machado settled in the pueblo in 1799 (Mason 2004:76). Pío Quinto Zúñiga, also an ex-soldier, had been a Pueblo *vecino* since 1787. Their paths must have crossed in the tiny town; ultimately, they were to claim the same tract for their grazing animals, Rancho la Ballona. Pío Quinto's claim was first.

> Rancho Ballona, also known earlier as Los Quintos (from Zuñiga's name, Pio Quinto, which was often used much like a surname in *pueblo* correspondence), was evidently granted [concessioned] shortly after 1802, probably about the same time that the grant [concession] of Malibu was made to Bartolo Tapia in 1804. . . . Rancho de los Quintos is mentioned as being at the mouth of the Los Angeles River, and it is the one later confirmed as Rancho Ballona [Mason 2004:57].

That provisional concession would have been decreed by José Joaquín Arillaga, a Spanish captain who served as governor ad interim in 1793–1794 and again in 1800–1804, after which he served as full governor until 1812. Among the provisional concessions made by him, including Las Virgines, El Conejo, Topanga, Malibu, Santa Ana, and San Antonio, were "possibly others of less importance" (Aviña 1932:21). Rancho de los Quintos was apparently one of them. José del Carmen Lugo vaguely remembered a concession to the Quinto Zúñigas.

Adding confusion to the situation, Robert Cowan, usually an entirely reliable source on the ranchos of California, placed Rancho de los Quintos in Ventura County. By interesting coincidence, however, he stated that the recipients of that Los Quintos Rancho in 1819 were Felipe Talamantes and Manuel Machado (Cowan 1977:66). Rose Aviña, who also worked with the original documents, stated that the "Ballona in the Los Angeles district was an early concession to the Quinto Zúñiga family, although the date is not definite. It is not mentioned in later records and evidently was not occupied for long" (Aviña 1932:23). The California State Archives has found no documentation for any Rancho de los Quintos among its records.

The provisional concession of land in the Ballona to Pío Quinto Zúñiga and his family is important because its use period, roughly 1802–1809, overlapped the final period of native occupation of Guaspet, which lasted until sometime in the 1810s, the settlement's being likely abandoned before 1819. The arrival of the Quinto Zúñiga family and their livestock ca. 1802 may well have caused the spike in native baptisms from Guaspet seen between 1803 and 1805. Pío Quinto Zúñiga himself lived in the pueblo, and perhaps the older sons worked with natives in the Ballona, tending stock. We would like to imagine well-intentioned, paternalistic actions by the Quinto Zúñiga family, who, having the best interests of the people of Guaspet at heart, may have encouraged a group of them to go to the mission, where their needs could be better met. In reality, it is equally possible that the family ran most of the Native Californians off the land, retaining just the few they intended to employ. Or it may have been the case that the family tolerated a small native community at the base of the bluffs, but many of its inhabitants left the area on their own when the family and their livestock arrived. Based on the types and quantities of nonnative goods found in the burial area at LAN-62, it seems likely that at least some of the Gabrielino/Tongva living in the Ballona worked for Rancho de los Quintos or adjacent ranchos during the early 1800s (Douglass et al. 2011; see Chapter 6, Volume 3, this series).

The background information on Pío Quinto Zúñiga revealed a man with an apparent fondness for native people, a strong religious orientation, and several interesting links to Guaspet. Pío Quinto Zúñiga arrived in California as a *soldado de cuera*, or enlisted man, in 1782. He belonged to the San Diego garrison and was listed there as a 35-year-old literate *mestizo* (usually meaning having half Hispanic and half Native Californian ancestry) and a native of Guadalajara, Mexico (Mason 1978:413). Four years later, he was assigned to guard duty at the newly founded Mission San Juan Capistrano. On the day after Christmas in 1776, he served as godparent to a Juaneño child baptized at the mission (SJC Bap 4). The following January 23, Pío Quinto was an official witness to the first marriage to take place at the mission (SJC Marriage 1). In 1778, he was again godparent to a native child (SJC Bap 60), and on October 30, 1779, he married a Juaneño neophyte named María Rufina (native name Allam) at that same mission (SJC Marriage 54). María Rufina, the daughter of two gentiles from the Huchimiga (a variant spelling of *Uchme* or *Ushmay*) *ranchería*, was 18 at the time (SJC Bap 177).

Between 1788 and 1800, Pío Quinto and Rufina had 10 children together. Their children's names, in order of baptism, were Buenaventura, María Anastacia, Serapio María, Josef Balentín, Josef Manuel, Joseph Valentín Antonio, María de los Angeles, Guillermo Apolonio, Simón Tadeo, and Aniceto. A kin relationship between Pío Quinto Zúñiga and the famous *Alferez* José de Zúñiga has not been established. Pío Quinto Zúñiga and Rufina seemed to have had a contented and relatively successful married life together.

Pío Quinto Zúñiga was first counted in the list of *pobladores* of Los Angeles in 1787 (Mason 2004:69). On April 26, 1789, he was at Mission San Gabriel, serving again as witness at a marriage (SG Marriage 346). Soon after, he retired as a soldier and became a farmer and rancher. In 1790, "Pedro Romero moved to San Diego presidio from the pueblo, having sold a *milpa* (a field, often planted in corn, beans, or wheat) for a nominal sum to a newly-arrived settler, Pío Quinto Zúñiga, himself a former San Diego soldier" (Mason 2004:25). In the correspondence of Felipe de Goycoechea dated December 31, 1799, Pío Quinto was included on a list of "*nombres de vecinos, indivo y tropia de Los Angeles, que tienen ganados y cosechas,*" or residents in and around Los Angeles with cattle and crops. In 1801, Pío Quinto again made the list of growers of wheat in the Los Angeles region (Mason 2004:36–37).

Pío Quinto Zúñiga lived full-time in the pueblo, as required by the *Reglamento,* but undoubtedly visited the Ballona after receiving the provisional concession in ca. 1802. The baptism record from 1803 of a 30-year-old Native Californian woman from Guaspez (Guaspet) named María indicated that the officiant of the baptism was "Luis" Quinto Zúñiga, perhaps a misunderstanding of Pío Quinto's name (SG Bap 3532). María died 10 days later, and her daughter Francisca, also from Guaspez (Guaspet), died the following month (SG Bap 3533).

The Quinto Zúñiga name was associated with La Ballona through about 1809. Pío Quinto's children, half Native Californian themselves, apparently had been able to establish ties with the people of Guaspet, as evidenced by the baptism of the child José Francisco from Guaspet on March 28, 1809. The parents of little José were the gentiles, Chary and Ginuiba; his godparents were Pío Quinto's son and daughter (SG Bap 4284). The document made clear that some connection existed between the Quinto Zúñiga family and the gentiles of Guaspet.

When Pío Quinto Zúñiga died on June 17, 1805 (SG Death 2406), the family's hold on Rancho de los Quintos was shaken. Pío Quinto's eldest sons had run into difficulties with the authorities, and after his death, matters seem to have gotten worse. In 1802, *Commandante* Goycoechea had described Pío Quinto's eldest son, Ventura (also referred to as Buenaventura) Quinto Zúñiga, as "a lad completely void of any sense of honor, of the most vile thoughts, and who has done much harm. I thought that no other punishment would cure him but to place him in my presidential company. Despite all hope I was obliged to exclude him, because I did not want to see him executed" (Mason 2004:38). The nature of Ventura's offense was not reported. He remained in the military, married Dionisia German, and, by 1809, was living at Rancho San Ysidro, near Mission San Juan Bautista. He and his wife had a huge family of some 11 daughters and 5 sons. He apparently settled down in later life.

Another of Pío Quinto's sons ran afoul of the law through his actions with a Native Californian girl. In 1804, Serapio Quinto Zúñiga, Ventura's younger brother, was arrested for having raped María Ursulina, a Native Californian from San Diego. Serapio was given 6 months in leg irons at Presidio San Diego for the act (Mason 2004:39). Not even Pío Quinto's daughters could stay out of trouble. In 1818, Anastacia Quinto Zúñiga was tried and found guilty of adultery. As punishment, she was obliged to be exposed at the door of the church with her hair shorn and one eyebrow shaved and to stand there during the first feast day that came (Mason 2004:55). Perhaps those scandals had some bearing on the family's loss of Rancho de los Quintos in the Ballona. The correspondence quoted below, dated June 21, 1822, suggested that "lack of care" was the ostensible reason:

> In the second place, [this petition is made by] Aniceto Zúñiga, who, by his deceased father Pío Quinto de Zúñiga, had a ranch with a considerable herd at the mouth of the river of this village, whose property, with the death of his deceased father, was taken from him at that location, because of the lack of care they gave it [De la Guerra Papers, Folder 822, Santa Bárbara Mission Archive-Library; translation by Scott O'Mack].

Pío Quinto's heirs were apparently able to retain the *milpa* in the pueblo until 1847. That town property, 30 *varas* (approximately 30 yards) frontage by 20 *varas* (approximately 20 yards) in depth, included "a small house known as Los Quintos." On April 14, 1847, Valentín Quinto Zúñiga sold the property to Leonardo Cota for 20 pesos in silver.

From Rancho de los Quintos to Rancho la Ballona

Pío Quinto Zúñiga began grazing stock in the Ballona in ca. 1802. Before that time, the Ballona had apparently been used as communal pasture (*paraje*) for livestock of the residents of the pueblo. The Quinto Zúñiga family may not have had exclusive use of the land beginning in ca. 1802, however, and after they left the Ballona in 1808 or 1809, grazing in the area was again open for use by all stock-owning *vecinos* of Los Angeles. Among those to take advantage of that opportunity were Felipe Talamantes and Agustín Machado, who were certainly very familiar with the land and its resources. Felipe had served as *mayordomo* for Juan José Domínguez beginning in 1784, when Domínguez first received the San Pedro concession south of the Ballona. In 1810, a year after the death of Domínguez, Agustín Machado felt free to allow his cattle to roam on Rancho San Pedro, "under the assumption that the lands had been abandoned" (Wittenburg 1973:13). After a time, however, Manuel Gutiérrez assumed control of San Pedro, and Machado needed to find new grazing land.

For the next 9 years or so, Talamantes and Machado shared the communal grazing lands of the Ballona with other *pobladore*s. Then, in 1819, the two men made the first move toward a full land concession and officially requested an exclusive *paraje* from José de la Guerra y Noriega. Both Robinson (1939b:105) and Mason (2004:59) have stated that the original request was made in 1819.

> In December [1819] a petition was sent to protest the granting of Rancho Ballona to the Machado brothers and to Felipe Talamantes and his son Tomás. The Ballona grant [concession] had belonged to Pio Quinto Zuñiga and his sons but had been rescinded after the death of Pio Quinto because his sons did not comply with the rules governing such grants [concessions], such as herding cattle in such a matter that they did not bother the neighboring herds. They lost the grant [concession] probably while the elder brother [Buenaventura] was in the army, about 1808 or 1809. A long list of *vecinos* protesting the regranting of the rancho, which had reverted to public pasture, was added [Mason 2004:57].

Bancroft confirmed a protest of the concession of the "Rancho de los Quintos" in 1819 by 30 pueblo citizens (Bancroft 1885:354). Several of the protestors' names, such as Bernardo Higuera, Máximo Alanís, and Segundo Valenzuela, are familiar in connection to the Ballona area.

What gave Talamantes and Machado the confidence to make their request at that time, despite ongoing communal use of the land? Was the final abandonment of Guaspet a factor? Whatever remnant of Guaspet might have existed by that date, it presented no obstacle to the claimants. Rancho de los Quintos—renamed Rancho la Ballona—was "temporarily" conceded to Felipe Talamantes and Agustín Machado on December 30, 1819.

Rancho la Ballona and the Machado Family

The Talamantes family had arrived in Los Angeles shortly after José Manuel Machado moved with his family there in 1799; Felipe Talamantes was listed as a militiamen in the pueblo in 1807 (Mason 2004:80). The Machado and Talamantes families remained closely associated over the next century. José Manuel's fifth son, José Agustín Antonio Machado, was 3 years old when the family moved to Los Angeles. As a young man, Agustín, as he was generally known, and his close friend, Felipe de Jesús Talamantes, were employed to care for the family stock herds. At times, they were accompanied on their horseback treks by Agustín's brother, Ygnacio Machado, and later by Felipe's son, Tomás Talamantes. The four men eventually formed a partnership that would last for many years (Robinson 1939b).

After receiving *Alcalde* Joaquín Higuera's blessing and a permit from the military commander, José de la Guerra y Noriega, in 1819, the Machados and Talamantes moved their stock to the Ballona. They made good use of the land, stocking it with "large cattle and horses and small cattle [sheep]" and improving it with "vineyards and houses and sowing grounds" (Robinson 1939b:108). Among the crops planted were grapes, corn, pumpkins, beans, and wheat (Wittenburg 1973).

On September 19, 1839, the Machados and Talamantes petitioned for their temporary grazing permit to be made a permanent concession. In that petition, the men stated that 20 years before, they had "occupied, with our grazing stock, houses and other interests, the place called 'Paso de las Carretas,' but more generally known by the name of La Ballona" (Expediente 87, California State Archives, Land Case Files, Southern District of California, Sacramento). That statement has led many to assume that because they were grazing cattle there, the Machado and Talamantes families must have lived in the Ballona beginning in 1819. In fact, in the early years, the four lived in the pueblo and only visited the concession to manage affairs there, as Juan José Domínguez and the Quinto Zúñiga family had done. Several sources stated that Agustín's principal residence was always at the Pueblo of Los Angeles, not in the Ballona. Nevertheless, improvements were required to keep the concession, and an adobe was useful; so, Machado had a house built.

It is believed that the first adobe on Rancho la Ballona was constructed in about 1821, just northeast of the present-day intersection of Overland Avenue and Ballona Creek; it was washed away in a flood about 1 year after its completion. A second Machado adobe, built later in the 1820s, was located near what is now the intersection of Overland Avenue and Jefferson Boulevard (Wittenburg 1973:19). That adobe is no longer standing. Other residences soon followed, and their location, east of the PVAHP project area, is generally considered to have been the core of the original Rancho la Ballona community.

Rancho la Ballona became a legal entity on November 27, 1839, when its 13,920 acres were given in a concession to Agustín and Ygnacio Machado and Felipe and Tomás Talamantes by Governor Alvarado (Cowan 1977:18). Of the four, only Agustín Machado ever built a residence on the rancho. The Talamantes had established adobes on the nearby Rincon de los Bueyes, and Ygnacio Machado had moved in 1834 to the rancho he later claimed, the Aguajé del Centinela, west of Inglewood's Centinela Springs (Robinson 1939b:109). An adobe built in ca. 1833 and known today as La Casa de la Centinela represents the first Californio occupation of the Centinela rancho (Robinson 1939b). Located on Midfield Avenue in Westchester, it is currently the home of the Centinela Valley Historical Society.

By 1839, Agustín Machado had become a prosperous ranchero and trader. He held various positions of responsibility in the community, including *juez de campo*. In addition to owning a large tract of land in the Pueblo of Los Angeles, near his town home (Wittenburg 1973:21), Machado increased his landholdings in what is now Riverside County by buying up two large cattle ranches, having adobes constructed, and establishing family members in them. In the summer of 1855, he purchased three leagues of Rancho Santa Rosa on what is today known as the Santa Rosa Plateau and built an adobe there, which is still standing. In 1858, Machado purchased La Laguna Rancho, a 13,339-acre property that included Lake Elsinore, from Abel Stearns. At least one of the adobes Machado built on that rancho became a Butterfield Overland Stage Company stop. The ranch operations were managed by his eldest son, Juan Bautista Machado; other family members also participated (Fred Machado, personal communication 2002).

La Ballona's Native Workforce

Based on the baptismal data, Guaspet ended as a native *ranchería* in ca. 1815, based partly on the significant decrease in the number of baptisms from the village. Members of Guaspet families were born and baptized after that year, but most were babies born in the mission who had only family connections to the place known as Guaspet. Could a few native people have remained at large in the Ballona through the rancho period and perhaps beyond? The possibility is worth exploring. As reported by Cristóbal Machado, "the work of the ranch was done by local Indians" (Robinson 1939b:6). Clearly, the family used Native Californian labor in the Ballona, but evidence has suggested that they may not have been Gabrielino/Tongva.

In 1839, the year of the La Ballona concession, a boy child was baptized in *articulo de muerto* at the Rancho la Ballona by Felipe Talamantes, and the act was recorded at the Pueblo of Los Angeles church (LA Bap 914). The young *Indio*, christened José Dolores, was the son of two neophytes working on the Rancho la Ballona, Lorenzo and Trinidad, from Mission San Diego. By the 1850s, Agustín Machado's estate covered thousands of acres and included livestock, orchards, and numerous adobe dwellings. Many natives were needed to do the work. Perhaps the Machados used their connections with Luiseño people and employed some in the Ballona. Although less precise, baptismal records from the pueblo church documented that Bárbara Machado (the wife of José Manuel Cota of the Ballona) baptized a 2-month-old Native Californian girl in danger of death at an unstated location in 1834 (LA Bap 448). Interestingly, although the infant's origin was the pueblo, both parents were unbaptized Diegueños. Although we don't know the location of the baptism, one strong contender is the Ballona, because that was where Bárbara Machado resided. That may suggest that the Machado, the Talamantes, and the Machado/Cota families had connections to Native Californians from the San Diego area. In addition, there was another interesting connection between the Cota family and Native Californians. José Manuel Cota, mentioned above, was the biological father of Manuelito Cota, the son of an unmarried Luiseño woman who grew up to become one of the major Luiseño leaders of the mid- to late nineteenth century (John Johnson, personal communication 2014; Phillips 1975).

A report from 1861 mentioned Machado's native laborers at Rancho La Laguna in Riverside County. Native Californian workers at Rancho La Laguna were described in some detail by Charles Nordhoff in 1873. At the time of Nordhoff's visit to Rancho La Laguna with "Senor M." (Juan Machado), the native residents of the rancho lived in "open shanties" within a few feet of the adobe (Nordhoff 1973). The Lake Elsinore and Santa Rosa Plateau areas fall within the traditional territory of the Luiseño, and the Machado family clearly lived in close association with Luiseño people. Research into the 1900 U.S. Census suggested that there could have been a connection between the Machados' Luiseño ranch workers at Rancho La Laguna and Rancho la Ballona (National Archives, Laguna Niguel, 1900 U.S. Census, T 623, Roll 90). An Indian Population Census of "Ballona township" counted a total of three native individuals, all of whom were born in Luiseño territory (two in Temecula and one at San Luis Rey). In 1900, none of the three spoke English, and they were employed, perhaps on one of the Machados' large farms or dairies. It appears that no one identified as a Gabrielino/Tongva remained in the Ballona by that date.

Rancheros such as Machado may have employed, and to some extent protected, native workers on their ranchos, but that did not mean there were no problems. A note from May 30, 1849, stated that the Council for Los Angeles had convened in special session on that date to consider a communication from Tomás Talamantes stating that "the Squata Indians of the Sierra San Vicente, Santa Monica Mountains, were damaging his ranch" and adding that they were "committing barefaced depredations, such as coming up to his house and stealing three horses that had been securely staked, and driving away some of his cattle from the adjoining pasture" (Lelande et al. 1905:243). Even at that late date, livestock were still considered fair game to some.

End of the Early Historical Period

At the conclusion of the Mexican-American War in 1848, Alta California was ceded to the United States, and 4 years later, in October 1852, the Hispanic families owning Rancho la Ballona began filing their claims with the U.S. Land Commission for the confirmation of their concession. At first, the Machado and Talamantes families had smooth sailing, and on February 14, 1854, the board upheld the Rancho la Ballona grant, and the U.S. District Court upheld the decision upon appeal (Robinson 1939a). But the Talamantes family members did not long enjoy their ownership. The insolvency of Tomás Talamantes in 1855 and the death of Felipe in 1856 necessitated the division of their shares of the ranch and the dissolution of the Talamantes/Machado partnership.

The final patent to Rancho la Ballona, with the partitions as decreed by the U.S. District Court and laid out by George Hansen in 1868, was issued on December 8, 1873. Title to the rancho was confirmed to the heirs of Agustín Machado, long after his death and the deaths of the other three original grantees. The heirs' settlement on Rancho la Ballona was represented on the 1868 patent map by two small structures south of Ballona Creek, on land allotted to Andrés, José Antonio, Rafael, and Cristóbal Machado. That small beginning near Ballona Creek slowly evolved into the community of "Machado," which, by 1880, was occupied by families of cattle herders, sheepherders, and dairy farmers. The Machado brothers operated a dairy of some 200 cows and produced "about 150 pounds of cheese per day" on Rancho la Ballona at that time. The community of Machado apparently had no distinct community center but was a scattering of residences along both sides of Ballona Creek, beginning about $1^1/_2$ miles northeast of the PVAHP project area. The location of Machado on later maps shifted with the arrival, in 1887, of the California Central Railroad, which used the name for one of its rail-line stops.

Conclusion

What was Guaspet? It was a real place with real people who lived and died. We can conclude with some confidence that the Gabrielino/Tongva settlement of Guaspet was located somewhere in the Ballona, either on the bluffs overlooking Ballona Creek or in the lowlands near the creek. Although we will never know the exact location of Guaspet, it is highly likely that it was connected with the archaeological sites LAN-62 and LAN-211, at the base of the bluffs, and possibly with nearby LAN-61 and LAN-63, on the bluff tops. Guaspet was home—a place to gather for food and shelter, to make tools, and to bury and mourn those who had passed. The names and birth, marriage, and death dates of some of the people are known, and a great deal about their lifeways is known from the remains that they left in the ground. Mission records documented 92 people from Guaspet that were baptized between 1788 and possibly as late as 1819, along with as many as 174 people who came from Guaspet. There was also evidence of interaction between the gentile residents of Guaspet and local Spanish ranchers during that period and evidence that at least one Spaniard, Francisco Xavier Pico, actually visited the *ranchería* while it was occupied.

Recruitment of people from Guaspet began well after the padres at Mission San Gabriel had recruited from among the mission's nearest neighbors, and it peaked around the same time that the padres began recruiting from among the *rancherías* in what is today west Los Angeles. It probably was not coincidental that the recruitment occurred at the time that the Spanish herds of cattle and horses had grown tremendously and the Pueblo had expanded grazing into the Santa Monica Bay area. It may have been the destruction of native habitat by those herds that drove people from Guaspet to the pueblo and the missions (but see Chapter 4, this volume). One can understand the wrenching, life-altering decisions forced upon the residents of Guaspet by the arrival of the Spanish and their animals. Perhaps a glimpse into their lives may be revealed in records of the baptism of a deathly ill child or the theft of a cow from an untended herd.

The evidence (or, more correctly, the lack thereof) pointed to Guaspet's being depopulated before 1820; certainly, the native way of life was gone by that date. Little is known about Guaspet beyond these few facts. The hunt for Guaspet in the documentary record, however, is far from finished. Although some sources that were expected to produce answers have not, others have added surprising new data. One of those sources may yet lead to a first-hand description of Guaspet. The people of Guaspet are entirely gone now—or perhaps not, if words can keep a link to the past alive.

Glass Beads and the Villagers of Guaspet

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Spain's conquest of Alta California unfolded quickly. Within the span of a lifetime or two after 1769 and the establishment of Franciscan missions in the region, most of Alta California's native communities had collapsed or undergone profound change, and the landscape, both human and natural, had been transformed. In the final decades of the eighteenth century, as Spanish colonization in Alta California took hold, untold numbers of Indians sickened and died from introduced diseases, and tens of thousands of others moved to the newly established Franciscan missions, where they faced many challenges. Simultaneously, a multitude of cattle, horses, and sheep, as well as a variety of European-introduced crops, remade the natural environment upon which California Indians had subsisted for thousands of years. By the 1830s, the precontact population of California, which may have surpassed 300,000 in 1769, when the first mission was established, had been reduced by half, and it would continue to fall through the nineteenth and twentieth centuries. California's native population would not begin to increase until the mid-twentieth century, and in many ways, that increase was due to the relocation of Indians from other parts of the country, not to a recovery of Indians whose ancestors had lived in colonial California.

When seen in the aggregate, the transformations of California between 1769 and 1850 were stark and of a piece with familiar narratives of the decline of Indians nearly everywhere in the Americas after 1492. However, to grasp the ways in which natives sought to manage change, it is essential that scholars study the struggles of individual communities during that time. As discussed by Douglass and Reddy in Chapter 7 of this volume, faced with the increasing entrenchment of colonialism, the Gabrielino/Tongva had several options, including (a) becoming part of the colonial economy at ranchos and/or the Pueblo of Los Angeles, (b) being recruited to the missions to become neophytes, or (c) trying to maintain a traditional way of life, either at their original native-village location or in a new location more distant from colonial activities in the Los Angeles Basin. Based on research by a variety of scholars (e.g., Bernard 2008; Graesch et al. 2010), even in situations in which the Gabrielino/Tongva and nearby groups moved to refuge communities to attempt to keep their cultures alive away from colonial forces, there was still some level of interaction with the colonial economy and its settlers. Glass beads—one of many types of material goods that Native Americans sought during those cultural exchanges—were perhaps some of the earliest and most persistent signs of indigenous/colonial interaction in Alta California. This valuable case study of the small and obscure Gabrielino/Tongva village of Guaspet (Figure 157), located somewhere in the Ballona, indicated that glass beads were obviously a very important medium of exchange between villagers and colonists and missions, because nearly 60,000 glass beads were recovered from archaeological sites in the PVAHP area.

As was documented in the previous chapter, archival research for the PVAHP documented a native village in the Ballona during the Mission period named Guaspet. That community is still only dimly understood by today's scholars, but historical and archaeological evidence suggests that, as was the case throughout Alta California, its members sought to manage Spanish colonization even as they succumbed to it. Here, in this chapter, the interpretive focus is on what Spanish glass beads and the historical record can tell us about the villagers of Guaspet. Both shell and glass were central to California Indian life, and they serve as important indicators of the nature of Guaspet villagers' interactions with the Spaniards who remade the Los Angeles region between 1769 and 1850. The results of this study indicated that there were numerous opportunities for the residents of Guaspet to receive glass beads through interactions with colonists at nearby ranchos and the pueblo, in addition to the missions themselves. Indeed, it was colonial policy to exchange glass beads with native groups across Alta California to facilitate interaction. Extensive archival research into colonial correspondence, mission records, and other documents offered insight into the ways the residents of Guaspet interacted with the newly established colonial institutions through which they would have received glass beads.

Beads and California Indians

Scholars have long studied the manufacture, trade, and diffusion of beads, primarily those manufactured from shell,

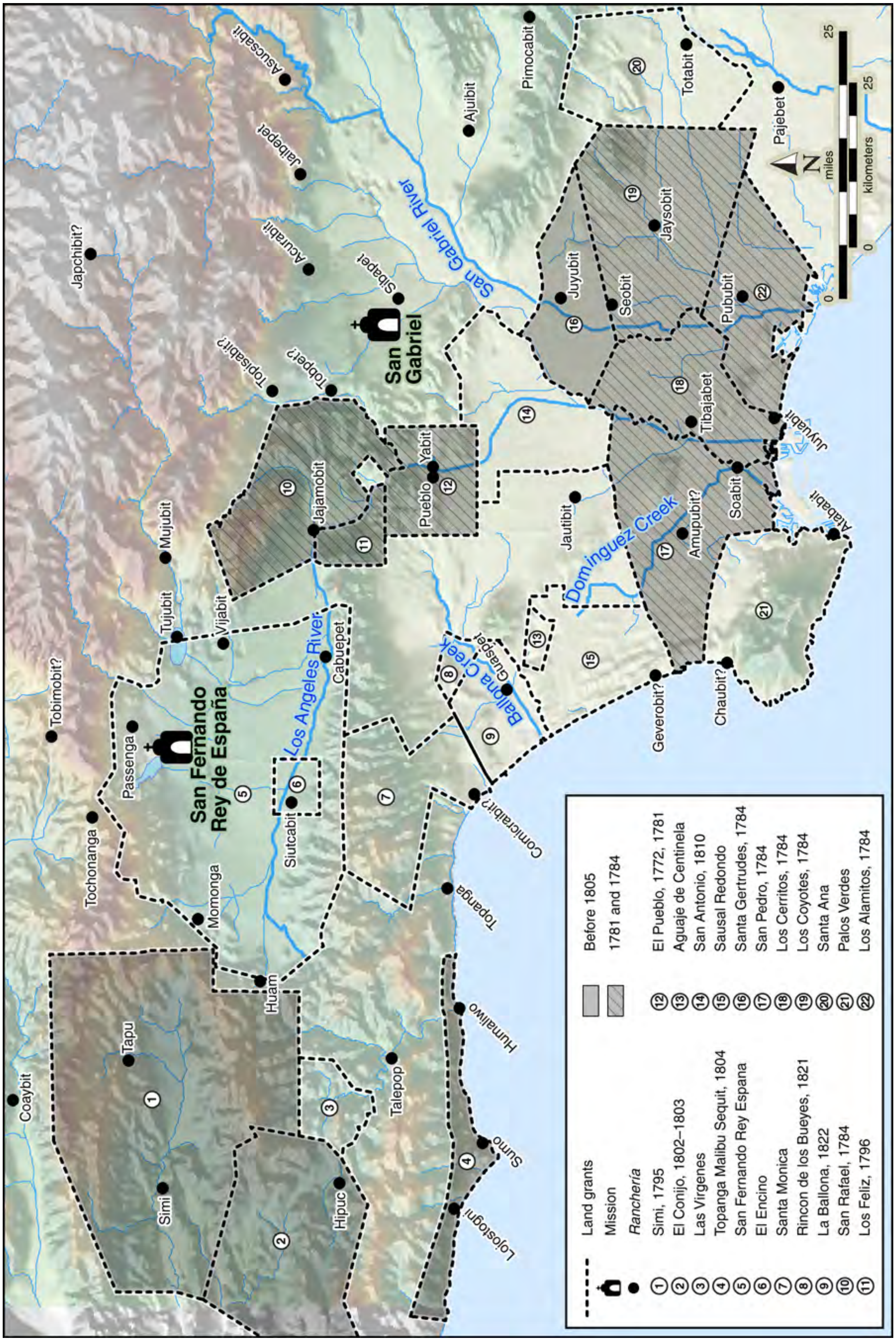

Figure 157. Map showing the locations of ranchos, missions, and the pueblo in the Los Angeles area during the Mission period.

in precontact California (e.g., Arnold 2012; Arnold and Graesch 2001; Arnold and Munns 1994). The use of beads in a variety of media had been an integral part of California Indian culture for thousands of years before the arrival of the Spaniards. It was not simply an important characteristic of early California Indian culture but was an instrumental factor in its very development. Shell beads in particular have been in use by western Native Americans for over 10,000 years (Fitzgerald et al. 2005) and have been an important medium of reciprocity exchange among and between different groups in the U.S. Southwest, California, and the Great Basin (Bennyhoff and Hughes 1987). Shell beads—made primarily from the *Olivella* genus—have been the primary type, but other materials have also been used and exchanged. For example, during the Intermediate period in the Gabrielino/Tongva culture area, stone beads became more prevalent, especially in burial contexts as grave offerings (Cleland et al. 2007; Douglass et al. 2005). Overall, however, stone beads have played a relatively minor role in southern California Native American cultures. Shell beads, which played a much stronger role, were valuable, not just because they could be exchanged for other goods but also because they retained their value for many years, holding what Gamble (2008:11) has termed "storage value" or what O'Shea and Halstead (1989:123) referred to as "indirect storage."

King (1990; see also Gamble 2008:55) has documented that as early as a.d. 1150, the Chumash began to manufacture *Olivella biplicata* callus beads. Soon thereafter, the Gabrielino/Tongva began to trade with the Chumash for those shell beads. Recent isotope studies have suggested that shell beads were made at a variety of locations across southern California, both on the mainland and on the northern and southern Channel Islands (e.g., Eerkens et al. 2010). Arnold and colleagues (e.g., Arnold 2012; Arnold and Graesch 2001; Arnold and Munns 1994) have extensively documented shell-bead manufacture and use among the Chumash in the northern Channel Islands.

Although the Gabrielino/Tongva probably did not produce shell beads in the same quantities as their northern Chumash neighbors, they were avid traders. They regularly traded goods made from the steatite that they quarried on Santa Catalina Island. They frequently traded those goods with the Serrano, their inland neighbors, receiving in return acorns, seeds, obsidian, deerskins, and many other goods (Bean and Smith 1978:547). For the Chumash and most other California Indian groups, shell beads also served as "social markers" that allowed for the easy demarcation of the rich and powerful from the poor and powerless (Gamble 2008:55). Because of their social value, shell beads were often associated with Indian mortuary remains. The Chumash elite were often interred with "hundreds or even thousands of beads" (Gamble 2008:282). The Gabrielino/Tongva also interred their dead with shell beads.

Archaeological work has revealed that both shell and glass beads were important to the native residents of the Ballona. As detailed in Volume 3 of this series, more than 93,000 shell beads and 58,000 glass beads were recovered during excavations, primarily from the burial area at LAN-62. Glass and shell beads were found in burials as well as scattered throughout the area, suggesting different types of offerings and grave goods. Approximately half the glass beads were found with burials. In some cases, shell beads and glass beads were found strung together, suggesting that they played similar roles in the adornment of burials. Although glass beads were a new commodity to the Gabrielino/Tongva, they quickly incorporated glass beads into daily life and mortuary rituals, as they already had sustained and entrenched traditions of shell-bead use. Lester Ross (see Chapter 6, Volume 3, of this series) noted that it is unusual that there were so few white or clear glass beads in this collection, because clear and white glass beads, especially small seed beads, have been commonly found among Mission period sites across Alta California. Ross has speculated that the white glass beads were so common partly because their similarity in color to shell beads made incorporation of the new bead medium easier. Although historical accounts indicated that strings of beads were often carried north by Spaniards, evidence from the burial area at LAN-62 suggested to Ross that many of the 155 burials with glass beads were interred with much fewer than a full string of beads and, in some instances, perhaps as few as a small handful of glass beads. As discussed in the following sections, the Gabrielino/Tongva received glass beads as payment and/or gifts for numerous tasks and interactions with colonists and the missions. As discussed by Reddy and her colleagues in Chapter 6 of this volume, that increase in the availability of glass beads, as well as new technologies available during the Mission period for the manufacture of shell beads (the use of iron needles rather than bladelet microdrills), allowed groups such as the Gabrielino/Tongva to gain much easier access to items of wealth and status than ever before (see Arnold 1987).

Early Historical Period

Spanish explorers ventured into a bead-rich Alta California in the middle of the sixteenth century, when Juan Rodríguez Cabrillo sailed up the Pacific coast from Mexico, perhaps as far north as present-day Monterey. Cabrillo and his men distributed what they termed "presents" to the various Indians they met along the coast. In early October 1542, Cabrillo's men dropped anchor at either Santa Catalina Island or San Clemente, where a canoe "containing eight or ten Indians . . . came out to the[ir] ships. . . . These [Indians] were given some beads and presents with which they were well pleased, and shortly went back" (Wagner 1929:85). The diary of the voyage of Cabrillo did not detail what kind of beads the Indians were given, but in all likelihood, they would have been glass beads, perhaps Chevron beads (see Lightfoot and Simmons 1998:154–155). Cabrillo's diary suggested that the Spaniards gave those glass beads to Indians as tokens of friendship and not in return for specific commodities, such as food or water.

After a hiatus of 60 years, Spanish exploration of California and the exchange of glass beads with Indians continued with the arrival of Sebastián Vizcaíno, who in 1602–1603 sailed up the Pacific coast from Mexico in search of a port that the Spaniards could use to reprovision Spanish galleons returning from Asia. It appears from the diary of Fray Antonio de la Ascensión, a Carmelite brother who accompanied the voyage, that the expedition was prepared to use glass beads as a means to pacify Indians (O'Neil 1992:2) should they become confrontational. According to O'Neil, who has studied glass-bead distribution by the Vizcaíno expedition, the expedition used glass beads not to trade with Indians but to reduce "tension" between Spaniards and Indians.

Fray Ascensión recommended that the expedition carry "a quantity of trifles, Flemish trinkets, such as beads of colored glass, artificial garnets, hawks' bells, mirrors, knives, cheap scissors, Parisian tops, and some articles of clothing" to be distributed "with signs of love and affection for the Christians" so that "the Indians may become quiet, humane, and peaceable, and obey the Spaniards without opposition or repugnance" (O'Neil 1992:3). Although glass beads certainly did not accomplish all that Ascensión imagined they could, Vizcaíno seemed to distribute glass beads regularly during his exploration of coastal southern and central California.

In the San Diego region, about 10 days after Vizcaíno's men skirmished with Indians who had appeared unwelcoming and after the Spanish had made landfall and had taken on fresh water, a group of Indians approached the expedition. Fearing an Indian attack, Ascensión was sent out as an emissary. He made what he believed were signs of peace, and when the Indians put down their arms, Ascensión embraced the Indians and "gave them some bead necklaces of colored glass, cords and ribbons to put around the neck for ornament" (Wagner 1929:233). When two old women approached, Vizcaíno, the padres, and the soldiers "entertained them" and gave them glass beads and biscuits; the Indians were apparently gratified by those presents. Thus, as these few instances demonstrate, some coastal California Indians received glass beads from Spaniards during the sixteenth and seventeenth centuries.

To Indians used to attributing value to shell beads, the Spaniards' glass beads may have looked different. They were colored and not white and were probably more consistently uniform in shape and size than the shell beads that Indians manufactured in California. However, California Indians quickly assimilated the glass beads into their own ideological systems. California Indians most likely came to value Spanish glass beads because of their conventional value as shell-like beads, not because they were in some way new (Miller and Hammell 1986).

Spanish Occupation of Alta California

One hundred sixty-seven years after Vizcaíno explored coastal Alta California, Spanish colonists returned to claim the region for Spain and to establish permanent settlements. The Spaniards also believed that glass beads were crucial if they were to curry the favor of the region's inhabitants; both the land and sea expeditions to California carried large quantities of provisions for the soldiers and goods intended for Indians, including large quantities of glass beads. A division of the overland expedition to settle Alta California left Velicatá in Baja California in March 1769, led by Fernando Rivera y Moncada. That party counted Franciscan Juan Crespí among its numbers and carried a wide assortment of beads: 3 *libras* of *pita floxa*, 1 *gruesa* of rosary beads, 2 *libras* of *pita torcida azul,* 1 *libra* of *pita torcida de niña*, 165 strings of blue beads, 2 *mazos* of assorted corral beads, 300 bundles of *corral de esmalte*, 300 bundles of corral beads the color of *leche*, and another 16 bundles of assorted beads (Henry E. Huntington Library, Chapman Collection [HEHL-CC], San Marino, California, Estado General 1769 [EG], José de Gálvez [JG], Document No. 1324). Similarly, another part of the overland expedition, led by Gaspar de Portolá, carried an equally rich trove of glass beads: 47 bundles of assorted beads, 3 bundles of assorted corral beads, 60 bundles of milk-colored beads, and 16 pounds of mixed small beads (HEHL-CC, EG, JG, Document No. 1351). The ship *San Carlos* sailed north to California with 26 bundles of beads and 10 pounds of small beads. More specifically, those 26 bundles of glass beads were composed of 1 bundle of blue beads, 1 bundle of green beads, 12 bundles of yellow beads, and 6 bundles each of black beads and white beads. At least 2 of the 10 pounds of small beads were blue (HEHL-CC, EG, JG, Document No. 1189). When the ill-fated *San José* sailed north in January 1770 to reprovision the fledgling settlement at San Diego, it carried not just food and basic provisions but 1 pound of small assorted beads and 1 pound of small white beads (Storace 1770).

Because the ships' crews would not have needed to dispense glass beads as they sailed north, it made sense to carry fewer glass beads than the overland expeditions, but glass beads were clearly seen as indispensable to the success of the colonial venture. Glass beads took up relatively little room in the ships' holds, compared to food, clothing, and guns, but they were equally important in helping to ensure the survival of the first Spaniards who settled Alta California.

Early Ceremonial Exchanges on the Sacred Expeditions

Clearly, the overland expeditions of 1769–1770 carried an abundance of glass beads, and the Spaniards dispensed beads to Indians with great regularity as they moved through unfamiliar lands and ventured to San Diego and Monterey. Spanish military officials tightly controlled the distribution of glass beads; missionaries carried no glass beads of their own for distribution to Indians. According to the diary entries of Fray Juan Crespí, the overland expedition led by Rivera y Moncada distributed few glass beads to Indians until it reached the port of San Diego—in other words, Rivera y Moncada held onto the majority of the expedition's glass beads until it entered unfamiliar land. In Baja California, on March 31, 1769, and then on April 10, 1769, Rivera y Moncada gave glass beads to young girls; on April 18, he gave glass beads to a man who helped him locate water for the expedition's animals (Crespí 2001:189, 203, 215). On May 8, Rivera y Moncada used glass beads to try to assuage Indians who, he believed, were going to attack (Crespí 2001:233, 239). And as the expedition moved north from San Diego in search of Monterey and then back again, glass beads figured ever more prominently in Indian-Spanish relations.

The Spanish soldiers' sense of the importance of glass beads to California Indians probably was enhanced by their encounter on May 1, 1769, before they left San Diego, with an Indian man who, they believed, was a village captain and who had "beads hanging from the cartilage of his nose" (Crespí 2001:236). On July 21, 1769, the expedition met an Indian man who had glass beads that seemed to be of European origin. "We have seen beads," wrote Crespí (2001:287) soon thereafter, "Castilian ones, being worn around their necks; whether they will [*sic*] may have been preserved by them since General Vizcaíno's time, or whether there may be some nation further up that has given them to them, we cannot tell."

When the expedition ventured overland north of San Diego in search of Monterey and then back again to San Diego between July 1769 and May 1770, Spanish officials distributed glass beads to Indians for a wide variety of reasons and in many different circumstances. Although it is not clear from the Spanish written record what Indians made of those interactions and exchanges, Spaniards saw their distribution of glass beads to Indians as a means of encouraging and rewarding Indians for their cooperation and as a way to compensate Indians for specific goods that they provided Spaniards.

On only a few occasions did Indians give the Spaniards beads. On July 28, 1769, a man, perhaps a village chief, gave Rivera y Moncada goods and a string of shell beads; on August 2, Indians apparently "threw three handfuls of their beads" at the Spaniards (Crespí 2001:314); and on August 4, Indians gave Crespí "a good string of the sort of beads that they all have, made of white seashells and red ones . . . that look to be corral" (Crespí 2001:349). Those gifts seem to have been part of Indian diplomatic initiatives and were often accompanied by Indian speeches and the smoking of tobacco (Crespí 2001:341).

Early Trade between Indians and Spaniards

By August 1769, as the expeditions moved north, the Spaniards' supplies of food began to dwindle, and Indian granaries swelled from the late-summer harvests, Indians and Spaniards seem to have entered a period in which Spaniards regularly exchanged glass beads for Indians' food, which was in keeping with how Indians often used shell beads in their own exchange networks. During August and September, as the Spaniards moved through Chumash territory—the region of Alta California where Indians most clearly used shell beads for exchange—the expedition received large amounts of acorn "gruel and mush" as well as barbecued fish in return for glass beads. On August 8, the Chumash brought to the Spanish encampment 23 bowls of gruel, and on August 20, they offered 16 bowls of "gruel and mush" and were presented with glass beads and colored ribbon (Crespí 2001:423).

Significantly, on the dozens of occasions when Spaniards gave glass beads to Indians between July 1769 and May 1770, the glass beads were almost always distributed by the military. Only twice—on July 18 and 19—did the Franciscans distribute glass beads to Indians, and Father Crespí made it clear in his diary that on those occasions, he distributed glass beads not of his own volition but at the request of Pedro Fages, leader of the expedition. Fages, according to Crespí (2001:281), "desires the two of us [Serra (see below) and Crespí] to distribute them" and "had me distribute them, he handing them to me and I myself passing them out to everyone." Crespí's writings also revealed that in those early years, the Spanish military in Alta California seemed to give glass beads to just about every Indian who approached them with offerings of food, water, or directions, whether they were young or old, male or female.

The Franciscans' rare participation in the distribution of glass beads during the earliest years of the exploration and settlement of Alta California was underscored by Father Junípero Serra's experience of traveling north through Baja California to San Diego in 1769. Along the way, Serra had numerous interactions with Indians, all of whom he hoped to bring to Catholicism. Although he readily gave those Indians gifts, apparently he had no glass beads to distribute. Rather, he offered Indians food, something that Indians at that time did not want from the Spaniards. Specifically, Serra offered Indians in Baja California figs and meat (Serra 1955b:73, 78–79). On one occasion, the Indians, who had grown accustomed to gifts of glass beads, ribbons, and cloth from Spanish soldiers, would have none of Serra's dried figs or Father Campa's raisins. Serra (1955b:111–113) remarked, "When I did offer them anything to eat, they usually want me to understand, by clear gestures, that they cannot accept that, but want my habit, which they tug at by the sleeve."

It was not just on the expeditions of 1769–1770 that soldiers, rather than missionaries, seem to have controlled the distribution of glass beads to Indians. Juan Bautista de Anza's first expedition to California carried an enormous quantity of glass beads, all of which were marked specifically as gifts for Indians. Anza carried some 3,600 bundles of glass beads, "not including black glass beads but an abundance of red ones," and apparently all were given by soldiers, not Franciscans, to Indians. On both the first and second Anza expeditions, missionaries watched as soldiers gave glass beads to Indians and ingratiated themselves to the locals. In 1773, in the Yuman village of Salvador Palma, Anza gave glass beads to more than 600 assembled Indians. And on the second expedition, on November 1, 1775, Anza gave glass beads and tobacco to more than 1,000 Indians, if his diary is to be believed.

By 1774, when Anza was traveling overland between the presidios of Monterey and San Francisco, California Indians whom he encountered expected Spaniards to give them glass beads, and Anza went so far as to suggest that Indians manufactured a "greed for glass beads." A few years later, when he was traveling to Alta California with Anza, Father Pedro Font observed with evident frustration that California Indians were "so ungrateful toward the fathers and so ill-mannered that in order to obtain the fish the fathers find it necessary to pay for them with beads or maize, for which they ask; and they [the Indians] ordinarily sell only what they [the Indians] have left over" (Bolton 1930:196).

Missionaries believed that they, not just soldiers, should play a lead role in forming relations with Indians, and they resented being pushed to the margins of social/political interactions involving the distribution of beads. Father Pedro Font, whose diary is notable for its many moments of candor, observed about Anza's penchant for distributing glass beads himself that Anza was "given to appropriating to himself all his functions and to being thought important . . . [and he did not] admit to his company any one who may in any way attract attention to the people, for he wishes all the glory himself" (Bolton 1930).

Indians and Glass Beads in the Alta California Missions

California Indians wanted Spanish glass beads because they were valuable as exchange items, because they were important social markers, and because they were central to nearly all aspects of their lives. One could argue that beads—both shell and glass—were, in a sense, the key items that kept the complicated human relations of early California from grinding to a halt. Although it is easy to conclude that Spanish glass beads facilitated relations between Indians and Spaniards, it is important to realize that beads—glass and shell—facilitated relations not only between Indians and Spaniards but within and across Indian communities, villages, and families, and among individuals.

Glass Beads and the Indian Exchange Economy

Missionaries, focused as they were on the recruitment of Indians to missions and their indoctrination into Catholicism, often were surprised by how deeply Indians integrated Spanish glass beads into their networks of exchange and interaction. For example, in the midst of a discussion with his superiors in Mexico as to how best to distribute and allocate surplus resources between the missions, Serra observed that the missionaries at Mission San Luis Obispo believed that glass beads were more valuable to the future success of the mission than any food the soldiers might provide to the padres. The Franciscans at Mission San Luis Obispo, who had amassed a surplus of corn, had offered to exchange their corn surplus for any glass beads the military could spare. With glass beads to distribute, the missionaries believed they could more easily feed the mission's neophytes. For, Serra wrote, "it is easier for him [the missionary at Mission San Luis Obispo] to maintain his people on pinole, which he can get from the gentiles, in exchange for glass beads, than with the two hundred fanegas of [surplus] corn in Monterey" (Serra 1955b:103). Although it is doubtful that such an exchange ever took place, Serra's letter suggests how central beads were to California Indians and the degree to which Indians saw Spanish glass beads as analogous to beads manufactured locally from shell. In another example of the importance of glass beads to the mission economy, Father Esteban Tapis noted that at Mission Santa Bárbara, Indians often accomplished the daily quotas of work that missionaries required of them, and he provided incentives for those who could surpass production quotas. The mission always needed cloth for clothes and blankets; therefore, weavers were paid 2 *reales* in glass beads or wheat for every 10 *varas* of cloth they produced beyond the daily requirement (Tapis 1800).

Trade involving the exchange of glass beads for various commodities also existed between Indians. For example, large groups of Indians from the villages surrounding Mission San Buenaventura purchased seeds and grains from Indians at the mission. One year, Indians from the Channel Islands off the coast of Santa Bárbara came to the mission and left with 11 canoes full of food that they had purchased from the Indians at the mission. The trade went both ways: mission Indians purchased goods from the unbaptized Indians with mission-produced foods, and they acquired food from gentiles by using as exchange the glass beads that they obtained from the padres and the soldiers (Señán and Vicente Santa María, October 2[?], 1800AGN, Provincias Internas 216:92b–93b.).

Glass Beads and Native Resistance

Another indication that beads were central to Indian-Indian relations during the colonial period is the fact that they played a crucial role in attempts to organize resistance to the missions. When Nicolás José of Mission San Gabriel decided to rebel against the mission in 1785, he contacted Toypurina, a 25-year-old unbaptized woman from the village of Japchivit. Nicolás José gave her beads so that she would call a meeting of the unbaptized Gabrielino/Tongva of the surrounding area. It is not clear, however, whether they were glass or shell beads (Hackel 2003).

A decade and a half later, when Chumash Indians staged a revitalization movement at Mission Santa Bárbara, beads played an important role. In 1801, a female neophyte at Santa Bárbara had a dream in which the Chumash deity Chupu (Shup) told her that to avoid death, all gentiles must resist and all neophytes renounce baptism, present offerings to Chupu, and cleanse their heads with special water. The Chupu prophecy took hold in the mission and beyond, and according to Fray Esteban Tapis, "almost all the neophytes, the alcaldes [mission Indian officials] included, went to the house of the visionary to present beads and seeds, and to go through the rite of renouncing

Christianity" (Heizer 1941:128–129). Three days after the Chupu revelation, a neophyte informed the Franciscans of the prophecy, and the padres worked to suppress the cult. Again, it is not clear whether the beads were glass or shell, but those acts of resistance at Missions San Gabriel and Santa Bárbara point to the central role of beads in most aspects of native life at the missions and beyond.

Glass Beads and the Economics of Intimacy

Beads also played a vital role in the household economy and intimate relations of Indian men and women at the missions. In July 1791, the body of an Indian woman, Francisca María Chalc, who had been missing for weeks, was found in the woods adjacent to Mission San Carlos; the body, the Spaniards believed, had been partially eaten by animals. Military officials accused Francisca's husband, Estanislao José Tupag, of murdering his wife. Estanislao's mother, Josefa Neve Toyoschiris, testified that she was certain that her son had killed Francisca María so that he could marry his mistress, Anastacia. Anastacia testified that "one night Estanislao was in her house, and the deceased [Francisca] came to get him from there; they began to fight, and they left, and she saw that they were headed to the corral, and afterwards he came back alone, and took some beads that he kept in her house and went away" (Hackel 2005:206–207).

In the late 1790s at Mission San Juan Capistrano, Juan José, an Indian man, paid his mistress's husband, Aurelio, in beads, cigars, and other goods so that he could be with his mistress (Hackel 2005:207–209). In another case of spousal homicide, a woman, María Bernarda, was accused, along with several accomplices, of murdering her husband, Marcos. During the trial of María Bernarda, it became apparent that among the many troubles afflicting the couple, conflicts over beads and gambling loomed large. On the day before his death, Marcos had refused to return some beads to María Bernarda, and she had warned him ominously that "it would be the last time" that he gambled with her money. As one Spanish soldier in charge of defending the assailants of Marcos during their trial asserted, Marcos's behavior violated the standards of his own culture. In denying María Bernarda the beads, the soldier concluded, Marcos had taken "from her that which could serve to feed her children, that which regularly was left under the care of the wife, not the father" (Hackel 2005:358–359).

Glass Beads and Spanish Measures of Social Control in Alta California

As noted above, soldiers distributed glass beads to Indians during their initial forays into Alta California, and once they had explored the region and begun settlement, they did not refrain from the distribution of glass beads as an important technique of diplomacy and influence. Spanish soldiers continued to use beads to try to influence and control California Indians throughout the colonial period. In fact, the distribution of beads to Indians was a matter of Spanish colonial military policy, not a spontaneous or ad hoc response to local events or circumstances. In 1782, Governor Felipe de Neve wrote to his incoming successor, Pedro Fages, that the primary responsibility of the governor in Alta California was to maintain good relations with Indians. Neve believed that responsibility could not be accomplished without the distribution of glass beads to Indians. For the new governor, Neve advised, "proper government ought to have for him as its main object the preservation of the peninsula in perfect peace and tranquility, maintaining friendship and good treatment for all heathen peoples, and not allowing them to be molested in any way." Neve stated, "Kindness, good treatment and some small gifts, one or two strings of beads, are the chief means for attaining this objective." Neve explicitly noted how that policy had led to the peaceful establishment of Mission San Buenaventura and Presidio Santa Bárbara, and in particular, he cited the importance of the gifts given to the Chumash leader Yanonalit. In 1782, to keep the system going, Neve left 41 bundles of glass beads with Lieutenant Don José de Ortega, the commander of Presidio Santa Bárbara. He also left 8 or 10 bundles of glass beads at Mission San Gabriel, and "twenty or more bundles at Monterey for the same purpose" (Beilharz 1971:157).

Fages heeded Neve's advice, especially when he had to confront the matter of the abandonment of missions by Indian neophytes, even if they left for only for a few weeks at a time. During Fages's tenure as governor, diplomacy, negotiation, and alliances supplemented military raids in the soldiers' attempts to return Indians to the missions and to prevent local villages from harboring them. Fages instructed his subordinates to explain to the village captains what the Spaniards expected them to do when a runaway neophyte sought refuge in their villages: "When a neophyte takes refuge among them," Fages's instructions stated, "secure him without causing injury, and take him to a Mission or Presidio, where the commander will give you corn, dry goods, or beads" (Fages 1782). Thus, the Spanish soldiers offered glass beads and other incentives to convince Indian villagers not to harbor fugitive neophytes.

Glass Beads and the Recruitment of Gentile Laborers to the Presidios

Governor Fages also often recruited Indian laborers to the presidios with promises of glass beads. That practice was especially important during the years when the military was trying to build or shore up the buildings of the presidio at Monterey (Fages 1793). Fages, or one of his subordinates in the Santa Clara Valley, used to call together the Indians' "captains and leaders" and propose that they send groups of "five, ten, fifteen, or twenty men to Monterey, according to the number of people that they had and that they could do without for the defense of their lands." In return for their labor, Fages promised food, "blankets, shirts, glass beads, and shells" (Milliken 1991:405–413). Fages "gave to the Captains four or six strings of beads" upon completion of their work, and "he permitted them to go to the beach to gather shells." According to Fages, two mules were required to transport the shells that the Indians had gathered (Fages 1793).

Shells and the beads made from them constituted one of the most important forms of wealth and economic exchange in native California. For centuries, olivella shells had been traded from the coastal regions all the way into the Great Basin (Bennyhoff and Hughes 1987; King 1978). Most coastal groups participated in that trade, but archaeological evidence has suggested that the Monterey region was one of the most important sources of those shells; the northern Channel Islands were an important manufacturing center for shell beads from at least the Late period (Arnold 1987; Arnold and Munns 1994; Hughes and Milliken 2007). Those Indians, therefore, in working at the presidio, got access not only to Spanish glass beads but also to shells from which they could manufacture their own beads.

Shipments of Glass Beads to Alta California

As the previous discussion has documented, Spanish glass beads were central to Spain's early exploration of Alta California, and they became integral elements of Indian-Spanish relations in colonial California. Spanish glass beads permeated nearly all aspects of intercultural relations in colonial California. As is evident from mortuary remains in the Ballona, where tens of thousands of Spanish glass beads have been unearthed, glass beads were important to Indians who lived outside the missions. Although it is impossible to reconstruct the specific ways in which glass beads came into the possession of the Gabrielino/Tongva in the Ballona, the glass beads found there probably originated from direct trade with residents of the Pueblo of Los Angeles, the Indians and padres at Mission San Gabriel, or the Indians and Franciscans in the surrounding area, particularly the Chumash to the north and the Juaneño, Luiseño, and Kumeyaay to the south.

To obtain a general idea of the flow of Spanish glass beads into Alta California, all relevant colonial-era documents were reviewed to determine the sizes and frequency of shipments of glass beads to southern California, as well as the sizes and colors of the glass beads included in those shipments. From those materials, particularly inventory lists of what was sent to the missions almost every year after they were founded, a list was generated of all beads sent to Missions San Diego, San Juan Capistrano, San Luis Rey, San Fernando Rey, and San Gabriel (see Appendixes 9.1 and 9.2). The list was compiled from information from the *facturas*—inventories of the shipments sent north—which came from various sources and documented all the provisions that were sent to the missions from Mexico. Those beads actually arrived in California; the individual *facturas* state in which crate they were sent and how much freight was paid on each crate.

A separate stream of documentation known as *memorias*, commonly confused with the *facturas*, were requisitions for goods by the various commanders of the missions and presidios of Alta California. They were sent during most years from both the missions and the presidios, but because they were only "wish lists," they cannot be considered records of goods sent to California. Therefore, in the case of the missions studied here, the *memorias* did not figure into any calculations of actual beads shipped to Alta California.

Spanish presidios also received regular shipments of supplies from Mexico, but the surviving documentation for goods sent to the presidios was less complete, largely because of chaos in the 1990s, during the reorganization of the national archives of Mexico (the AGN). For Presidio San Diego, *facturas* for the years 1789–1791 and 1794–1796 were consulted, as shown in Table 76 (see also Appendix 9.1). For Presidio Santa Bárbara, *facturas* for 8 years (1785, 1788–1792, and 1795–1796) exist. There appeared to be no *facturas* for any presidio after the year 1796. For Presidio Santa Bárbara, there was a *memoria* for every year for which there was no surviving *factura*. (Most of the *memorias* for Presidio Santa Bárbara were published in a volume by the Santa Bárbara Trust for Historic Preservation [see Perissinotto 1998].) But as noted above, the *memorias* tell us nothing about the circulation of Spanish beads in Alta California, because many were never filled, as the military encountered increasing difficulty in sending goods to the presidios, especially after the 1790s.

The *facturas* documented that glass beads were shipped annually to the missions and presidios of southern California in large quantities throughout nearly the entire Spanish colonial period (see Appendix 9.1). Those shipments began in 1770 and occurred every year until the early 1800s, when the growing independence movement in Mexico created instability and a shift in naval priorities. Apparently, there were no shipments north in 1806, 1814, or 1815. Shipments resumed in 1816 but were probably terminated soon after that.

Glass beads, it should be noted, though central to the current inquiry, constituted just one small part of the enormous shipments of goods and commodities sent annually to the missions and presidios of Alta California. Glass beads were never sent by themselves to Alta California, and they were always parts of large annual shipments. For example, in a typical year, 200 trunks containing more than 20 tons of goods were packed into the hold of a supply ship and sent north from San Blas to Alta California. Those goods had been purchased and assembled by a Franciscan purchasing agent in Mexico, and they were then carefully inventoried

Table 76. *Memorias* and *Facturas*, by Year and Site

Year	MSD	SJC	SLR	SG	MSF	SDP	SBP
1769	founded					founded	
1770	F						
1771				founded			
1772	F						
1773				F			
1774	F						
1775		founded		F			
1776	F	F					
1777		F		F			
1778	F	F					
1779	F						
1780	F						
1781	F						M
1782	F	F		F			founded, M
1783	F						M
1784	F	F		F			M
1785	F	F		F			F
1786				F			M
1787	F	F		F			M
1788	F	F		F			F
1789	F	F		F		F	F
1790	F	F		F		F	F
1791	F	F		F		F	F
1792	F	F		F			F
1793	F	F		F			M
1794	F	F		F		F	M
1795	F	F				F	F
1796	F	F		F		F	F
1797	F	F	F	F	F		M
1798	F	F	founded	F	founded, F		M
1799	F	F	F	F	F		M
1800	F	F		F	F		
1801	F	F	F	F	F		M
1802	F	F		F			M
1803	F	F	F	F	F		
1804	F	F	F	F	F		M
1805	F	F	F	F	F		M
1806							M
1807	F			F			
1808	F	F		F			M
1809	F	F		F			
1810	F						M
1811	F	F					
1812	F			F			
1813	F						
1816		F	F	F	F		

Key: F = *factura*; M = *memoria*; MSD = Mission San Diego; MSF = Mission San Fernando; SBP = Presidio Santa Bárbara; SDP = Presidio San Diego; SG = Mission San Gabriel; SJC = Mission San Juan Capistrano; SLR = Mission San Luis Rey.

before packing and shipping. Unfortunately, however, extant documentation did not reveal precisely where those items were manufactured or purd; thus, the origins of the glass beads sent north—as well as the origins of the other goods—remain unknown. Franciscans and their agents did, however, record the annual shipments to the California missions in a large account book that they kept at the College of San Fernando, the missionary college that oversaw the missions of California. Each trunk was inventoried, numbered, marked for a specific mission, and then weighed. Missions were then charged freight for each trunk they received.

To contextualize glass beads within those annual shipments of goods to the missions, all of the goods sent to one mission, Mission San Gabriel, in a typical year, 1796 (Table 77), were examined (see Appendix 9.1). In that year, a Spanish naval supply ship carried some 212 trunks to Alta California's 13 missions. Those trunks weighed 1,663 *arrobas*, or about 41,577 pounds. Mission San Gabriel received 27 trunks. Santa Clara received 28 trunks, the most of any mission, and Soledad received the fewest of any mission, only 8 trunks. The Spanish navy charged a freight fee of about a peso and a half per *arroba* (about 25 pounds); thus, all those trunks cost the missionaries some 2,495 pesos in shipping fees. Mission San Gabriel's 27 trunks weighed approximately 5,080 pounds and cost 304 pesos in freight fees.

Glass beads, as always in those shipments, constituted only a very small portion of the goods sent to any mission in a particular year. In 1796, glass beads were included in only 1 of the 27 trunks that Mission San Gabriel received, and they were listed as 1 of 8 commodities inventoried in that particular trunk (Trunk No. 153) bound for Mission San Gabriel. The inventory for Trunk No. 153 listed 6 *arrobas* of chocolate, 2 *arrobas* of formed wax, 6 small cloths, 12 pounds of glass beads, 1 bolt of fine fabric, 1 piece of cambric fabric, 6 pieces of silk cloth, and 1 shepherd's blanket. The glass beads not only took up just a small portion of that single trunk but also weighed only 12 pounds, which constituted only 2.4 percent of the weight of the goods sent to Mission San Gabriel. The mission, therefore, would have incurred a fee of less than 1 peso to ship them from San Blas to Alta California.

What else, then, was in the other 26 trunks? What did the mission spend more than 300 pesos to import in 1796? The other goods shipped to Mission San Gabriel, and probably to the other California missions, can be classified into nine general categories: wine, oil, and chocolate; spices; kitchenware; metal tools; clothing; textiles; religious items for the mission church; items for the mission economy; and miscellaneous goods (Table 78) (see Appendix 9.1). Clearly, the padres found it essential to import wine for the mass and for their own consumption, and they seem to have craved chocolate, which they received in large amounts. They also received a significant amount of oil, some of which might have been used as cooking oil and some of which might have been used during the sacraments.

More specifically, in 1796, Mission San Gabriel received a barrel of *aguardiente*, a barrel of white wine, a flask with *aguardiente*, 2 *arrobas* of oil, and a whopping 18 *arrobas* (450 pounds) of chocolate. They also imported spices, such as pepper, cloves, anise, and cumin, to enliven their diet. They imported skillets to cook their food and fine bowls from which to eat it. They also received hats to cover their heads and sandals for their feet. Metal tools, such as scissors, knives, files, vises, axes, and nails, and tools for the mission forge were among the heaviest and most important goods imported at the mission in that year. Textiles, if not the heaviest goods imported, were certainly among the most common. Mission workshops produced rough woolen fabric but nothing like the fine cotton, linen, and silk cloth that the mission received in 1796.

Crucially, the mission relied on naval ships to bring to California items that were indispensable to the daily practice of Catholicism in the missions and the functioning of their pastoral and agricultural economy. Thus, scattered throughout the 27 trunks that came to Mission San Gabriel in 1796 were rochets, tunics, habits, and *capillas* for the missionaries and frontals, candleholders, bells, and prayer books for the mission church. Also sent north in 1796 was a special iron tool used to make the eucharistic host. The mission received iron hoe points for working the fields and spurs, lassos, saddle covers, bits, and *reatas* for use by the mission vaqueros. Finally, many miscellaneous goods were sent north, and many of those items, like glass beads, cotton balls, and bunches of tobacco, important though they were, were probably stuffed into trunks here and there to fill them up and to balance out their weight. Obviously, glass beads, even thousands of glass beads, took up only a very small percentage of space in those shipments. Nevertheless, the fact that large numbers of glass beads were included in just about every annual shipment of goods is a testament to their importance to social, economic, and ethnic relations in colonial California. Pound for pound and peso for peso, glass beads might have been among the most important goods brought north by the Spanish during the colonial period.

Beads: Shapes, Sizes, and Colors

An exact quantification of the glass beads sent north to southern Alta California is beyond the reach of this study, simply because we do not have a precise understanding of the terms Spaniards used to describe the beads that they sent north. Spaniards commonly referred to glass beads by the terms *abalorios*, *pita*, or *rosarios*. The unit of measurement of beads was usually one of several different types: *libra* (pound), *mazo* (bundle), or *gruesa* (gross). Unfortunately, we have no way of knowing how many individual beads were included in a *libra*, a *mazo*, or a *gruesa*. *Abalorios*, probably strings of beads, were nearly always recorded as coming in *mazos*. *Pita*, probably a small inexpensive bead, was nearly always measured in *libras*. In contrast, *rosarios*, or rosary

Table 77. *Factura* for Mission San Gabriel, November 26, 1796

Transcript from Original *Factura*, by Trunk No.	English Translation
Trunk No. 151	
1 *Caxon* 1 *Barril de Aguardiente*	1 crate 1 barrel of *aguardiente*
Trunk No. 152	
1 *Caxon* 1 *Barril de Vino Blanco*	1 crate 1 barrel of white wine
Trunk No. 153	
1 *Caxon* 6@ *de Chocolate*	1 crate 6 *arrobas* of chocolate
2@ *de Cera labrada*	2 *arrobas* of formed wax
6 *Panitos de Polv.s*	6 small cloths
12 [lbs] *de Pita floxa*	12 [pounds] of *pita* floss
1 *bulto de estopilla*	1 bolt of fine fabric
1 *Pieza de Cambray*	1 piece of cambric fabric[a]
6 *Piez.s de saiai saia azul*	6 pieces of silk cloth
1 *frezada pastoras*	1 shepherd's blanket
Trunk No. 154	
1 *Caxon* 6@ *de Chocolate*	1 crate 6 *arrobas* of chocolate
1 *Abito* 2 *tunicas* 2 *Capillas*	1 habit 2 tunics 2 *capillas*
1 *frezada pastoras*	1 shepherd's blanket
Trunk No. 155	
1 *Caxon* 6@ *de Chocolate Ordinario*	1 crate 6 *arrobas* of ordinary chocolate
1 *Abito* 2 *tunicas* 2 *Capillas* 2 *Cuerdas*	1 habit 2 tunics 3 *capillas* 2 cords
1 *frontal Negro*	1 black frontal
4 *libros* 6 *oficios del rezo*	4 books 6 prayer books
1 *bulto de Estopilla*	1 bolt of fine fabric
3 *Roquetes* 1 *Pieza de manta de China*	3 rochets 1 piece of cloth from China
Trunk No. 156	
1 *Pieza de manta de China*	1 piece of cloth from China
3 *Roquetes de Paño*	3 rochets of cloth
1 *Corte de sarga con sus havios*	1 cut of serge
1 *Riesma de papel*	1 ream of paper
3 *lib.s en blanco 4 paños de rebozo*	3 blank books 4 cloth scarves
1 *bulto de Estopilla*	1 bolt of fine fabric
4 *Piez.a de Bretaña*	4 pieces of Brittany linen
3 *frezadas pastoras*	3 shepherd's blankets
2 *Piez.s de Baieta azul*	2 pieces of blue baize
Trunk No. 157	
9 *Piezas de mantas anchas*	9 pieces of wide cloth
3 *piez.s de Angostas*	3 pieces of *angosta*
2 *Piez.s de Baieta azul*	2 pieces of blue baize
1 *frezada pastoras*	1 shepherd's blanket
Trunk No. 158	
8 *piez.s de manta de Puebla*	8 pieces of blue cotton Puebla cloth
500 *varas de saial raiado*	500 *varas* of silk cloth
1 *Pieza de Paño azul*	1 piece of blue cloth
Trunk No. 159	
4 *doz.s de sobre enjalmas*	4 dozen packsaddle covers

continued on next page

Transcript from Original *Factura*, by Trunk No.	**English Translation**
4 *doz.s de sinchas*	4 dozen cinches
Trunk No. 160	
14 *piez.s de manta angosta*	14 pieces of *angosta* cotton cloth
3 *Piez.s de mantas anchas*	3 pieces of wide cotton cloth
4 *Baquetas* 20 *Manojos de tavaco*	4 pieces of leather 20 bunches of tobacco
1 *frezada pastora*	1 shepherd's blanket
Trunk No. 161	
2 *Caz.s de Cobre*	2 copper skillets
8 [??] *de Cobre*	8 [??] of copper
2 [??] *Chiquitas*	2 small [??]
10 *reatas*	10 rigging straps
Trunk No. 162	
2 *fondos de Cazo de cobre*	2 copper bottoms
12 *doz.s de Clav.s p.a los fondos*	12 dozen nails for the bottoms
los Clavos p.a las Puntas	the nails for the [plow?] points
2 *doz.s de lazos*	2 dozen lassos
Trunk No. 163	
1 *Caxon* 2 *Caxitas con la botica*	1 box 2 little boxes with the pharmacy
1 *doz.a de limas* 8 *Par.s de trigera de Arria?*	1 dozen files 8 pairs of scissors for the ??
1 *Navagero* 8 *doz.s de Beldugques*	1 bag for razors 8 dozen large knives
1 *tornillo Chiquito*	1 little vise
12 *Par.s de Sandalias*	12 pairs of sandals
15 [lbs?]. *de Anil* 3 *Campanistas*	15 [pounds?] of indigo dye 3 little bells
1 [lbs] *de pim.ta* 12 [?] *de Clavo*	1 [?] of pepper 12 [ounces?] of cloves
1/4 *de Anis* 2 *braseritos*	1/4 of anise 2 [??]
1/4 *de Cominos* 1 *Almires con su mano*	1/4 of cumin 1 mortar with its pestle
4 *Cererros*	4 small cattle bells
Trunk No. 164	
30 *Puntas de Azado*	30 hoe points
Trunk No. 165	
1 *Cazo Pozolero grande*	1 large *posole* pot
Trunk No. 166	
1 *Caxon* 1 *fierro de Acen ostias*	1 box 1 iron tool for making hosts
8 *Par.s de Cardas*	8 pairs of wool cards
1 *doz.a de sombreros*	1 dozen hats
4 *doz. de tigeras*	4 dozen scissors
1 @ *de Anises cubiertos*	1 *arroba* of anise [?]
1 *taladro de fragua*	1 steel iron
1 *bote de polva*	1 jar of powder
38 *pelotas de algodon*	38 cotton balls
Trunk No. 167	
24 *azadon.s Castellano*	24 Castilian axes
2 @ *de Azero*	2 steel-tipped Castilian axes
Trunk No. 168	
1 *Caxon* 1 *doz.a de frenos* 12 *par.s de espuelas*	1 box 1 dozen bits 12 pairs of spurs
1 *doz.a de fierros de silla* 3 *piez.s de tornillo*	1 dozen saddle irons 3 pieces of screws [?]
6 *Candeleros grand.s* 6 *chiquitos*	6 large candleholders 6 small ones
14 *pelotas de Algadon*	14 cotton balls

Transcript from Original *Factura*, by Trunk No.	**English Translation**
1 *Sante*[?] *de cobre grande*	1 large copper [?]
9 *costales*	9 sacks
Trunk No. 169	
2 *badagos de las campanas*	2 clappers for bells
2 *bigonnias*	2 anvils
3 *aler*[?] *p.a la fragua*	3 [?] for the forge
Trunk No. 170	
Guacal	wooden basket
2 *@ de Ac.te*	2 *arrobas* of oil
4 *doz.s de pozuelos de Puebla*	4 dozen bowls from Puebla
1 *doz.a de Pozuelos finos*	1 dozen fine bowls
Trunk No. 171	
1 *Tercio de fierro platina*	1 *tercio* of iron plate
1 *tornillo p.a la fragua*	1 vise for the forge
172	
1 *Tercio de fierro platina*	1 *tercio* of iron plate
Trunk No. 173	
1 *Campana grande de* 12@	1 large bell of 12 *arrobas*
Trunk No. 174	
1 *Campana Chica de* 8@	1 small bell of 8 *arrobas*
Trunk No. 175	
2 *Caxon.s con dos Santos Cristos*	2 boxes with two Santos Cristos
Trunk No. 176	
1 *Caxon con 3 frontales dorados*	1 box with 3 golden frontals
Trunk No. 177	
1 *frasquera con Aguardiente*	1 flask with *aguardiente*

[a] Probably 18–20 *varas* in length (Perissinotto 1998:26).

beads, were most often recorded as being shipped in *gruesas*. For example, bead shipments were typically recorded as *dos mazos de abalorios*, *tres libras de pita*, or *dos gruesas de rosarios*. Occasionally, the records reveal oddities, such as "a string of beads" (*un hilo de pita*) or "two skeins of beads" (*dos madejas de pita)*. Shipping records further described shipments of *pita* as either *torcida* (twisted) or *floxa* (loose). Finally, some glass beads were described in the records by color; roughly one in three descriptions of bead shipments stated the color of the beads. The most common colors specified were blue (61 in total tally), white (47), blue and white (45), and blue and green (7), although the records were not clear whether those were multicolored glass beads or just batches of different-colored beads packed together. Furthermore, even though the color blue appeared most frequently in the records in descriptions of glass beads shipped north, we cannot conclude that more blue beads than any other color were sent north. The terms that the Spanish used to describe units of glass beads were simply too vague to allow conclusions. Lester Ross and colleagues (see Chapter 6, Volume 3, of this series) have detailed the PVAHP glass-bead collection (the vast majority from the LAN-62 burial area) as consisting of a wide variety of types and varieties of glass beads, including drawn, wound, and molded beads. In addition, the glass-bead collection was sorted based on a number of different attributes relating to their shapes and styles, including layering, shape, decoration, diaphaneity, and color hue, chroma, and value. The glass-bead collection was sorted into nine classes based on material, method of manufacture, and method of finishing. Overall, there were 46 types based on layering, shape, and decoration and 132 varieties based on diaphaneity, color, luster, and perforation (see Chapter 6, Volume 3, of this series for details). Unfortunately, the data collected from the PVAHP glass-bead collection could not be matched up well to the Spanish descriptions found in the correspondence from the colonial period detailed above.

Table 78. Goods Shipped to Mission San Gabriel in 1796, by Category

Wine, Oil, and Chocolate
1 barrel of *aguardiente*
1 barrel of white wine
1 flask with *aguardiente*
2 *arrobas* of oil
18 *arrobas* of chocolate
Spices
1 [?] of pepper
12 ounces of cloves
1/4 of anise
1 *arroba* of anise
1/4 of cumin
Kitchenware
2 copper skillets
1 mortar with its pestle
1 large *posole* pot
4 dozen bowls from Puebla
1 dozen fine bowls
1 large *posole* pot
Metal Tools
1 dozen files
8 pairs of scissors
8 dozen large knives
4 dozen scissors
2 copper bottoms
12 dozen nails for the bottoms
1 little vise
1 steel iron
24 Castilian axes
2 steel-tipped Castilian axes
2 anvils
3 [?] for the forge
2 *tercios* of iron plate
1 vise for the forge
Clothing
1 dozen hats
12 pairs of sandals
Textiles
6 small cloths
3 bolts of fine fabric
1 piece of cambric fabric
6 pieces of silk cloth
7 shepherd's blankets
2 pieces of fine cloth from China
1 cut of serge
4 scarves
4 pieces of Brittany linen
4 pieces of blue baize
12 pieces of wide cloth
17 pieces of *angosta* cotton cloth
8 pieces of blue cotton Puebla cloth
500 *varas* of silk cloth
1 piece of blue cloth
Religious Items for the Mission Church
2 habits
4 tunics
5 *capillas*
2 cords
1 black frontal
6 prayer books
6 rochets
3 little bells
1 iron tool for making hosts
6 large candleholders
6 small candleholders
2 clappers for bells
1 large bell of 12 *arrobas*
1 small bell of 8 *arrobas*
2 Santos Cristos
3 golden frontals
Items for The Mission Economy
Pastoral
4 dozen packsaddle covers
4 dozen cinches
10 rigging straps
2 dozen lassos
12 pairs of spurs
1 dozen saddle irons
4 small cattle bells
1 dozen bits
Agricultural
30 hoe points
8 pairs of wool cards
Nails for the [plow] points
Miscellaneous
2 *arrobas* of formed wax
12 pounds of *pita* floss
4 books
1 ream of paper
3 blank books
4 pieces of leather
20 bunches of tobacco
2 little boxes for the pharmacy
1 bag for razors
15 pounds of indigo dye
1 jar of powder
52 cotton balls
9 sacks

Table 79. Bead Shipments to Presidios of Selected Southern California Missions, by Decade

Decade	SD			SLR			SJC			SG			MSF		
	M	L	G	M	L	G	M	L	G	M	L	G	M	L	G
1770s	62	66	11	—	—	—	59	49	2	26	1	4	—	—	—
1780s	101	71	10	—	—	—	108	39	6	56	78	2	—	—	—
1790s	130	81	6	10	4	4	264	260	8	44	191	7	10	11	—
1800s	131	118	—	36	73	—	110	179	—	110	79	—	24	42	—
1810s	131	44	—	40	12	—	30	12	2	12	8	2	—	—	3
Total	555	380	27	86	89	4	571	539	18	248	357	15	34	53	3

Key: G = *gruesas*; L = *libras*; M = *mazos*; MSF = Mission San Fernando; SD = Mission San Diego; SG = Mission San Gabriel; SJC = Mission San Juan Capistrano; SLR = Mission San Luis Rey.

Table 80. Bead Shipments to Presidios San Diego and Santa Bárbara, by Decade

Decade	SDP			SBP		
	M	L	G	M	L	G
1770s	n/a	2	—	n/a	n/a	n/a
1780s	n/a	12	—	90	8	2
1790s	110	40	8	214	146	6
Total	110	54	8	304	154	8

Key: G = *gruesas*; L = *libras*; M = *mazos*; n/a = not applicable; SBP = Presidio Santa Bárbara; SDP = Presidio San Diego.

A Quantitative Perspective on Annual Shipments, by Destination

To get a better sense of the general quantities of glass-bead shipments to Alta California and, particularly, the general quantities of glass beads shipped to Gabrielino/Tongva territory, the shipments of Spanish glass beads sent to selected southern California missions and presidios were reviewed, indexed, and interpreted. As shown in Tables 79 and 80, in each decade of the colonial period (the 1770s through the 1810s), glass beads were sent regularly to Missions San Diego, San Luis Rey, San Juan Capistrano, San Gabriel, and San Fernando Rey. As shown in Table 79, Mission San Gabriel received fewer glass beads than Missions San Diego and San Juan Capistrano but more than Missions San Fernando Rey and San Luis Rey. Presidios San Diego and Santa Bárbara also received considerable numbers of glass beads; Table 80 shows that the presidios received more glass beads per decade in the 1790s than did some missions. As shown in Table 80, Presidio San Diego received twice as many bundles of glass beads during the 1790s as did Mission San Gabriel, and Presidio Santa Bárbara received nearly four times as many bundles of glass beads as did Mission San Gabriel. Although some of the loose glass beads sent to missions and presidios may have been destined for use as adornments for the various items of clothing manufactured at the missions and presidios, undoubtedly almost all of the glass beads sent to the missions and presidios of southern California found their way into the hands, and then the graves, of Indians.

Spanish-Indian Exchange Networks and Beads to Guaspet

In terms of the relationship between these various shipments of glass beads to southern California missions and presidios and the glass beads obtained by the villagers of Guaspet, it is important to note that the glass beads uncovered in the Ballona may have been shipped to Presidio Santa Bárbara, passed on to the *pobladores* of Los Angeles, and then traded to their Gabrielino/Tongva laborers, some of whom were from Guaspet. Guaspet villagers probably acquired other glass beads through other native trade networks, from missionaries at Missions San Gabriel and San Juan Capistrano, and from neophytes at Missions San Gabriel and San Juan Capistrano. During the 1780s and 1790s, the largest shipments of beads to southern California went to the most likely sources of beads for the Indians of the Ballona: Mission San Juan Capistrano, located some 60 miles to the south and established in 1776, and Mission San Gabriel, established in

1771 and located about 20 miles away (note that Mission San Fernando Rey was not established until 1797). Although the existing records do not allow for a complete tabulation of bead shipments to Presidio Santa Bárbara during the 1780s and 1790s, the presidio certainly received large numbers of glass beads in those 2 decades. In fact, its known receipt of glass beads was nearly three times that of Presidio San Diego and much greater than Mission San Gabriel's. Although Presidio Santa Bárbara was a very long way from Guaspet, it was probably also the origin of many of the glass beads that eventually came to the Ballona. Large numbers of the glass beads sent to Presidio Santa Bárbara were probably destined for the Pueblo of Los Angeles, some 100 miles to the southeast, because the pueblo was in the military district of Santa Bárbara. The variety of possible ways in which Spanish glass beads passed into the hands of Guaspet villagers is the subject of the next part of this chapter.

Spanish Colonization and Gabrielino/Tongva Laborers

As discussed above, Spanish soldiers and missionaries imported glass beads into Alta California from Mexico during the colonial period in consistently large numbers. Glass beads were among the first items the Spanish exchanged with California Indians, and the exchange continued through the colonial period, and perhaps into the Mexican period, as well. This section turns to the ways in which glass beads may have found their way into the hands, homes, and burials of the Gabrielino/Tongva who lived in the Ballona and were associated with the village of Guaspet. The size and structure of Guaspet village during the period when its members first became affiliated with the Franciscan Missions San Gabriel and San Fernando Rey are discussed. First, however, it is necessary to sketch the emergence of a permanent Spanish presence in Gabrielino/Tongva territory and to discuss the pressures that drove Indians from places like Guaspet village into missions like Mission San Gabriel.

Mission San Gabriel and the Western Gabrielino/Tongva

In September 1771, the Franciscans established Mission San Gabriel close to the banks of the Río Hondo, near the southern edge of the San Gabriel Valley. It was the fourth mission they founded in Alta California (Geiger 1968:33). The mission remained there until May 1775, when the padres moved it several miles north to its present site. Between 1771 and 1785, the population of the mission increased quickly, rising to 843 (Bowman 1958), and continued to increase until it reached a peak of 1,701 in 1817. Then, as was true at nearly every California mission, the mission's population went into steady decline. By 1832, the mission numbered 1,320 neophytes. The rise of the mission population was due only partially to live births; mostly it was due to the baptism of large numbers of gentile Indians, mostly Serranos and Cahuillas. These baptisms compensated for an infant mortality rate that was stunningly high: in the 1770s, it stood at 231 per 1,000, and it increased as the mission population grew. In the 1780s, it was 435 per 1,000; in the 1790s, 470 per 1,000; in the first decade of the nineteenth century, 546 per 1,000; in the 1810s, 450 per 1,000; and in the 1820s, 403 per 1,000 (Hackel 2000). The diseases that afflicted mission Indians would have filtered out to the countryside and eroded the population of all Gabrielino/Tongva, even those who lived in their native villages.

Growth of Livestock and Agriculture at Mission San Gabriel

The growing mission population, based as it was upon a depopulation of the countryside, coincided with a dramatic increase of the mission's agricultural production and a huge increase in mission livestock, both of which put pressure on Gabrielino/Tongva subsistence (Engelhardt 1927a:273). As I have written elsewhere, the spread of Spanish cattle, horses, and sheep into the countryside degraded resources that Indians used for subsistence, and this, in turn, pressured Indians into joining the missions, which they perceived as sources of supplementary food (Hackel 2003, 2005:65–80; Larson et al. 1994). By 1785, the mission had some 1,200 cattle, 2,040 sheep, 1,380 goats, 150 pigs, 141 horses, and 34 mules (Engelhardt 1927a:278). Although the pigs and horses were kept in corrals, the sheep, goats, and cattle grazed the area around the mission and beyond. Those animals were pastured at an ever-greater distance from the mission as their numbers increased and as they stripped the land adjacent to the mission of vegetation.

By 1785, the mission also had extensive fields under cultivation. In that year, the mission harvested 1,500 *fanegas* of wheat, 1,000 *fanegas* of corn, and 201 *fanegas* of beans (Engelhardt 1927a:273). In 1800, the mission had 1,135 resident Indians and produced an enormous crop of wheat, some 4,000 *fanegas*, as well as 2,000 *fanegas* of corn. By then, the mission had substantial herds: 5,900 cattle, 12,100 sheep, 80 goats, 240 pigs, 1,100 horses, and 140 mules. By 1815, the mission population of 1,667 was nearing its peak of 1,701 in 1817. In 1815, the mission harvested 5,400 *fanegas* of wheat, 92 *fanegas* of barley, 2,100 *fanegas* of corn, and 312 *fanegas* of beans. A portion of that harvest went to other missions and perhaps to the presidios, and bringing in those crops required extensive labor in expansive fields. By 1815, the mission's livestock had also increased enormously: 13,600 cattle, 10,300 sheep, 160 goats, 131 pigs, 639 horses, and 180 mules. As the mission expanded between 1771 and 1815, its fields and its domesticated animals transformed and began to dominate the lands of the San Gabriel Valley as well as the coastal plain that stretched from the mission down to the region between Santa Monica and Palos Verdes, even though much of that land belonged to the pueblo and its settlers. So extensive were Mission San Gabriel herds that some were pastured in the San Bernardino region.

Spanish Land Concessions and the Pueblo of Los Angeles

In 1781, 10 years after the establishment of Mission San Gabriel, Governor Felipe de Neve established the Pueblo of Los Angeles in the heart of Gabrielino/Tongva territory. During the colonial period, Spanish governors made extensive concessions of land that, in effect, privatized much of the Los Angeles Basin. Thus, the establishment of Los Angeles in 1781 and the granting of land to its settlers placed ever-increasing pressures on the Indian inhabitants of the Los Angeles Basin. In 1781, Governor Neve began a process that would lead to the transfer of vast acreage to the settlers of the pueblo for use as either farmland or ranchland. The largest of the first concessions came under Governor Pedro Fages, who in 1784 made six substantial land concessions in the Los Angeles region to retired soldiers. Five of those concessions were in the region to the east of the village of Guaspet. Together, the ranchos of Los Alamitos (28,027 acres), Los Cerritos (27,054 acres), Los Coyotes (48,806 acres), San Pedro (43,119 acres), and Santa Gertrudis (17,602 acres) comprised 164,608 acres of land (Ríos-Bustamante 1985:149–151) (see Figure 157).

Although there are no solid figures for the number of animals grazed on this land, livestock in southern California grew in numbers quickly. It was open rangeland; therefore, after the early 1780s, the animals wandered freely into land used at that time by Guaspet villagers. The degree to which those ranchos also depended upon local Indian laborers is not known, but Guaspet villagers might have found employment at those surrounding ranchos soon after their formal establishment, if not earlier, and perhaps they received glass beads in return for their work as ranch hands.

The growth of a ranching economy in the Los Angeles Basin had deleterious impacts on native subsistence and was a factor in population growth at Mission San Gabriel. As noted above, the steady increase in population at Mission San Gabriel was not the result of a natural increase. Rather, it was due to the relocation of thousands of Indians from villages farther and farther from Mission San Gabriel. Before 1785, most of the Indians baptized at Mission San Gabriel came from the coastal plain and the inland valleys. But in the years after, Indians from villages in the San Gabriel Mountains and as far east as Redlands were baptized at the mission. The dynamic that drove the ever-widening reach of the mission was clear: the padres wanted to replace Indians felled by disease at the missions with new recruits; food enticed Indians to the missions just as Spanish diseases undermined native subsistence. The large collection of Spanish glass beads unearthed in the Ballona suggests that the Indians of Guaspet may have successfully resisted that dynamic for years before their eventual baptism and incorporation into Mission San Gabriel.

The Pueblo of Los Angeles as a Site of Indian Labor

The most likely reason for Guaspet villagers' sustained independence of Mission San Gabriel, and the most likely source of the glass beads found in Guaspet, was the Pueblo of Los Angeles. Established in 1781, the Pueblo of Los Angeles was Alta California's second pueblo. The Pueblo of San José, established in 1777, provides a clue to the social relations between the *pobladores* of Los Angeles and the Gabrielino/Tongva of the surrounding villages. In San José, settlers quickly became dependent on Indian laborers to work in their fields and their homes. As early as 1782, because of those labor relations, the Spanish military issued strict guidelines for the employment of local unbaptized Indians, prohibiting "the familiar intercourse which has been observed to occur between the households of the settlers and the pagan men and women." Requests for Indian laborers were channeled through a ranking military officer, who contacted a village leader. Indians were paid for work done, and coercion was not tolerated in their recruitment. Tellingly, Indian women, who were frequently employed to mill grain or to perform other domestic tasks, were not allowed to enter into the *pobladores*' homes, as had been the practice, because such "familiarity" had led to "grievances against both populations" (José Joaquín Moraga, December 1782, Letter to the Corporal of the Guard at the Pueblo of San José [see Hackel 1998:Note 77; see also Milliken 1991:510]).

The settlers of Los Angeles developed a similar dependence on Indian laborers (Guest 1961; Hackel 1998; Mason 1984; Phillips 1980). But as many Franciscans and soldiers had discovered during the first years of the missions and presidios, Gabrielino/Tongva would work for the Spaniards only when doing so did not conflict with their own seasonal subsistence economy. In April 1784, Lieutenant José Francisco de Ortega reported to the governor that the settlers of Los Angeles were "few and useless" when it came to field labor, and the Gabrielino/Tongva Indians had offered to help with the harvest, but only after they had finished their own seasonal gathering (Ortega 1784). During that fall, after completing their own harvest, the Gabrielino/Tongva—some perhaps from Guaspet—reaped from the *pobladores*' fields more than 1,800 *fanegas* of corn, 340 *fanegas* of kidney beans, and 9 *fanegas* each of wheat, lentils, and garbanzos (Ríos-Bustamante 1985:110).

Within less than a decade of the establishment of the Pueblo of Los Angeles, the integration of the Gabrielino/Tongva economy with the settlers' economy accelerated, just as the expansion of the settlers' fields and the steady increase in their livestock imperiled the Gabrielino/Tongva economy and compelled the Gabrielino/Tongva to work for the settlers (Hackel 2005:65–80). In January 1787, Governor Fages modified for Los Angeles the guidelines issued for San José regulating the recruitment and employment of gentile laborers (Fages 1787; Mason 1975). The governor sought to end the "pernicious familiarity" that resulted when so many Indian laborers worked side by side with settlers. Fages decreed that Indians were not to live in town or to enter the settlers' homes, and they were to sleep under the watch of the sentry if they spent the night. In coming years, Indians continued to work in the settlers' fields. They earned a third to a half of the crops they harvested (Geiger and Meighan 1976:129). Gabrielino/Tongva also toiled in Los Angeles as vaqueros, cooks, muleteers, water carriers, and domestic servants (Hackel 1998:128).

Unfortunately, there are no reliable estimates of the number of Indian laborers in the Pueblo of Los Angeles during the Spanish period. But by the mid-1790s, those work relationships had led to considerable acculturation between the Indian and Spanish communities. Many Indian laborers spoke Spanish and dressed as their employers did, "clad in shoes, with sombreros and blankets" (Mason 1984:129). Moreover, many settlers spoke the Indians' language; some even married Indian women (Mason 1984:131–133; Ríos-Bustamante 1985:90–96). The Indian presence in the Pueblo of Los Angeles and its surrounding ranchos continued to grow over subsequent decades. In 1830, there were several hundred Indians living and working in the pueblo and at its surrounding ranchos (Hackel 1998:136). In 1836, some 553 Indians worked in the pueblo and at its neighboring ranchos (Los Angeles County 1836). By 1844, that figure was at least 650, and perhaps higher, because it seems possible that some of the pages of the Los Angeles census that listed Indian residents of Los Angeles for the year have been lost (Los Angeles County 1844).

Growing Interdependence between Indians and *Pobladores* and the Franciscan Reaction

Only the Franciscans, as far as we know, objected to the working relationships between Indians and settlers in San José and Los Angeles. The padres knew that the settlers offered material incentives to attract Indians as laborers; they probably offered Indians a combination of food, clothing, and glass beads. Those likely incentives would have been attractive to the Gabrielino/Tongva, especially if they considered that their work for the *pobladores* would allow them to remain independent of Mission San Gabriel, where baptism required, at least in the padres' eyes, an eventual renunciation of many central aspects of native life. In the missions, Franciscan oversight was oppressive, housing was crowded, and disease ran rampant. In the pueblos, by contrast, *pobladores* cared little about the Indians' religion or sexuality and required laborers to return to their own homes at the end of the day. In fact, the inability of the missions to compete with the convenience of the pueblos as sites of labor led Father Francisco Fermín de Lasuén to conclude that the Pueblos of Los Angeles and San José and their inhabitants were "an immense hindrance to the conversion of the pagans, for they give them bad example, they scandalize them, and they actually persuade them not to become Christians, lest they themselves suffer the loss of free labor" (Lasuén 1965:168).

Perhaps the most explicit statement of how the Gabrielino/Tongva and the settlers of the Pueblo of Los Angeles came to depend upon each other in the first decades after the establishment of Mission San Gabriel and the pueblo came from Father Vicente de Santa María. Santa María had been sent by Father Lasuén to explore territory between Missions San Buenaventura and San Gabriel, with an eye toward locating a desirable place for the establishment of a new mission, the one that would be established in 1797 and would be named Mission San Fernando Rey. Santa María wanted to establish the mission because, if for no other reason, he felt that some Gabrielino/Tongva were using their work among the *pobladores* to evade the missionaries' grasp. During the expedition, Santa María observed that in the place where the *alcalde* of the pueblo, Francisco Reyes, had his rancho, Indians did all the work:

> In this place we came to a rancheria near the dwelling of said Reyes—with enough Indians. They take care of the field of corn, beans, and melons, belonging to said Reyes, which with that of the Indians could be covered with two fanegas of wheat. These Indians are the cowherds, cattlemen, irrigators, bird-catchers, foremen, horsemen, etc. To this locality belong, and they acknowledge it, the gentiles of other rancherias, such as the Taapa, Tacuyama, Tucuenga, Juyunga, Mapipinga, and others, who have not affiliated with Mission San Gabriel [Engelhardt 1927b:5].

Toward the end of his short diary of the expedition, the padre concluded:

> I observed the whole pagandom, between this Mission [San Buenaventura] and that of San Gabriel, along the beach, along the camino real, and along the border of the north, is fond of the Pueblo of Los Angeles, of the rancho of Mariano Verdugo, of the rancho of Reyes, and of the Zanja. Here we see nothing but pagans passing, clad in shoes, with

> sombreros and blankets, and serving as muleteers to the settlers and rancheros, so that if it were not for the gentiles there would be neither pueblo nor rancho [Engelhardt 1927b:9].

As Father José Señán reported in 1796, in the pueblos, the "Indians cultivate the fields, do the planting, and harvest the crops; in short they do almost everything that is done" (Señán 1962:2).

On the basis of their conclusion that Spanish ranchos gave the Gabrielino/Tongva options that allowed them to evade the missions, the padres protested when soldiers petitioned for land adjacent to mission land that could be turned into a rancho. That was especially true in Los Angeles, where, in 1804, missionaries at Mission San Fernando Rey argued that granting land to Francisco Avila, a retired soldier who had petitioned for land north and west of the mission, would only compound the problems that missionaries confronted in recruiting Indians. The missionaries argued that Indians who worked for Spanish rancheros were the most difficult to "reduce" to the missions. And they provided more details that suggested how routinely unbaptized Gabrielino/Tongva Indians at the turn of the century worked on ranchos surrounding the missions:

> It is known that the rancheros leave their wives alone with only a few gentiles as company for two or more weeks at a time. On other occasions the reverse is true; they are alone with only a few Indian women, who prepare food for them. At other times the rancho is left alone, in the care of only a few gentiles, which is to say that it is like the water-jar which goes from time to time to the fountain; sooner or later it will break. Do they attend mass once in a while? Some go once a year, but they seldom miss a fiesta or fandango. We are told of a neophyte who was once punished for not often going to mass, who said to the priests why didn't they whip the rancheros, who never, or very seldom, go to Mass [Dumetz and Uría 1804].

In 1804, Fray José de Miguel of San Gabriel wrote to Raymundo Carrillo, *alcalde* of Los Angeles, about the growing community of unbaptized Indians who had moved to the pueblo. Carrillo had reported that 200 Indians were in or around the town, and Father Miguel replied that there was nothing he could do about it. Only 50 of the Indians were from villages adjacent to the mission; the rest were attracted from afar by the labor opportunities that the settlers offered them. Miguel proposed that Carrillo prevent settlers from hiring Indians to work the *pobladores*' fields and prohibit settlers from providing Indians with seeds to raise their own crops. If those regulations were enacted and enforced, Miguel believed, the Gabrielino/Tongva would be quickly "reduced" to the mission (Miguel 1804).

Father Francisco de Sarría also bitterly opposed the establishment of Spanish ranchos, because he believed that they allowed Indians like the Gabrielino/Tongva to avoid the missions. He argued that hundreds of unbaptized Indians could be found working, if not living, on ranchos in what is now southern California, and he singled out Rancho de Santa Ana and Rancho de los Nietos, as well as Presidio San Diego and the Pueblo of Los Angeles, as gathering places for the unbaptized. Sarría argued that those places were the last trench [*trinchero*] of "*el Demonio*" and that because Indians could subsist on what they received by working on those ranchos, they ignored the missionaries' overtures. To Sarría, those independent Indians had "closed their ears" to the missionaries, as though the padres had spoken with "venomous tongues." One old woman told Sarría that the unbaptized Indians who worked on Rancho de Santa Ana had told her that "they would rather be eaten by coyotes than become Christians." Although Sarría was a master of hyperbole and often displayed a cynical and dismissive view of Indians, in a sense he had it right: when they could, Indians chose to work on ranchos and in the pueblos to avoid the confining life at the missions.

Conclusion

This chapter has detailed the importance of glass beads to Native Californians during the colonial era. As part of this study, the role of glass beads as an important part of everyday interaction between colonists and groups such as the Gabrielino/Tongva, from the time of their first contact with colonists, was documented. Rather than tokens of casual exchanges, glass beads were an important part of Spanish colonial policy. They were requested by and shipped to various colonial institutions in Alta California on an annual basis from San Blas, Mexico, and were highly sought after by Native Californians. Although the missions were likely sources of glass beads for Native Americans, interactions with and labor for the residents of the pueblo and surrounding ranchos were other important sources. As discussed by Douglass and Reddy in Chapter 7 of this volume, Gabrielino/Tongva, including those living at villages such as Guaspet in the Ballona, made choices about how to interact with colonists. For some Gabrielino/Tongva, moving to the mission and becoming neophytes was a life-altering decision. For others, working for ranchos and in the pueblo fields proved an important alternative survival strategy, as did removing themselves to fugitive communities away from the reaches of colonial institutions. It is likely that the glass beads found at sites like LAN-62 and LAN-211 resulted from interactions between residents of those sites and the pueblo and neighboring ranchos, such as Rancho de los Quintos.

Guaspet villagers were almost certainly among those who provoked the ire of Santa María and Sarría when they found work in the Pueblo of Los Angeles and on nearby ranchos, where they would have received glass beads in return for their labor. Those Gabrielino/Tongva lived close enough to the pueblo and various ranchos to find day labor or seasonal work there, and Guaspet village was far enough from the mission that it would not have been in the first group of villages overrun by Spanish colonization. Given the village's relative proximity to the mission and the pueblo, the villagers of Guaspet would have been aware of the grains available at the mission and the material incentives that the *pobladores* offered to Indians who would work for them in town, as well as the degrees to which missionaries wanted to control their lives and the *pobladores* did not. In the 1780s, Gabrielino/Tongva field hands regularly worked at the mission and for the settlers of Los Angeles, and in those years, the Indians of Guaspet had not yet accepted baptism or entered into the mission fold. Thus, through the 1780s and 1790s, the people of Guaspet were in a position to exchange their labor largely on their own terms, without submitting to the Franciscans' demands that they relocate permanently to the mission and live under the padres' supervision. Guaspet villagers probably acquired large numbers of glass beads during those years through their work for rancheros or *pobladores.*

As this chapter has shown, beads were at the center of native life and Spanish attempts to influence and control native peoples in California. With the arrival of the Spaniards came a steady and large flow of beads to the missions, presidios, and settlers of Alta California and, particularly, to the Los Angeles Basin. No better record of the growing contact between the villagers of Guaspet and the colonial society and its newcomers exists than the beads that flowed into Guaspet and were ultimately interred as mortuary goods in the Ballona, suggesting the ability of the Gabrielino/Tongva to assimilate into their own world view the artifacts of the strangers who soon would overwhelm them.

As discussed in the previous chapter, Guaspet villagers briefly succeeded in fashioning their own sphere of coexistence with the Spanish through trade, employment in the civilian Pueblo of Los Angeles, and ultimately through a greater affiliation with Mission San Gabriel. Although exact details of the interaction between Guaspet villagers and Spaniards in the early years of the colonial period are lost to us, the considerable number of glass beads found in mortuary remains attests to that Indian-Spanish contact. This chapter, in concert with the other chapters in this volume, attempts to tell the story of Guaspet village and its villagers, their growing incorporation into the Pueblo of Los Angeles and Mission San Gabriel, and, eventually, their displacement by the rancho economy of the Los Angeles Basin. At first, the residents of Guaspet were relatively isolated from the initial impact of colonialism in the Los Angeles Basin, but they had become quickly and increasingly involved in the colonial economy and the mission system by the time a rancho was established in the Ballona in the early 1800s.

Guaspet Village, Mission San Gabriel, and the Ranchos of the Ballona

Steven W. Hackel

Guaspet was a small Indian community that rarely appeared in the historical records of colonial California. Mission records (available via the Henry E. Huntington Library's ECPP database [http://www.huntington.org/Information/ECPPmain.htm]), especially for communities like Guaspet, are often the only sources available to scholars seeking to peer into the distant past of early California's native communities (Hackel 2006; Johnson 1988b; Stoll et al. 2009). Thus, it is largely through mission records, notably mission baptism records, that scholars can partially reconstruct the size and structure of Guaspet village during the Spanish period—characteristics that might provide us with insight into Guaspet villagers' contact with Spaniards and therefore their ability to obtain additional glass beads during the colonial period.

Baptism records, however, are often very challenging sources. In the baptism records of Mission San Gabriel, as is true for all California missions, there was considerable variation in the spelling of Indian village names. In particular, the padres of Mission San Gabriel described Indians as having come from villages with similarly sounding names, such as Guaspet/Guaaspet and Guaschna/Guaaschna. Consultations with John R. Johnson and John Douglass, numerous SRI reports, and this inquiry all suggest that what differentiated those village names was an extra syllable or glottal stop before the final syllable in their pronunciation (Altschul et al. 2003; Kroeber 1925; McCawley 1996; Stoll et al. 2009). Missionaries who baptized Indians at Mission San Gabriel and recorded the sacraments they performed noted Indians' villages of origin with and without the extra syllable/glottal stop. Thus, the extra "a" recorded in the mission records reflects the padres' careful and conscious attempts to differentiate names of Indian villages that had very similar but slightly different pronunciations. Clearly, minor differences in village-name spellings matter; they were intentional and cannot be explained solely as artifacts of the padres' diverse linguistic backgrounds. For example, José María de Zalvidea wrote both "Guaschna" and "Guaaschna," and he wrote "Guaspet" as well as "Guaaspet." Miguel Sánchez wrote "Guaspet" and "Guaaspet." Ysidoro Barcenilla wrote "Guaspez" and "Guaáspez." José de Miguel wrote "Guaspet," "Guaaspet," and "Guahaspet"; he also wrote "Guasna" and "Guahasna." In all of those instances, the padres—men with exacting minds and extraordinarily careful penmanship—were clearly doing their best to distinguish between names of separate Indian villages. What matters most in those variant spellings of village names is what comes before the final syllable *-spet* or *schnaa*. Although the missions generally recorded *-pet* and *-bit* as equivalents, as well as *-nga* and *na*, Johnston (1962:10), who consulted with John Peabody Harrington, suggested that in Gabrielino/Tongva and Serrano languages, *-nga* or *-na* refers to the place itself, whereas *-pet, -bit*, or *-vit* refers to a person from that place. A double "a" in the spelling indicates a long, stressed vowel, which had phonemic significance in the Gabrielino/Tongva language, as it did in other Takic languages. The phonetic spelling of a variant of Guaspet was *waachanga*, whereas that of Guaaschpet and other variants with the double "a" was *wa'aachng*a—hence the difference between the two names (John R. Johnson, personal communication 2014).

As these cases suggest, Mission San Gabriel missionaries actively distinguished between village sites across the greater Los Angeles Basin, denoting one through a simple two-syllable word ("Guaspet" in the Ballona) and the other through a more complicated pronunciation ("Guaaspet" or "Guaaschna," signifying a Gabrielino/Tongva village near modern-day Redlands). There are 88 Mission San Gabriel baptism records that indicated Indians from the village of Guaspet in the Ballona, and another 4 baptism records at Mission San Fernando Rey revealed additional Guaspet villagers. In total, then, there were 92 entries of baptisms for residents of Guaspet. In some cases, the totality of the data was necessary to come to an understanding of the origin of an individual, looking not only at the origin listed at baptism but also at origins recorded in his or her marriage and death records (if available). For example, the individual (SG Bap 3918) listed with a baptismal origin of Comicravit (probably located just north of the Ballona, near Santa Monica) most likely was, in fact, from Guaspet, given the person's stated origin of Guaspet in both the death and marriage records. Although on the whole, origins spelled with a double "a" (e.g., "Guaaschpet") were not in the Ballona but, rather, a Serrano village in the San Bernardino/Redlands area, apparently there were a few individuals from the Ballona with the double "a" in the origin-name spelling; again, determination of an individual's village origin was based on the totality of the data, including baptismal, death, parent, and marriage records. For more discussion of these issues, see Stoll et al.'s discussion in Chapter 8 of this volume.

The Pace and Chronology of Guaspet Baptisms at Mission San Gabriel

California mission sacramental records describe unique moments in the lives of Indian individuals: when they received sacraments—baptism, marriage, and the final rites that Catholics associated with dying and burial. Sometimes those mission records illuminate family relationships. But almost never do they cast light clearly on the actions of whole communities. That is true for the village of Guaspet in the Ballona, for which the mission records describe only the contours of the community and the specific actions only of those of its members who appear in mission records. Probably, if Guaspet was typical, the villagers of Guaspet who were recorded in the register constituted only about one-half to two-thirds of all Indians from that village. What can we learn from those records that will give us a window into the life of a Guaspet villager?

Guaspet was not a large village, even by the standards of native California, where villages, by and large, were small. It appears that slightly fewer than 100 Guaspet villagers were baptized, which may suggest that the village itself probably was home to no more than 150–175 people in the years before Spanish missionaries, soldiers, and padres came to California. If that was the case, then the estimate suggests that the burial area at LAN-62 may have been used for burying Gabrielino/Tongva from a variety of native villages in the Ballona. The earliest Guaspet baptism took place in the Pueblo of Los Angeles in 1790; additional baptisms of Guaspet villagers in Los Angeles occurred in 1793, 1800, 1802, and 1803. As discussed in detail below, those baptisms were of Indians who had taken ill and who the Spaniards feared were about to die. Most Guaspet villagers, however, were baptized at Mission San Gabriel. For additional and complementary details of Guaspet baptisms, see discussions by Stoll et al. in Chapter 8 of this volume.

Guaspet villagers baptized at Mission San Gabriel can be divided into two groups: adults and children. Of the 76 villagers baptized at Mission San Gabriel, only approximately one-third were adults (i.e., more than 18 years old). (Note that this definition of adulthood differs from the mission distinction of *adulto*, which signified whether someone had reached puberty [approximately age 13] and therefore could not be baptized without undergoing catechism). Adults were baptized after a period of catechesis that probably lasted for 3–6 weeks. The *párvulos* (children) and newborns were baptized without undergoing any sort of formal religious indoctrination at the mission. The ages of the 50 or so children baptized at the mission ranged from 1 day to just less than 18 years. Some had parents who were already baptized, and others had parents who would be baptized in the future. Many had parents who were never affiliated with the mission. None was recorded as being an orphan at the time of baptism.

Of the adults identified as originating in Guaspet, only nine were women. Although it is not clear why that was the case, it might have to do with both Franciscan record-keeping practices and the patrilocality of California Indians south of the Chumash regions. Until Fr. Zalvidea began correcting the records at Mission San Gabriel after he arrived there in 1806, the missionaries were not very careful in distinguishing between place of residence and place of birth. Thus, at the time of their baptism, many women born at Guaspet may have been recorded under the names of the *rancherías* where they moved to live with their husbands after they were married.

Although the earliest Guaspet baptism was in 1790 and the last was in 1820, the largest numbers of Guaspet villagers who affiliated with Mission San Gabriel did so in 1803–1805. Roughly half the Guaspet adults who attained baptism were baptized during those 3 years. It seems clear, therefore, that the pivotal period for Guaspet villagers' affiliation with Mission San Gabriel began immediately after 1802, years after Guaspet villagers had found work in the Pueblo of Los Angeles. As is discussed both in this chapter and in Chapter 8 of this volume (by Stoll et al.), it seems clear that the spike in the number of baptisms of villagers from Guaspet coincided with the establishment of Rancho de los Quintos in the Ballona.

Guaspet Provisional Baptisms in the Pueblo of Los Angeles

In addition to the anecdotal evidence suggesting that large numbers of Gabrielino/Tongva came to work in the Pueblo of Los Angeles, there is solid documentary evidence in the Mission San Gabriel sacramental registers to demonstrate the presence of Gabrielino/Tongva laborers in the pueblo. Between 1784 and 1826, missionaries and others in the pueblo baptized some 115 Indians who they believed were gravely ill and facing imminent death. Under those circumstances, Indians often received provisional baptism that the padres believed would provide them with some sort of Catholic grace. Twenty-five ill Indians received provisional baptism in the pueblo in the 1780s; 45 received the sacrament of baptism provisionally in the pueblo during the 1790s. As determined from village origins listed in the records, it appears that most of those Indians were Gabrielino/Tongva.

According to the Mission San Gabriel baptism register, 10 of the Indians who received provisional baptism in or around the pueblo were from the village of Guaspet. Mission records suggest an even larger Guaspet involvement in the pueblo, because it is doubtful that those 10 were living without other family members and that all Guaspet villagers who worked in the pueblo became gravely ill. The first gravely ill Guaspet Indian to receive the sacrament of baptism in the pueblo was a young boy (SG Bap 1941) baptized by Vicente Feliz, the *poblador*, in 1790. Only 1 of those 10 provisional baptisms was performed by a padre; the rest were administered by the town *alcalde* or by one of the settlers who, perhaps, were employers of the baptized individuals.

As is also discussed by Stoll et al. in Chapter 8 (this volume), the most intriguing baptism in that group of 10 is SG Bap 3532. The Guaspet woman was given the name María, and she received baptism in May 1803 from a man identified in the mission register as Luis Quinto Zúñiga. That man was almost certainly Pío Quinto Zúñiga, who made an early claim on the lands of the Ballona and would have, at that time, only recently received a provisional claim to a rancho that encompassed Guaspet. It is important to emphasize that the provisional baptism occurred when María was deathly ill, and it occurred, not in Guaspet proper or in the Pueblo of Los Angeles, but rather in the village of Yabit/Yangna, which was located adjacent to the pueblo. María died about a month after her provisional baptism, according to mission records.

Those records suggest that between 1790 and 1803, Guaspet villagers—perhaps dozens—worked in the Pueblo of Los Angeles. For that labor, the villagers most likely would have received glass beads and other items. And because that work was performed under the guidelines laid down by Governor Pedro Fages, who articulated guidelines for the *pobladores'* employment of Indians, those villagers probably did not live in the pueblo. Perhaps during their work in the pueblo, they resided in the village of Yabit/Yangna, which was located on the outskirts of the pueblo. From at least the 1780s through the early 1800s, Yabit/Yangna was home to numerous Indians who worked in the pueblo. Some of those workers were baptized in the village after they became gravely ill, and through the records of their baptisms, we know of the diversity of the village's inhabitants. When their work was completed, Indians from Guaspet would have left Yabit/Yangna and returned to Guaspet, and they would have carried back to their home village some, if not all, of the glass beads that they had earned.

The Decline of Guaspet Village

We have no way of knowing with certainty how Spanish colonization affected Guaspet or when Guaspet village, like so many other villages across the Los Angeles Basin, simply ceased to function as a viable community. Yet it would appear that in 1802, something changed in the village. In the following year, 1803, 17 Indians—more than in any other year up to that point—joined Mission San Gabriel, perhaps leaving Guaspet forever. Around that time, Indians continued to work in the pueblo and at the surrounding ranchos, and the community itself probably became less and less viable as a home for those who lived there. Thus, the year 1802 may have been a "tipping point" for Guaspet. Labor that Indians performed in the pueblo meant less work devoted to the sustenance and maintenance of Guaspet, and it meant, of course, fewer people in Guaspet to participate in the cultural affairs of the village. Most likely, many Guaspet villagers who moved to Mission San Gabriel between 1803 and 1805 had sought and received work in the pueblo in the years before 1803 and, for their work, had received provisions and beads. That work had allowed them to maintain some of their ways in Guaspet through an accommodation with a new economy and a changed landscape. Similarly, some Guaspet villagers might have found work at one of the adjacent ranchos. But by 1803, those adults must have found that they could no longer combine their native subsistence with work in the pueblo or on the rancho and decided to move to the mission. Perhaps they believed that at the mission, they would be better able to retain their Gabrielino/Tongva ways. Perhaps the people who left Guaspet between 1803 and 1805 had never found work on the ranchos as individuals. Perhaps they decided to move to Mission San Gabriel because they could not subsist in any other way, and they needed to take advantage of the agricultural productivity at the mission.

It seems probable that in the years before 1803, Guaspet village was increasingly imperiled by the pueblo settlers' livestock that ranged free on lands in the Ballona adjacent to Guaspet. Many settlers in the pueblo wrongly believed that the Ballona was an extension of pueblo lands, and those people would not have had any compunction about allowing their cattle to impinge on Guaspet lands. Although we have no records of the deliberations among Guaspet villagers in 1803, it is clear that in the years between 1791 and 1802, Spanish livestock overran Guaspet land, and Guaspet villagers began to make a forced transition from life in Guaspet to a life that encompassed work in the pueblo or on a nearby rancho, or a permanent affiliation with the mission. By 1803, Guaspet villagers were both pushed from Guaspet and pulled into Mission San Gabriel. Once that process was under way, it took on a logic of its own; the smaller the village, the lower the likelihood that the remaining villagers could sustain themselves.

The provisional concession of land in the Ballona to Pío Quinto Zúñiga around 1802 accelerated a dynamic that drove Indians from Guaspet; it was a terrible blow to the village, because it increased the presence of Spaniards and their domesticated animals in and around what was left of Guaspet. Most likely, under those pressures, the village declined dramatically in 1803–1805. In those 3 years, 42 villagers, including 15 adults, joined the ranks of the baptized at Mission San Gabriel. By 1805, most Guaspet villagers had affiliated with the mission, leaving only a few families in the village. The last of the Guaspet villagers were left to shift for themselves in the broken village, in the pueblo, or elsewhere in the region, perhaps on a rancho or with Indians of another Gabrielino/Tongva village that had not yet succumbed completely to the pressures of Spanish colonization.

Indians and the Ballona Ranchos

To understand further the decline of Guaspet after 1802 and the nearly complete disappearance of Indians from the Ballona during the early decades of the nineteenth century, this chapter now turns to the creation of various ranchos in the Ballona and the Spanish and Mexican settlers who came to live there.

Rancho de los Quintos

One of the men who may have played a crucial role in the disappearance of Indians from the Ballona was the soldier Pío Quinto Zúñiga, who, according to the late Bill Mason (2004:57), received land in the Ballona "shortly after" 1802. It is not clear where Mason got that information, but he was a careful and reliable researcher, and thus his assertion, even though unverified at this time, carries a high degree of credibility. Only a few biographical details about Pío Quinto Zúñiga have survived. He was a mulatto soldier from Guadalajara. He was born around 1745 and probably came to Alta California in the 1770s with the Anza expedition. He was among the first soldiers stationed at Mission San Juan Capistrano after it was founded in 1776. In December 1776, he was a godparent for the fourth baptism at the mission, and he was a witness to the first marriage at the mission, which took place in January 1777 and joined two Baja California Indians.

Pío Quinto Zúñiga's participation in those sacraments at Mission San Juan Capistrano suggests that the padres considered him unusually pious for a soldier. It would appear that he had lived up to his given name. Certainly, he had good relations with the padres and probably with his military superiors. Thus, in his role as a godparent and a marriage witness, he was put forward by the Franciscans as a model of Catholic comportment, or at least he was among the best that the military could offer as a role model to the Indians at Mission San Juan Capistrano. Therefore, it was probably with the padres' wholehearted approval that in October 1779, Pío Quinto Zúñiga took for a wife an Indian woman, Rufina María Allam, who had been baptized at Mission San Juan Capistrano in April 1779. They had their first child on August 2, 1780, almost exactly 9 months after their marriage. There was a general belief among soldiers at that time that marrying an Indian would lead to a land concession and permanent assignment to the wife's mission. That policy seems to have been in effect by the early 1770s, and it was supported by Father Junípero Serra and Viceroy Antonio Bucareli (Hackel 2005:221, Note 63).

Pío Quinto Zúñiga, however, did not get land at San Juan Capistrano, perhaps because, it seems, he was posted at San Diego from 1783 and 1786, or at least that is where his next children were baptized. It seems he moved with his growing family to the Pueblo of Los Angeles in 1787, and he stayed in the Los Angeles region until his death in June 1805 (SG Burial 2406). He was not among the first settlers in Los Angeles, and unlike those first *pobladores,* he was never granted land in the pueblo itself. Mason (2004) suggested that he got land in the Ballona shortly after 1802; in that year, he was around 55 years old and certainly of retirement age. In 1802, he and Rufina María had nine living children, two of whom were married. By then he would have been able to make a strong case for land—he was a soldier with a good record of service, an Indian wife, and many dependents. Apparently, he placed a considerable number of livestock on the land that he received provisionally, known then as Rancho de los Quintos (Reyes et al. 1821) (see Appendixes 10.1 and 10.2). After Pío Quinto Zúñiga's death in 1805, Rancho de los Quintos reverted to the pueblo community, apparently because his heirs did little to take care of it.

The land that Pío Quinto Zúñiga provisionally received in 1802 was essentially the Ballona. It stood between the pueblo and the ocean and was near the mouth of the Los Angeles River (which has been repeatedly documented as Ballona Creek for the early historical period). Many pueblo settlers believed that the land more properly belonged to the pueblo and therefore was communal land that could not be given to one person or a family. In the decades after Pío Quinto Zúñiga's death in 1805, a considerable controversy erupted in the pueblo over how the land could be used and by whom. In fact, the use of that land sparked two petitions, as Los Angeles settlers argued over who had the right to claim the Ballona as their own. In a third petition, settlers asserted their right to cattle that had grazed on the land. Notably, there was not a word in any of those petitions about Indians and their right to the land or their use of it. The petitions seem to have been written by pueblo resident José Palomares; it is not clear whether he had a stake in those disputes or was just acting as a scribe.

The first of the petitions was written in December 1819, when 32 residents of the Pueblo of Los Angeles complained to the *alcalde* of the pueblo, Gabriel Moraga, that the land commonly known as Rancho de los Quintos had been improperly given to Felipe Talamantes and Agustín Machado by José de la Guerra, the retiring commander of Presidio Santa Bárbara. De la Guerra may well have been acting within his powers to reward one of his loyal subordinates, because Los Angeles was officially in the district of Presidio Santa Bárbara. The petitioners argued that in the concession "to benefit two individuals, the whole community had been made to suffer." Apparently, at some point between 1800 and 1814, during the long governorship of José Joaquín de Arrillaga, Francisco Javier Alvarado had asked for the same land, and Arrillaga had said that it was not his decision but that of the community. Similar petitions for that same land by other individuals had been denied because the land was *citio de comunidad*, or common land (Avila et al. 1819) (see Appendixes 10.3 and 10.4). What is most striking here is not the debate over whether the land was common land but the absence of any suggestion that it was occupied by others, notably Indians of Guaspet village, which suggests that, by that time (1819), Indians had abandoned the land and Guaspet. Moraga stood by the earlier decision of de la Guerra but said that Talamantes and Machado would have use of the land on a temporary basis only, pending a review by the *comisionado* of the pueblo and the commander of Presidio Santa Bárbara.

The controversy over who had the right to pasture animals on the former lands of Rancho de los Quintos continued in subsequent years. In January 1821, 10 residents of the pueblo—9 from the previous petition, joined by Juan Nepomuceno Alvarado—made a somewhat different case and argued against the right of Talamantes and Machado to claim the land as their own. They pointed out that the *alcaldes* and *regidores* of the community—Anastacio Avila and Tomás Uribes—had opposed the concession. Although what the petitioners were asking for is not clear, for they claimed that they did not insist that Talamantes and Machado vacate the land, they seem to have been calling into question the right of Talamantes and Machado to claim it as their own pasture (Sánchez et al. 1821) (see Appendixes 10.5 and 10.6). This document also made no mention of Guaspet village or Indians in the Ballona.

Most likely, during that period, before it was clear who actually owned the land, descendants of Pío Quinto Zúñiga continued to use the Ballona to pasture cattle. In 1822, Pío Quinto Zúñiga's youngest son, Aniceto Rufino Quinto Zúñiga, argued in a somewhat-convoluted fashion that he was due a share of cattle then held by Mission San Fernando Rey. The mission seemingly had enclosed land and many cattle between the mission, Cahuenga, the coast, the pueblo, and the Santa Monica Mountains. Because some of the cattle then claimed by the mission had grazed on land previously owned by his family on the Ballona and had wandered onto land claimed by the mission, Aniceto Rufino Quinto Zúñiga believed that he was due some 300 cattle from the mission herd. Antonio Reyes wanted 1,000 head, and Francisco Avila demanded 500. José Polanco and Nicolás Elizalde each asked for 100 head of cattle. What is important about this final petition is the fact that it, too, made no reference to any Indian village in the Ballona, and it also pointed to the use of Ballona land as pasture for the cattle of pueblo settlers. Not only would a village like Guaspet have made the land less desirable as pasture, it would have caught the attention of missionaries and officials of the public lands, who would have been compelled to weigh in on the issue of how the land concession might affect the Indians or might be inadmissible if the land was occupied. Moreover, there seems to be no record from any year of Indians in the Guaspet region attacking, killing, or stealing cattle that might have been encroaching on their village, which probably would have happened had Guaspet still been inhabited after the early 1800s.

Rancho de los Quintos, Rancho la Ballona, Rancho del Paso de las Carretas, and Rancho Rincón de los Bueyes

It is a challenge to unravel the relationships among the many ranchos created in the Ballona region during the Spanish and Mexican periods in the years after the seeming abandonment of the Ballona, first by the villagers of Guaspet and then by the Quinto Zúñigas of Rancho de los Quintos. Rancho de los Quintos, the lands that so many *pobladores* fought over, was always an informal concession. It never had the official approval of the governor or the Spanish or Mexican governments. But in the 1820s and 1830s, roughly the same land was finally and officially granted to other men, none of whom was Indian. The principal sources for that finding were the records of the original land concessions, which are housed by the California Secretary of State and known as the Spanish Land Grant Papers. Other sources were the extensive litigation files generated in the 1850s and later, after the U.S. takeover of the region. During those years, all Spanish and Mexican grants had to be proved to be legally obtained. In documents from all of these sources, there does not seem to have been one mention of an Indian living in the Ballona. Of course, most of the case documents were designed to demonstrate validity of title and the exact nature of rancho boundaries; therefore, there was a bias against any mention of Indians. However, in land-case documents—initial requests for grants, land-committee reports on the use of land, governors' decrees, and documents assembled in the United States in the land-grant cases of the 1850s—it was common for references to Indians' living on contested lands to creep into documents pertaining to ranchos. In sum, the evidence in the historical documents describing the Ballona after 1800 suggests that few, if any, Indians lived in the Ballona after the turn of the nineteenth century. Archaeological evidence, however, seems to suggest that after 1800, Indians might, in fact, have continued to bury their dead in the Ballona.

As noted above, several large ranchos were created in the Los Angeles Basin region during the 1780s by Governor Pedro Fages. But Rancho de los Quintos, the first documented Spanish concession in the area of Guaspet, was not an official one. Over time, the informal Rancho de los Quintos evolved into Rancho del Paso de las Carretas, which in turn became Rancho la Ballona. Rancho la Ballona was granted in September 1839 to Agustín and Ignacio Machado and Felipe and Tomás Talamantes. In their petition for the land, these men asserted that they had been on the land for 18 or 19 years under a "provisional concession," referring to the provisional grant noted above, issued by Gabriel Moraga in 1819. According to the evidence gathered, by 1839, the settlers had constructed two or three houses, were cultivating the land, and had cattle and horses on the land. They had also planted vineyards. Although there was debate over the boundaries of the rancho, there was no evidence offered in numerous declarations that any Indians worked on the rancho or occupied even any corner of it in then-recent memory (File 123, Expediente 184, Rancho la Ballona, California State Archive, Land Case Files, Southern District of California, Sacramento).

Near Rancho la Ballona, several other ranchos were officially concessioned after 1821. Rancho Sausal Redondo, perhaps also known as Rancho Guaspita, was concessioned to Antonio Ignacio Avila in 1822 and 1837 and again in 1846. It appears that it was the same grant as Rancho Sausal

Redondo (File 354, Expedientes 87 and 337, Rancho Sausal Redondo and Guaspita, California State Archive, Land Case Files, Southern District of California, Sacramento; see also File 125, Expedientes 382 and 394, Aguaje de Centinela, California State Archive, Land Case Files, Southern District of California, Sacramento). In the lengthy case files surrounding the land grants completed after the U.S. takeover of California, there was no indication of Indian laborers on those lands or of Indians' actually living on the land grants themselves.

Rancho Rincón de los Bueyes stood between Rancho la Ballona and the pueblo lands. How its boundaries were established in relation to Rancho la Ballona is not clear. That concession was made to Bernardo Higuera and Cornelio López in 1821 by José de la Guerra. According to testimony in the land-grant case files, the land was originally common pastureland for the pueblo; when it was no longer used as common land, Higuera and López received it as a grant. Although the testimony is confusing, it appears that on the death of Bernardo Higuera in 1837, his brother Josef Policarpio took over the land. Most likely, by that time, López was dead, and the Higueras had assumed control of the rancho. The Higueras raised pumpkins and beans on the land. Again, in all the testimony, there was not a word about Indians on the land, either as inhabitants or even as laborers.

Inhabitants of the Ballona Ranchos in 1836, 1844, and 1850

Beyond petitions and land-claims cases, there is rich and complicated documentation regarding the various inhabitants of the Ballona between 1836 and 1850, and none of it suggests that Indians lived there during that time. Two *padrónes* (1836 and 1844) and one census (1850) conducted for greater Los Angeles—the pueblo itself and the ranchos in the surrounding area—listed more than 1,000 Indians in the pueblo and on the surrounding ranchos. But there was no indication in any of those documents that the Californio families who lived in the Ballona and on Rancho Rincón de los Bueyes employed Indians. Nor was there any record, in the *padrónes* or the census, of Indians' owning or permanently inhabiting land in the Ballona after 1800. Notably, though, in 1850, other Los Angeles ranchos, especially those that were close to the former Mission San Fernando Rey, did enumerate Indian laborers and inhabitants on rancho lands. For example, close to the Ballona, Rancho San Vicente had three Indian laborers, Rancho Santa Monica had two, and the property that the census enumerator tallied just after Rancho Rincón de los Bueyes (one that he identified as belonging to "Sánchez") had four. Thus, although it is clear that the Ballona region was home to a few Californio families between 1800 and 1850, there was no indication (as discussed below) in any of the censuses that Guaspet survived as a village after the end of the eighteenth century or that any Indians lived in the Ballona after 1836.

The *Padrón* of 1836

The *padrón* of 1836 is organized in two sections (Los Angeles County 1836). The first lists the non-Indian inhabitants of the pueblo and the surrounding ranchos. On the "Bayona" were listed José Manuel Cota; his wife, Barbara Machado; and their 10 children, ages 1–17. In the second part of the *padrón*, where Indians were listed together, there was no listing for "Bayona," even though many other adjacent ranches with Indian laborers were listed. Just before the listing of "Bayona" in the first part of the *padrón*, one encounters Rancho Rincón de los Bueyes. On that rancho resided the families of Policarpio Equirral [Higuera], Felipe Talamantes, Tomás Talamantes, and Juan Wilson. Policarpio Higuera was enumerated with a woman who apparently was his wife, María del Pilar Buelna, even though there was no documentation in the mission records to confirm that they were in fact married; it seems that they were listed with their only child, Basilio, and a Juan Higuera, who was 48 years old. Felipe Talamantes was listed with his wife, Ildefonsa Avila, and 2 of their daughters. The eldest, Guadalupe, was 27; she was listed with her 4 illegitimate children. Felipe's son Tomás was on the rancho with his wife, Petra Olivas. They and their 2 older children, ages 16 and 14, were classified as laborers. The youngest child, only 4 years old, was not. Rounding out the rancho residents were a black man from Africa, Juan Wilson (but see the photograph of John Wilson displayed by Northrop [1976:facing page 179]), who was listed as a servant; Casimiro Valenzuela, also a servant; and 4 members of the Ramírez clan. The 2 eldest, ages 15 and 12, were servants; the youngest, ages 1 and 8, were not. As was true for Rancho la Ballona, Rancho Rincón de los Bueyes was not listed in the second part of the *padrón*, where Indians on ranchos were shown. However, in 1839, Felipe Talamantes baptized, at Rancho la Ballona, a gravely ill young Indian boy whose parents were former neophytes from the former Mission San Diego (LA Bap 914) (see more discussion by Stoll et al. of this and other baptisms of Native Americans in the Ballona during that era in Chapter 8 of this volume). That baptism suggests the presence of some Indians at the Ballona in those years, even if they were not from the village of Guaspet. The ill Indian boy probably was a day laborer on one of the ranchos and not a resident of the Ballona.

Indian Laborers in the Ballona: 1841 and 1842

The *padrón* of 1836 suggests that Indians did not live in the Ballona in 1836, even though some may have occasionally worked there. Tomás Talamantes apparently also had laborers working for him briefly, but those workers were clearly not from the Ballona (Talamantes 1842) (see Appendix 10.7). During the Mexican period, after mission secularization, many Indians left the missions. Some went to Los Angeles in search of a livelihood. Many pueblo residents considered those Indians a menace, and the pueblo *ayuntamiento* passed increasingly harsh laws designed not only to regulate Indians but also to provide arrested Indians to rancheros as convict laborers. Indians accused and convicted of small crimes served out their punishments in work crews. In theory, that coerced labor "civilized" Indians by reducing their idleness. Of course, it was a boon to many rancheros, who got laborers without wages. Tomás Talamantes seems to have participated in that system. Most likely, because no Indians lived on his rancho lands in the Ballona, he needed to acquire Indian laborers from the pueblo.

In 1841, Talamantes entered into a contract with the City of Los Angeles to provide 150 *fanegas* of lime, which possibly was to come from Rancho la Ballona (see Appendix 10.7). To process and deliver the lime, Talamantes needed laborers. The court granted him four Indians for 6 months. By July, he had delivered more than half the lime, but at some point, the Indian laborers vanished. He appealed to the court for assistance in getting them back, but to no avail. In July 1842, Talamantes appealed to the prefect to complain that he had to pay for his own laborers—something that, in his mind, nullified the agreement. The city officials replied that they had no record of any agreement with Talamantes. They did, however, state their willingness to issue new orders to Talamantes for the recovery of the "three Indians that were given to him" (see Appendix 10.7). That record of Talamantes's dispute with Los Angeles officials suggests that in the years between the *padrónes* of 1836 and 1844, Tomás Talamantes did employ Indians as laborers, at least temporarily, until they fled. Clearly, though, those Indians were not from Guaspet village, and it seems doubtful that they were paid in glass beads. It is possible that they were not even Gabrielino/Tongva.

As far as the city officials knew, 100 *fanegas* of lime had already gone to one "Orduno." "Orduno" may have been one of the former Mission San Fernando Rey Indians who had been granted Rancho El Escorpión, which was created out of the lands of the former mission. In 1850, the former Mission San Fernando Rey was home to some 39 Indians. At the top of the list was "Urbano *Chari*," probably SFR Bap 0358. Also at the mission in 1850 was an Ordon who may also have been a land grantee and the "Orduno" named in the prefecture records. In the records themselves, there is confusion and ambiguity surrounding the names "Ordon," "Orduno," and "Odón." "Ordon" was most likely a mistaken recording of the name "Odón," which appeared in the 1850 census. One Odóna Chihuya definitely was the co-grantee of Rancho El Escorpión with Urbano Chari. "Orduno" could have been a mishearing of an Indian pronunciation of either "Urbano" or "Odón." In the 1850 census, Urbano Chari was listed as 50 years old and holding some $500 worth of property; Ordon was listed as age 43 and propertyless. Those individuals have been the subject of study, most notably by John R. Johnson (1997:265–269). Note that a limekiln operation existed at El Escorpión for many years. The old limekiln is near the mouth of Woolsey Canyon and has been recorded as California State Historic Landmark No. 911 and Los Angeles City Landmark No. 141. Its archaeological site number is CA-LAN-651H. It was built during mission times to supply lime for plastering the Mission San Fernando Rey buildings (Johnson 2006a:43).

The *Padrón* of 1844

The 1844 *padrón* did not list Rancho la Ballona or Rancho Rincón de los Bueyes as places where people were living (Los Angeles County 1844). It did, however, list a good number of ranchos. What explains that difference between the 1836 and 1844 *padrónes*? Perhaps the enumerator of the *padrón* erroneously believed that he was still on pueblo lands when he was doing his work in the area that is today enclosed by downtown Los Angeles, Santa Monica, and the Ballona. Given the immediate proximity of the Ballona region and Rancho Rincón de los Bueyes to the pueblo, it would be reasonable to assume that he did. Most of the ranchos listed in the 1844 *padrón* were in what is now modern-day Orange County or were at a great distance from the pueblo.

In the years between 1836 and 1844, several of the principal proprietors of Rancho la Ballona and Rancho Rincón de los Bueyes died. José Manuel Cota, formerly of Rancho la Ballona, died in 1840 (SG Burial 14a). His surviving wife, Barbara Machado, and their children were listed in the 1844 *padrón* as living in the pueblo. Would they have moved into town? That is doubtful, given the number of surviving children. Most likely, they were still on the rancho, but the *padrón* enumerator neglected to record the ranch name.

As for the residents of Rancho Rincón de los Bueyes listed in the 1836 *padrón*, Policarpio Higuera died in 1842 (SG Burial 5971), leaving his wife, María del Pilar Buelna (SG Bap 4176) as the survivor; there was no burial record for her in the mission records. The couple had only one child; therefore, it does seem possible that she moved off Rancho Rincón de los Bueyes. She was found in the 1844 *padrón* as Pilar Buelna, age 36 (Los Angeles County 1844:754), but it is not clear where she was living at that time. Just above her name on the census is the family of Mariano Higuera, one of three families living on Rancho Rincón de los Bueyes in 1850. Thus, my guess is that Mariano Higuera moved onto Rancho Rincón de los Bueyes after the death of Policarpio. It is not clear what sort of relationship, if any, existed between Mariano Higuera and the deceased Policarpio Higuera. Mariano's father, José Joaquín Antonio Higuera, died in 1809, when Mariano was just 4 years old. Where Mariano was living at the time of the 1836 *padrón* is not clear, but he was not yet on Rancho Rincón de los Bueyes.

Felipe Talamantes was listed as a "Ranchero" in the 1844 *padrón*, which suggests that he probably was still on Rancho

Rincón de los Bueyes, even though the *padrón* gave no location for his residence. He was listed with his wife, Ildefonsa, and their daughter, Guadalupe, as well as five of her children. The oldest two boys, Pedro and Alejo, were each listed as *campista*, which translates to "cattle herder." With them was Felipe's second son, Pablo, whose wife, María Ildefonsa Avila, had died. Pablo's two boys, Leonardo and Perfecto, were also listed. Listed next was Felipe's eldest son, Tomás, with his wife, Petronila Olivas; five of their children; and two unknowns: María de los Angeles Pérez (age 14) and José María Linares (age 12), who was listed as *familiar*, or family, but to whom he was related was not indicated. Then, in what I take to have been the final family group on Rancho Rincón de los Bueyes in 1844, were listed Gregoria Talamantes and her husband. She was born in 1825 as the illegitimate daughter of Guadalupe, the daughter of Felipe. Gregoria was with her husband, José Antonio Manríquez, and their three young children: Felicita, Felipe, and Margarita. Juan Wilson, who appeared in the Bayona in 1836, seems to have vanished, because he does not seem to have been listed in the 1844 *padrón*.

The Census of 1850

There are two manuscript copies of the 1850 census of Los Angeles County. Consulted for this study were the original of the census of 1850 at the Southwest Museum (Evertsen 1851) and the microfilm of a copy of the census at the Huntington Library, which is the official "published" version (U.S. Census Office 1964). The additional schedules seem to have been misplaced; what survived was the list of names as the enumerator wrote them. It is important to note that the 1929 published version of the Southwest Museum's copy of the 1850 census (U.S. Census Office [7th Census, 1850] 1929) is not an accurate rendering of the manuscript.

In the Southwest Museum original, Domicile 301 was listed as "Ballona." In the register, it follows Santa Monica and comes just before Rancho Rincón de los Bueyes. Enumerator Evertsen encountered three households on Rancho la Ballona. The first was headed by Macedonio Aguilar (age 40); also listed were his wife, Rita (age 35), and (I believe) their three children: José Valencia (age 10), Candelaria (age 8), and Barbara (age 5). On the official version of the census, Macedonio was listed as a laborer. There was no record of a marriage between Rita and Macedonio. Two others were attached to that family: Guadalupe, age 18, who seems to have been the product of a union between Domingo Reyes and Rita, and an 18-year-old boy, José María, whose identity beyond his name is unknown. In the official version of the census, he was classified as a laborer. He was not designated as Indian, a designation that Evertsen used throughout the document but not in that case. In the census of 1844, Macedonio, Rita, María Guadalupe Reyes, and José Valencia were listed as living together, but it is unclear where they were living. Macedonio was listed as "L[abrador]. P[roprietario]."

Schedule 4 (Productions of Agriculture) of the Southwest Museum's copy of the census provided additional information as to how the extended Aguilar family used their land in the Ballona region. The cash value of the farm must have been negligible, because no value was listed. That group apparently had no improved land, which suggests that they did not, in fact, own land. They had $50 in farm implements, 100 horses, 300 cattle, and the livestock Evertsen valued at $4,000. In the previous year, they had slaughtered $100 worth of animals.

Household 302 in the Ballona region was led by Felipe Talamantes, age 80. On the official version of the census, he was listed as a grazier. His wife, Yldefonsa, must have died sometime between 1844 and 1850. With Felipe were his daughter Guadalupe, age 40, and her seven children, all of whom were illegitimate. The eldest boy, Pedro, age 17, was classified on the official version of the census as a laborer. Felipe's son Pablo died in 1844, but Pablo's son (Felipe's grandson) Leonardo was still on the rancho. Filling out the household was José Domingo Farias, age 17, who was listed in the official version as a laborer. Felipe Talamantes was listed in Schedule 4 as having 28 improved acres and 4,400 unimproved acres, valued at $1,000. Felipe had $150 in farm implements, and he had 5 horses and 30 cattle, valued at $400. Interestingly, on the rancho, perhaps on the improved land, this group raised 60 bushels of corn and 20 bushels of peas.

Household 303 in the Ballona region was headed by Tomás Talamantes, age 58, a grazier. He was on the rancho with his wife, Petra, and five of their children. The eldest, José Damaso (whose baptism could not be located in the ECPP), age 30, was there with his new wife, Margarita, and their infant, María G[?]. The clan of Tomás Talamantes seems to have had the most productive land in the Ballona region. They had 28 improved acres and 4,408 unimproved acres, giving their land a value of $1,000. They had $100 in farm implements as well as 50 horses, 10 working oxen, and 200 cattle. Their livestock was valued at $250. During the previous year, they had raised 60 bushels of Indian corn and 100 bushels of peas, and they had slaughtered animals valued at $200. They continued to hold the land. Tomás and his wife registered a cattle brand in Los Angeles in 1854, the same year their claim to Rancho la Ballona was ratified by the U.S. District Court (Los Angeles County Recorder, cattle brand registered to Tomás Talamantes, September 1854) (see Appendix 10.8).

Evertsen (1851) encountered three families on Rancho Rincón de los Bueyes in 1850. Group 304 was headed by José Antonio Manríquez (written by Evertsen as "Henriquez") and included his wife, Gregoria, and two children, Felipe and Margarita. In the official version of the census, he was listed as an overseer. They were not included in Schedule 4 of the Southwest Museum copy of the census. Group 305 was headed by Mariano [de la Luz] Higuera and his wife, Salvadora. I believe that Mariano was the nephew of the childless Policarpio. With them were two of their children: Manuel, age 5, and Encarnación, age 8. A third child, Merced, age 11, may have also been theirs (perhaps the same child as María

Nicolasa, born in 1835) or perhaps was not. The third house (Group 305) on Rancho Rincón de los Bueyes was headed by Juan Botillero, who was there with his wife, María, and two of their children. He was 58 years old and was listed as a laborer in the official census. So was the son, Francisco, age 25. The daughter, Juana, age 30, did not have a specified occupation. This group was not listed in Schedule 4. The rancho was patented to Francisco and Secundino Higuera in 1872. Their relationship to the Higueras is not clear.

Conclusion

By 1850, it had been many years since there had been permanent Indian inhabitants of the Ballona. The *padrónes* of 1836 and 1844 as well as the census of 1850 and other earlier documents demonstrated that Californio families continued to claim various parts of the Ballona as their own. They lived on ranchos scattered across the Ballona, where they grazed livestock and raised assorted crops. Because those were, in a sense, small-scale operations run by large, extended Californio families, they required no permanent Indian labor force. But that had not always been true. Decades earlier, the ranchos of the region had employed large numbers of Indians, and Indians from Guaspet village probably had found work on local ranchos, and certainly in the Pueblo of Los Angeles, as they tried to find ways to survive in a changing world. In the early 1800s, as economic and environmental pressures forced them off their lands, the surviving Guaspet villagers seem to have moved to Mission San Gabriel. Few Gabrielino/Tongva alive in 1850 would have remembered the days when Guaspet village had been a vibrant place, a self-sustaining community. But no doubt the Californios who lived there knew that only a short time before, it had been Indian land. Surely, as they walked land that they considered their own, they encountered the material artifacts of centuries of Indian life: perhaps a tool here, a basket there, the remains of Guaspet village and its burial area, and almost certainly stray beads, some shell, and some glass. Those small items, perhaps easily overlooked, were evidence of an ancient Indian past and a more-recent Indian history, one that was marked by complex interactions among Guaspet villagers, Spaniards, and Mexicans during a period of intense upheaval and change.

This chapter has complemented and contributed unique information regarding the history of the residents of the Ballona, including those from the Gabrielino/Tongva village of Guaspet, based on the documentary record found in, among other sources, mission records, Spanish colonial correspondence, official *padrón* and census records, and pueblo municipal records. Those documents contain important, unique, and complementary perspectives on the interactions between the Gabrielino/Tongva and colonial institutions and individuals. Although what is detailed here does not offer one-to-one connections with the archaeological record in regard to Mission period components of sites like LAN-62 and LAN-211, it does offer important contextual information for better understanding the archaeological record and how the artifacts in archaeological contexts may have come into the hands of the native residents of the Ballona.

Contributions of Ballona Research to Gabrielino/Tongva Prehistory and Ethnohistory

Richard Ciolek-Torello, John G. Douglass, Donn R. Grenda, Jeffrey H. Altschul, and Seetha N. Reddy

Introduction

When we began the PVAHP in 1989, we immediately recognized the potential importance of the project and the rare opportunity to learn about the prehistory and ethnohistory of the Los Angeles Basin. It was well known that prior to the establishment of the Mission San Gabriel by the Spanish in a.d. 1771, the region was home to a rich and thriving culture that we now know as the Gabrielino/Tongva. But, within a little more than a generation after the establishment of the mission, many villages of the Gabrielino/Tongva were abandoned and their surviving inhabitants were either resettled at the mission or the nearby Pueblo of Los Angeles, or had emigrated to the far corners of California. That said, the effects of colonialism had chilling effects on Native Californian groups like the Gabrielino/Tongva, with mission records documenting the deaths of many by disease. By the mid-twentieth century, when professional archaeologists armed with new scientific methods began to examine the prehistory of California, the remains of most of these native settlements had disappeared, overwhelmed by the rapid expansion of Los Angeles and its many suburbs. Apart from the poorly documented work of a few avocational archaeologists and newspaper accounts of inadvertent discoveries during early construction projects, virtually no data had been gathered regarding the prehistory of the region. When we began our work, only the broadest outline of the region's prehistory was known and our knowledge of subsistence, settlement, and social organization was based largely on conjecture from a few ethnohistorical accounts and comparison with the Gabrielino/Tongva's better-known Chumash neighbors. Over the past 30 years, the results of several major projects in the Los Angeles Basin have become available, which have provided important comparative data that we have integrated with our results. But these results were not available in the early years of the PVAHP, requiring us to alter our research design as we went.

We had come to Los Angeles through an odd set of circumstances. Altschul had formed SRI in 1983, and for the first five years of the company's existence, it had worked largely in the deserts of Arizona and California. One of its major clients was the Los Angeles District of the U.S. Army, Corps of Engineers (COE). In 1989, a dispute broke out during the construction of the Channel Gateway development in Marina del Rey over the treatment of the Admiralty site (LAN-47), a Late Period manifestation that some believed was the location of the ethnohistoric settlement termed Sa'angna. During the archaeological investigation of the portion of the site that would be impacted by the development, the archaeologist who had previously worked at the site accused the on-site archaeologist with a variety of indiscretions and professional lapses. Countercharges ensued with each archaeologist supported by a different Gabrielino/Tongva group. To break the impasse, the developer, the J. H. Snyder Company, offered to hire another archaeologist who was acceptable to both Gabrielino/Tongva groups. The groups agreed and further stipulated that the archaeologist should have no ties to the Los Angeles Basin. In searching for an acceptable candidate, the COE was contacted and suggested SRI among others. After meeting with all parties, SRI was offered a contract to perform data recovery for the Channel Gateway project.

The Channel Gateway project was important for two reasons. First, SRI worked closely with members of the Gabrielino People, headed by the late Vera Rocha. Although Gabrielino/Tongva tribal members had been allowed to monitor archaeological excavations prior to Channel Gateway, this was one of the first projects to offer intensive training in archaeological field methods, which could then provide job opportunities for Gabrielino/Tongva in archaeology elsewhere in southern California. Second, although SRI was brought in precisely because it was an outsider, Altschul quickly built a project team focused on wetlands archaeology. Initially, the team included Richard Ciolek-Torello (archaeology) and Jeffrey Homburg (geomorphology), and was expanded a few years later with the addition of Donn Grenda (archaeology). Together the team combined data from the Admiralty site excavation with other data collected from archaeological sites in the Ballona in a series of publications that offered theories about human adaptation to wetland environments in southern California that could only be tested with data from a complete wetland settlement system (Altschul, Ciolek-Torrello, and Homburg 1992; Altschul, Homburg, and Ciolek-Torrello 1992; Grenda and Altschul 1994b).

Thus, when we learned of that the old Howard Hughes property was to be developed, we immediately recognized that we had the ideal opportunity to examine not just a single site but—together with research being undertaken at that time by SRI and Van Horn and Associates on the Westchester Bluffs and in other projects—a nearly complete wetland settlement system. We also recognized that we had an important opportunity and responsibility to study the development of Gabrielino/Tongva culture. Even though others had worked on the Hughes property and found little, we expected much to be found if we probed beneath the surface. But even we were surprised by the breadth and richness of the archaeological and historical information that we were to gather. The ample support of Playa Capital Company and nearly 30 years of archaeological, geoarchaeological, and ethnohistorical research have produced a rich and detailed record of long-term human adaptation to a dynamic coastal wetland, from its early development around 6500 b.c. until Gabrielino/Tongva recruitment to the missions in the early 1800s. To help the research team grapple with the vast amount of material, in the mid-2000s we added John Douglass (Mission period and colonial archaeology) and Seetha Reedy (paleobotany) to the core research team.

The materials recovered in support of the Playa Vista project provides a unique perspective on Native Californian culture in the Ballona, from its ancestral origins in the Millingstone period (6500–1000 b.c.), to its development as a distinctive coastal culture in the Intermediate period (1000 b.c.–a.d. 950), and, finally, its emergence as a complex culture during the Mission period (A.D. 1771–1834). We have found support for the long-held argument that the origins of the Gabrielino/Tongva culture began in the Los Angeles Basin during the Intermediate period, with the arrival of Takic speakers from the desert. These new arrivals never developed a true maritime adaptation, much like many native populations further south in Orange and San Diego Counties. Rather, Ciolek-Torrello and Douglass (2002) have hypothesized that the Gabrielino/Tongva of the Ballona adapted the technology and subsistence strategies developed along the shores of the numerous lakes that once dotted the Mojave Desert to the marshes and lagoon of the Ballona and the grasslands of the surrounding coastal prairie. During most of the period of occupation, settlement and subsistence patterns largely reflected the ebb and flow of the evolving wetlands and climatic changes, with periods of abandonment. One notable abandonment occurred during the adverse years of the Medieval Climatic Anomaly (MCA). When the Ballona was reoccupied at the end of the Late period (a.d. 950–1542), the development of Gabrielino/Tongva culture was strongly influenced by cultural interactions and persistence of place.

It is this last chapter in the history of the Ballona that represents the most unique and important story in the 8,000-year-long Native Californian occupation of the region. When we began work in the Ballona during the Channel-Gateway project, one of the most controversial issues was whether it was the site of Sa'angna, a purportedly historic Gabrielino/Tongva village (see Altschul et al. 2003; Altschul, Homburg, and Ciolek-Torrello 1992). However, no ethnohistoric or archaeological evidence for this settlement had been found in the Ballona, save a handful of glass beads found by Van Horn and his associates on the bluff tops overlooking Playa Vista. Based on subsequent testing at sites at Playa Vista, however, we came to understand there were Mission period deposits, and data recovery excavations exposed substantial Mission period remains. Ethnohistoric records suggested that the Gabrielino/Tongva *ranchería* of Guaspet may have been present in the Ballona in the Mission period (McCawley 1996). After an intensive program of archival and archaeological research, we have been able to piece together the previously untold story of culture contact between a small group of Gabrielino/Tongva living in the Ballona wetlands and Hispanic soldiers, ranchers, and priests. We have documented that the people of Guaspet came into contact with Spanish colonial influences, and the local native residents of the Ballona incorporated introduced foods and material culture into their social and economic systems and briefly developed a complex sociopolitical system based on the transformation and incorporation of traditional cultural practices with those of neighboring tribes and Hispanic culture. Ultimately, however, these cultural transformations failed to cope with the demographic and environmental catastrophe caused by introduced diseases, animal herds, and nonnative plants. This final chapter summarizes the significant contributions of PVAHP research to the region and presents our final thoughts on Gabrielino/Tongva culture in the Ballona.

Contributions of the Research

Stemming from our work at the Admiralty site, we chose to focus the major objective of the original Playa Vista research design (Altschul et al. 1991) on understanding the cultural processes that characterize the interaction between humans and their environment. Specific goals were to (1) reconstruct the changing paleoenvironment of the lagoon and (2) outline the culture history and dynamics of prehistoric settlement. The first goal targeted the evolution of the lagoon and wetlands and their influence on settlement and subsistence patterns over time. The second theme focused on the role that developing social organization played in the Ballona population's adaptation to the changing environment. Our ultimate goal was to reconstruct the organization of human groups as they evolved in response to the changing natural and cultural landscape. These goals have provided guidance for the PVAHP research program since its inception. Over the course of the project, however, we refined our goals and research issues as more information became available. Notably, a major update of the research design was necessary when evidence of Mission period occupation was discovered (Altschul et al. 2003). In our efforts to reconstruct the organization of human groups in response to the changing environment, we identified specific research issues: human-land relationships; maritime vs. littoral adaptations; the Takic expansion; the impact of the MCA; hunter-gatherer subsistence and settlement; social complexity; village vs. *ranchería* settlement; and colonialism, ethnogenesis, and persistence. In the discussion below, we begin with a cultural historical presentation of human-land relations, followed in turn by each research focus listed above.

Human-Land Relationships

One of the major contributions of the PVAHP is the depth and scope of the paleogeographic reconstruction and land-use history of the Ballona. In the Los Angeles Basin, for example, there are little detailed or comprehensive environmental data available for other lagoons and estuaries, such as San Pedro Bay, Bolsa Chica, and Newport Bay. We recognized at the start of the PVAHP that understanding the dynamics of human occupation of the Ballona was crucial to understanding the relationship between cultural and environmental change (Altschul et al. 2005).

Based on our earlier work at the Admiralty site (Altschul, Homburg, and Ciolek-Torrello 1992) and Van Horn's work on the bluff tops (Van Horn 1984a, 1987; Van Horn and Murray 1984, 1985), we developed an initial model of settlement for the Ballona wetlands. We argued that changes in human settlement were tied directly to the Holocene evolution of the wetlands (Altschul and Ciolek-Torrello 1990). When humans first ventured into the region, the Ballona was merely a gap along the coastline of Santa Monica Bay. Initially, their visits were short and confined to the only stable landforms, which at this early date were restricted to the tops of the Westchester Bluffs. Beginning approximately 8,000 years ago and extending over thousands of years, the open bay gradually became a closed lagoon. The floral and faunal resources became more attractive to humans, and seasonal settlements were established along the length of the bluff tops and along the edges of the lagoon. As the Ballona developed into a resource-rich estuarine environment, its inhabitants forsook their scattered bluff-top settlements for larger and more-permanent settlements along the edges of the lagoon. Using a gradualist approach, we envisaged that population grew in step with the increasing diversity and density of wetland resources. In the course of our research, we demonstrated that the broad assumptions of this early model are accurate. The timing and nature of environmental and cultural events, however, were quite different from what we expected; we learned that population growth was erratic with extended periods of abandonment. We found that population was largely concentrated on the bluff tops and at their base along Centinela Creek, with relatively little occupation along the lagoon edge or Ballona Creek. We also discovered that the bluff tops and upper Centinela Creek settlements were less used at a time when the wetlands were mature and remained attractive to humans.

To address these intriguing findings, it was first necessary to understand the Holocene evolution of the wetlands, climatic change, and the manner in which the resource base changed throughout the period of human use (Altschul et al. 2005; Ciolek-Torello et al. 2013). Toward this end, we undertook a program of paleoenvironmental reconstruction of the Holocene ecosystem in the Ballona. An extensive coring program provided more than 200 continuous 3-inch cores for the entire project area, and we have used the contents of these cores for stratigraphic, chronometric, pollen, mollusk, foraminifera, siliceous microfossil, and ostracode analyses (see chapters and appendixes in Volume 1, this series). Prior to modern development, the Ballona Lagoon would have been termed an estuarine lagoon (Davies 1973:152). Estuaries such as that formed in the Ballona are among the most productive ecozones in terms of biological mass (see chapters and appendixes in Volume 1, this series). The mixture of open lagoon, tidal flats, saltwater and freshwater marshes, and freshwater streams provide a variety of distinct habitats within a restricted space. The availability of oceanic, riverine, and terrestrial plants and animals close to one another made the Ballona and other estuaries of the Southern California Bight some of the most favored locales for human occupation in the New World. As late as the 1870s, the Ballona Lagoon was home to a dense population of fish, waterfowl, and sea mammals, and was renowned for its hunting and fishing.

A rise in global sea level during the Pleistocene, beginning approximately 18,000 b.p., was the formative factor in the Ballona wetlands. Initially, the inundation of the preexisting shoreline created a bay that extended into the Ballona. By 7850 cal b.p. the rate of sea level rise began to decrease, and other geologic processes, particularly depositional processes, exerted more influence in shaping the landscape. In the Ballona, a sandy spit began to form southward across the mouth of the coastal inlet by approximately 5700 cal b.p. and by 3200 cal b.p. had formed a barrier that completely closed off the inlet from Santa Monica Bay. By 4500 cal b.p., sediments began to fill in this newly created lagoon, creating marshes along its flanks and a coastal plain at its eastern end. This open-water retreat continued steadily for the next 3,000 years, with the lagoon filling in more quickly east to west than north to south because Ballona and Centinela Creeks both enter the wetlands from the east. By 200 cal b.p., the Ballona Lagoon was confined to a small remnant of its former size, with the lagoon edge retreating from the bluffs along all or most of its length.

Filling of the Ballona Lagoon took approximately 5,000 years; such rapid infilling is not surprising because lagoons and associated wetlands tend to be short-lived geologic features (Bird 1994; Eisma 1998; Orme 1990). The relatively constant position of the barrier and the shoreline suggests that for about the last 7,000 years, a dynamic equilibrium existed between local tectonic uplift and rise in sea level. This equilibrium probably prolonged the life of the Ballona Lagoon, as it was neither inundated by transgressing seawater nor drained by rising landforms (see Volume 1, this series for more details).

The wetlands, however, did witness changes in salinity as the lagoon was dominated alternately by marine or freshwater inputs. Prior to approximately 7000 cal b.p., the wetlands were mostly dominated by marine influences, interrupted sporadically by several freshwater pulses. After 4500 cal b.p., freshwater inputs were the primary factors driving the evolution of the wetlands. Combining the stratigraphic with the biological evidence, the barrier across the Ballona was probably complete by about 3200 cal b.p. After that time, the tidal channel(s) were frequently blocked or filled in above sea level, thereby allowing freshwater from Ballona and Centinela Creeks to build up behind the barrier and dilute the lagoon's salinity.

Millingstone

The earliest occupation of the Ballona, documented at three bluff-top sites—LAN-61, LAN-64, and LAN-206—dates to the early Millingstone period at approximately 8000 cal b.p., at a time when the lagoon had not yet formed. Late Millingstone period occupations were recorded at three other PVAHP sites—LAN-54, LAN-62, and LAN-193. The ages of these early sites were established by radiocarbon dates and diagnostic surface artifacts, including a crescent and a few stemmed points located on both the bluff tops and at the base of the bluff (Douglass et al. 2005; Van Horn 1987; Van Horn and Murray 1985; see Volume 3, this series). The earliest well-documented deposit was from LAN-64, located on the bluff overlooking what was then Ballona Bay. The deposit consisted of clusters of small shell dumps, primarily of scallop (*Argopecten*), radiocarbon dated to around 8000 cal b.p. (Douglass et al. 2005). These dumps were likely the remains of temporary camps used by mobile hunter-gatherers during the collection of nearby lagoon resources (Douglass et al. 2005). Below the bluffs, at LAN-54, LAN-62, and LAN-193, deposits dating to slightly later than 6000 cal b.p. were identified. These sites were similar to those on top of the bluffs; the remains were very sparse and likely represented a limited set of activities. To date, there has been no archaeological evidence of use of the Ballona during the middle Millingstone period, ca. 6000–5000 cal b.p.; literally hundreds of radiocarbon dates have failed to identify use during that period. Currently, it is unclear why the area was abandoned during that time. A relatively more distinct occupation in the Ballona is discernable from the late Millingstone period, ca. 5000–3000 cal b.p. and comprises roughly double the number of sites identified from the early Millingstone period. The earliest human burials discovered in the Ballona date to late Millingstone period at LAN-54.

The Millingstone period occupation was mainly concentrated in the western part of the Ballona—in the lowlands near the lagoon at LAN-54 and LAN-62, and on the bluff tops represented by isolated features and sparse middens at LAN-64 and LAN-206. The archaeological remains at these sites revealed specialized land use by mobile hunter-gatherers at short-term logistical camps focused on shellfish processing (LAN-54 and LAN-64) or vertebrate resources (LAN-62). The nature of these camps was suggested by a cluster of features in Locus A at LAN-62. Feature Block 7 consisted of four features that appeared to represent a single depositional event related to cooking activities, including a cairn situated adjacent to a hearth cleanout and a discard area mostly composed of faunal bone. The cairn may have supported a post for a makeshift shelter, and the other features might have accumulated from processing mammals.

Millingstone occupation of the Ballona shows many similarities with other lowland occupations in the Los Angeles Basin during that period, although important differences are also evident. ORA-64, located along the interior margins of Newport Bay, was occupied at 9000 cal b.p. (Macko 1998), at least a thousand years before the first shell dumps were deposited at LAN-64, whereas ORA-83 at Bolsa Chica Mesa was first occupied about the same time as the Ballona (Whitney-Desautels 1995). Malaga Cove (Walker 1952) also has likely early Millingstone period occupation. These early occupations predated the formation of wetlands in these locations as sea levels were rising rapidly at this time and shorelines were advancing too quickly for wetlands to develop (Cleland et al. 2007). While the first inhabitants of the Ballona were exploiting shellfish from open-bay environments, those at ORA-83 focused on open-coast shellfish such as the Pismo clam (Whitney-Desautels 1995). Millingstone occupation expanded greatly at approximately 7000–6000 cal b.p. with occupations on Huntington Beach Mesa, the San Joaquin Hills of the Newport Coast area, and Alamitos Bay. The first evidence of occupation at LAN-62 dated to this time. Millingstone occupation of the Ballona, however, remained much more ephemeral than at many other coastal areas in the region. Hundreds of burials and other features at ORA-64 indicate an intensive occupation of the Newport Bay area at this early time. A highly mobile population like that postulated for the Ballona was also evident at Landing Hill, where artifact density was low and there was little evidence of organized residential activity in the form of hearths, refuse disposal features, or specialized-activity areas. An apparent clustering of Millingstone period burials, however, suggests that the area was used often enough to maintain a burial area for individuals with some social relationship (Cleland et al. 2007:329). Such burial clustering was not evident in the Ballona until the following Intermediate period.

Intermediate Period

The Intermediate period, dating between 3000 and 1000 cal b.p., was marked by dramatic changes in settlement patterns, economic activities, and technology, and is the best-documented portion of the prehistoric occupation of the Ballona. Almost every known site in the Ballona had a substantial Intermediate period occupation, and these sites covered virtually every elevated knoll along the edge of Westchester Bluffs and every alluvial fan at the base of the bluffs. All five major sites in the PVAHP had Intermediate period components. In contrast to sites from the previous period, these sites contained relatively dense deposits of artifacts and faunal remains and hundreds of well-defined features.

There was variation in land use during the Intermediate period within the Ballona, both within the lowlands and between the lowlands and the bluff tops. The Ballona Creek area (LAN-54) was used mainly as a collection area for shellfish and probably aquatic resources. Along the base of the bluff, activities involved more intensive use of terrestrial plant and animal resources. Subsistence was more diverse in the westernmost area along the base of bluff and included the procurement and processing of terrestrial and aquatic resources. Settlement in the lowlands, however, continued as small temporary camps. Interestingly, there appears to have been differences in the use of sites in the lowlands vs. the uplands, based in part on the contents of their middens. Although some sites in the uplands appear to have had dense quantities of shellfish remains in the middens, many of the sites in the PVAHP contained low densities of shell in their middens. It is unclear if this difference reflects site function, differential waste disposal at different sites or, at least in part, sampling strategies.

In contrast to the Ballona lowlands, the bluff-top sites were marked by larger and more-intensive, semipermanent occupations. The use of space was more highly structured at LAN-63 and LAN-64, with separate areas devoted to food processing, refuse discard, and mortuary-related features. The discovery of large mourning-ceremony features at the center of LAN-63 suggests communal activities (Douglass et al. 2005; Hull et al. 2006; Hull et al. 2013). A number of burials and large numbers of ritual artifacts at LAN-61, LAN-63, and LAN-64 reflect activities that are poorly represented elsewhere in the Ballona during this time period (Douglass and Ciolek-Torrello 2007; Hull et al. 2013). Some burials were on the periphery of these settlements, but a cluster of inhumations and cremated remains at the center of LAN-64 suggests a burial area for specific social groups within the larger community (Douglass et al. 2005).

The paleoenvironmental reconstruction suggests that the intensified occupation of the Intermediate period in the Ballona coincided with a period of optimal environmental conditions. By this time, the Ballona was an estuarine lagoon with a broader mixture of open lagoon, tidal flats, saltwater and freshwater marshes, and streams than at any other time in its history. The period around 2000 cal b.p. was also one of unusually high precipitation, which would have maximized the productivity of the freshwater resources in the wetlands and the vernal pools and terrestrial resources of the coastal prairie on the bluff tops (Wigand 2005; see Chapter 8, Volume 1, this series). The expansion of settlement in the Intermediate period cannot be attributed entirely to an environmental optimum. Takic speakers may have entered southern California at the beginning of the Intermediate period (Koerper 1979; Sutton 2009), bringing with them a technology and settlement pattern adapted to the lacustrine environments of the Mojave Desert (Ciolek-Torrello and Douglass 2002).

The Intermediate period occupation of the Ballona exhibits similarities and differences with occupations at other lagoons and estuaries of the Los Angeles Basin. Cleland et al. (2007:330–331) have argued for a major decline in occupation of Landing Hill in the early Intermediate period. The clustering of burials on the Alamitos Bay side of Landing Hill suggested to Cleland et al. that site structure was reorganized at this time with separate residential and burial areas. Cleland et al. (2007:331) documented a resurgence of occupation in the late Intermediate period that coincided with the population expansion in the Ballona. Although they identified a large mourning feature at ORA-263, similar to those at LAN-63 (see also Hull et al. 2006; Hull et al. 2013), the dense concentrations of hearths and other features found in late Intermediate period sites of the Ballona were not identified at Landing Hill. Furthermore, the mourning feature at ORA-263 was contemporaneous with the late Intermediate period occupation of ORA-261, the most intensively occupied site at Landing Hill at this time, indicating that the pattern of spatially segregating residential and mortuary activities, first observed during the Millingstone period, continued during the Intermediate period in this area (Cleland et al. 2007:331).

Site abandonment was also common in other coastal areas of the Los Angeles Basin during the Intermediate period. For example, the San Joaquin Hills, which saw frequent use during the Millingstone period, was essentially abandoned during the Intermediate period, while new settlements were established in upper Newport Bay (Cleland et al. 2007; Grenda et al. 1998; Mason and Peterson 1994b). Similarly, Intermediate period occupations were rare at Huntington Beach Mesa and Bolsa Chica, with the exception of ORA-83 and ORA-85 (Cleland et al. 2007:334; Whitney-Desautels 1995). Many argue that this settlement reorganization reflects a shift from the Millingstone period pattern of wide-ranging movements and the establishment of temporary camps to a more organized and restricted land-use pattern focused on locations near water sources (Cleland et al. 2007:334). Mason and Peterson (1994b) argued that a semisedentary settlement system was established in which people residing in semipermanent inland settlements sent parties on logistical forays to the coast. By contrast, Grenda et al. (1998) suggested the more-mobile Millingstone period pattern may have continued, with people shifting from more-permanent settlements on the lagoon edges to mobile upland camps, depending upon resource fluctuations. Cleland et al. (2007:334) concluded that settlement and subsistence shifted from a focus on wetland resources to a wider range of coastal and terrestrial resources, and although groups were still residentially mobile, evidence for logistical trips to the coast from inland habitation sites suggested more organized and focused land use.

The late Intermediate period occupation of the Ballona stands out from this general pattern. There is no evidence for abandonment, rather virtually every known site in the Ballona has a substantial Intermediate period occupation, and radiocarbon dates suggest that this was the time of the most intensive occupation of the area. Furthermore, settlement was diverse, with complex, semisedentary settlements on the bluff tops and more specialized-procurement camps along Centinela and Ballona Creeks. It is possible that the unusually intensive and widespread Intermediate period occupation of the Ballona was because of the juxtaposition of the Ballona wetlands and the vernal pools of the coastal prairie that placed abundant wetland and terrestrial resources in proximity.

Late Period

The Late period (A.D. 950–1542) in the Ballona witnessed a dramatic decrease in the number and size of sites and areas occupied. In contrast to the widespread Intermediate period occupation, five sites had Late period components: LAN-47, LAN-61, LAN-62, LAN-63, and LAN-211. The Late period component of LAN-47, on the north side of the Ballona, was a temporary camp for procurement of wetland resources for a brief span at the beginning of this period. The nature of the Late period deposits at LAN-62 was less clear because these deposits had been disturbed in many places by subsequent occupations and twentieth-century construction activities (i.e., Hughes Aircraft Company activities). However, there was little evidence of occupation of LAN-62 at this time, as well as at nearby LAN-211. By the end of the Late period, a burial area was established at LAN-62 Locus A. Occupation of LAN-61 and LAN-63 (and possibly LAN-59), on top of the bluffs, was even more ephemeral, with only isolated artifacts dating to this period.

As in the preceding Intermediate period, the change in settlement patterns during the Late period relates to both environmental conditions and cultural changes. The Late period coincided with the MCA (see below); precipitation was lower, and cyclical episodes of wet climate alternated with extreme, extended drought. The Los Angeles River, which likely captured Ballona Creek in much of pre-Hispanic times (see Chapter 8, Volume 1, this series), also may have shifted its course away from the Ballona. These drier, less-predictable conditions severely impacted vernal pools and reduced associated freshwater and terrestrial resources but left the salt marshes relatively unaffected. In addition to this climatic change, the Ballona, as an evolving estuary, was silting in, and the extent of freshwater wetlands was shrinking. As the coastal prairie to the south of the Ballona dried up and the wetlands shrank in size and productivity, people initially shifted to the more-reliable resources of the salt marshes and the coast at LAN-62 and LAN-47 before abandoning the area.

The general abandonment of the Ballona in the Late period parallels a general decline in the use of coastal wetlands throughout the region. Cleland et al. (2007:334) pointed to a general decline in the occupation of the Landing Hill area, whereas Koerper et al. (2002:74) noted a general abandonment of the Bolsa Chica area. By contrast, the San Joaquin Hills experienced a resurgence of occupation with a variety of residential and specialized-activity sites (Mason and Peterson 1994b), which Koerper et al. (2002) suggested may have been components of a larger settlement system focused on the ethnohistoric village of Genga at the center of the Newport Coast area. Similarly, Cleland et al. (2007:334) have suggested the possibility that the limited Late period occupation of Landing Hill was related to the nearby ethnohistoric village of Puvunga (see Altschul 1994 and below regarding the distinction between "village" and "*ranchería*"). Thus, rather than a region-wide depopulation, the Late period appears to have been a time of population reorientation or aggregation into a more organized and possibly more localized system focused on a small number of large villages. Many of the wetland areas, which had been occupied intensively in the Intermediate period, became satellites of these few large villages and were used by procurement parties sent from these villages on logistical forays (Cleland et al. 2007). It is not clear if the Ballona became part of such a larger settlement system centered on a village outside of the Ballona during the Late period, but it is clear that use of the Ballona was reduced to a level almost as low as the occupational hiatus during the middle Millingstone period.

Protohistoric and Mission Periods

After this period of decreased use, the Ballona experienced a resurgence of human settlement during the Protohistoric (A.D. 1542–1771) and Mission periods (A.D. 1771–1834). The strongest evidence came from two lowland sites, LAN-62 and LAN-211, although there was some trace evidence of Mission period occupations at LAN-61 and LAN-63 on the bluff tops. The two lowland sites were distinct from each other: LAN-62 Locus A functioned as a mortuary-ritual center, and LAN-211 was a habitation and possibly feasting locus. The two sites were separated by a sparsely used open space (LAN-62 Locus B/C/D). LAN-62 contained, in its southwestern portion, a dense, complex burial area with numerous Mission period burials. Many of the burials contained artifacts of both Hispanic and indigenous origin, suggesting interaction between Hispanic colonists and Native Californians. As discussed in Chapters 7–9 (this volume), there was a native settlement called Guaspet in the Ballona that likely was connected to this burial area. The burial area was formalized with definite boundaries, grave markers, and distinct ritual areas. LAN-211, although contemporaneous with the burial area at LAN-62, functioned in a decidedly different manner. Much of the activity at LAN-211 focused on residential activities, and there may have been a communal cooking area. Also, LAN-211 likely functioned, in part, as a locus of feasting activity related to the burial area at LAN-62.

This resurgence of occupation in the Protohistoric and Mission periods corresponded with an end to the adverse climatic conditions associated with the MCA. The Los Angeles River may have once again flowed into Santa Monica Bay through the Ballona as observed by the Spanish when they arrived in the late eighteenth century (Gumprecht 1999; Johnston 1962:77). With the end of the MCA and infusion of freshwater from the greater watershed of the Los Angeles River, the Ballona may have again become a highly productive locale, although it no longer had the productive potential of the Intermediate period lagoon and wetlands. By the Mission period, the Ballona was reaching the end of its evolutionary cycle and had become a sediment-choked estuary lacking any large expanses of open water. As a result, subsistence activities were turning away from freshwater marsh resources to saltwater marsh and marine resources (see Chapter 4, this volume).

Maritime vs. Littoral Adaptations

Over the past 30 years in California archaeology, there has been a strong focus on understanding maritime adaptation among coastal hunter-gatherer groups as well as the use of seagoing vessels by these groups. Historical records note that the Gabrielino/Tongva were well equipped for fishing, using rafts made of reeds and, like their Chumash neighbors, the plank canoe to fish and hunt whales, seals, and sea otters (McCawley 1996:122). Reid (1968:22) noted that these resources formed the principal subsistence of the Gabrielino/Tongva of the coast and islands. Thus, as discussed by Reddy et al. in Chapter 4 (this volume), we expected to see evidence for the development of a maritime adaptation in the Ballona. Despite its proximity to Santa Monica Bay, our research revealed that the residents of the Ballona remained oriented toward littoral adaptation that focused on exploitation of coastal and terrestrial resources. Throughout the 8,000-year-long occupation of the Ballona, pelagic fish and sea mammals were very minor components in the diet, and technology associated with a maritime adaptation was never adopted. The Ballona adaptation was similar to those that characterized neighboring groups to the south (in what are today Orange and San Diego Counties) and in stark contrast to the entrenched maritime adaptations seen among the Gabrielino/Tongva on the southern Channel Islands to the southwest and among the neighboring Chumash to the north (Gamble 2008).

Throughout their long occupation, the people of the Ballona hunted and trapped small terrestrial mammals, diligently collected mollusks from the wetlands and plant resources from the coastal prairie and its vernal pools, and fished in the lagoon and (rarely) on the nearby shore of Santa Monica Bay. Pelagic fish were rare and may have been obtained through trade from their island neighbors or the Chumash. The rare remains of deep-sea animals, such as whales and dolphins, were likely scavenged from nearby beaches. A sustained focus on maritime exploitation, noted in the Channel Islands and on the Santa Barbara Coast, never developed in the Ballona, despite evidence of prolonged contact. Certainly, there is ethnohistoric evidence of marriage ties between Ballona populations and Channel Islanders as well as neighboring Chumash (see Chapters 7 and 8, this volume). Archaeologically, contact between the Ballona and the southern Channel Islands was evident from at least the Intermediate period (3000 cal b.p.), as demonstrated by the presence of Catalina Island steatite at numerous sites and small quantities of shell beads. What is noteworthy is that there is no direct archaeological evidence of watercraft production, including plank canoes, in the Ballona, although a short distance to the north, the Chumash were seasoned seafaring people with strong connections to the islands. Chumash sites contain lithic tool kits associated with the construction of plank canoes and, at times, even portions of these vessels. Such evidence is lacking in the Ballona. Furthermore, only small numbers of bone barbs and harpoons were found in the PVAHP collections. Shell fishhooks, considered another hallmark of the maritime adaptation in southern California, were recovered in extremely low frequencies in the PVAHP. It is likely that the wetland and terrestrial habitats of the Ballona provided ample food resources year-round, and therefore, the pre-Hispanic residents of the Ballona either did not need, or chose not to engage in high-risk food-procurement strategies such as deep-sea fishing and sea-mammal hunting. Furthermore, as we argue below, it is possible the people of the Ballona came from the desert and brought subsistence practices and technologies adapted to the exploitation of terrestrial and lacustrine resources.

Takic Expansion

The Takic (proto–Gabrielino/Cupan branch) expansion into southern California has been a topic of scholarly discussion for many years and is of great importance to the PVAHP as a line of research. Traditionally, archaeologists have argued that Takic-speaking Numic people moved out of the Great Basin around a.d. 500, near the end of the Intermediate period, bringing with them a distinct cultural package, highlighted by the bow-and-arrow, pottery, and cremation mortuary ritual (Kroeber 1925). These Numic groups were the precursors of today's Cahuilla, Serrano, Gabrielino/Tongva, Luiseño, and Juaneño (all Shoshonean groups), and traditional views of their arrival into southern California (e.g., True 1966) have maintained that these groups drove a wedge between Hokan-speaking Chumash to the north and the Diegueño to the south. Koerper (1979), among others, however, has argued for a much earlier arrival of the Takic-speakers, based on the observation that changes in material culture of a similar magnitude took place much earlier in the archaeological record. More importantly, social groups in southern California shared too many aspects of culture, language, and social organization at the time of Spanish contact to have diffused in such a short time. Koerper hypothesized that the Takic migration must have occurred several thousand years earlier. More specifically, Mason et al. (1992) argued that the major settlement shift in the Newport Bay area around 3000 b.p. marked the Takic arrival. Altschul and Grenda (2002) have suggested that the Los Angeles Basin may not have been very attractive to indigenous people during the Intermediate period and was only sparsely populated. They view the Takic intrusion as a movement into a relative vacuum between the Santa Barbara and San Diego portions of the Southern California Bight. Alternatively, Kennett et al. (2007) have proposed that the Takic intrusion may have occurred as early as 5000 b.p. along the southern California coast and southern Channel Islands. Their argument is based on the presence of Olivella Grooved Rectangle beads, which date to ca. 5200 b.p. and are thought to be Numic markers (Raab and Howard 2002), and biological data indicating a population replacement on San Clemente Island (see Sutton 2009).

Altschul, Doolittle, and Benaron (1998:17) countered by suggesting the migration of desert populations to the coast was not a single event but may have occurred on many occasions over a long period. Van Horn (1984a:55, 1990) argued that the desert-style Marymount point (a local variant of the tanged Rose Spring point) represented the introduction of bow-and-arrow technology into the Ballona and the greater Los Angeles area through a migration from the desert around 1500 cal b.p., a time that corresponds closely with Kroeber's (1925) date for the Takic intrusion. Many of the desert traits in the Ballona, however, appear in the archaeological record at around 3000 cal b.p., the beginning of the Intermediate period, and some may have appeared as early as 5000 cal b.p., during the Millingstone.

More recently, Sutton (2009) has argued that the Takic migration occurred at the beginning of the Intermediate period, at least 1,500 years earlier than the original hypothesis. Sutton maintains that at the end of the Millingstone period, ca. 3500 cal b.p. and through the early Intermediate period (ending ca. 1500 cal b.p.), there was an initial entry of Takic-speaking people into the region. These Takic groups were biologically, culturally, and linguistically different from the late Millingstone period Encinitas populations that they replaced along the coast. Sutton maintains that the Takic-speaking people brought with them a new language (proto–Gabrielino/Cupan) and new settlement and subsistence systems. He also argues that the archaeological record reflects these differences. First, the entering Takic groups were biologically distinct from the preceding populations, as indicated by both osteometric and DNA data (although the data set is small), suggesting that a migration took place. Second, significant increases in site numbers as well as site size and length of occupation were noted in some areas, such as the Ballona (Altschul et al. 2005:291, 295; Altschul et al. 2007:35; Grenda and Altschul 2002a). Larger sites with a greater diversity of artifacts appeared at about that time across the Los Angeles Basin and Orange County. In the Ballona, occupations generally appeared to have been longer in term than just seasonal, although not year-round. Third, economies changed from a heavy emphasis on marine resources (especially shellfish) to more emphasis on terrestrial resources, although fishing also became more important during the transition from the late Millingstone period to the subsequent early Intermediate period.

Sutton (2009) noted that changes in material culture included the appearance of desert-style Elko and Gypsum points at a number of sites in Los Angeles and Orange Counties. These points, however, are uncommon and too widely distributed throughout the West to be considered by themselves as Takic markers. The importation of small steatite artifacts, such as effigies, pipes, and beads from Santa Catalina Island, demonstrates an increase in trade between the mainland and islands in the Intermediate period. Shell beads and ornaments, which were uncommon in Millingstone assemblages, increased in numbers in the Intermediate, and new technologies for fishing—bone harpoon points and fishhooks—also appeared at this time. Obsidian use also increased, although the Coso volcanic field continued to be the primary source. Additionally, a new type of microlith has been found in Intermediate components in the Ballona (Altschul et al. 2005:288; Towner 1992:237–238); these were small blades apparently hafted and used for cutting or engraving wood or stone rather than making shell beads as in the Chumash region (Van Horn 1987:241).

Lastly, there were important changes in mortuary practices on the coast. The practice of flexed burials under cairns disappeared on the coast but continued inland; cremation was uncommon and was not, according to Sutton (2009), a Takic marker, as has been so commonly believed. However, mourning features with cremated human bone, which Sutton considers a hallmark of the Takic presence in the Los Angeles Basin, appeared at about 2600 cal b.p. (during the early Intermediate period). These complex features, containing large numbers of purposefully broken ground stone and other artifacts, have been found at a number of sites across the Los Angeles Basin and adjoining Orange County, including the Ballona (Douglass et al. 2005; Hull et al. 2006; Hull et al. 2013) and the Alameda Bay area, south of San Pedro (Cleland et al. 2007). These features may represent a diffusion of ideas from Yuman groups in the deserts to the east and could mark the inauguration of a ritual complex in the region (see Sutton 2009).

Research in the Ballona has contributed significantly to this evidence for the Takic intrusion. Sutton (2009) defined the Del Rey tradition to represent the Takic occupation of the Los Angeles Basin based on the Intermediate period archaeological manifestations found at the Del Rey site (LAN-63), which is the archetype for Sutton's early phase (Angeles I) of this tradition. The settlement shifts observed in the Los Angeles Basin were evident in the Ballona. Sites were larger, more numerous, and more complex, reflecting a population influx and more-intensive and longer-term occupation. However, whether this change represents the Takic intrusion is still a matter of debate. Most of the observed changes in material culture can be attributed to a larger and more-permanent residential occupation, and changes in subsistence may reflect the changing resource base associated with the evolution of the lagoon. Desert-style points were recovered in the Ballona but in low numbers, reflecting the low importance of large-mammal hunting. Stone beads made of steatite and other materials were more common than shell, and the few fishhooks were made of bone rather than shell, suggesting a lack of experience or interest in using shell for artifact manufacture. However, the numbers of both stone beads and fishhooks were very low. Other sites dating to the Intermediate period, such as those at Landing Hill (Cleland et al. 2007), had large numbers of steatite beads compared to shell beads in burials. No additional evidence of the distinctive microlith tradition suggested by Altschul et al. (2005), Towner (1992), or Van Horn (1987) was found in the Ballona, however. Unfortunately, because of poor preservation, osteometric evidence from Intermediate period populations was not available and DNA data could not be obtained. The strongest evidence for the Takic intrusion into the Ballona is the mortuary/mourning complex found at LAN-63. Although most burials were inhumations, the incorporation of cremated human bone into the distinctive mourning features finds little parallel on other areas of the coast and, as Sutton has suggested, may reflect a connection with Yuman groups in the deserts to the east. Landing Hill, of course, has provided another example of the incorporation of cremated human bone into burials during the Intermediate period (Cleland et al. 2007) and has been argued to represent part of the mourning ceremony (Hull et al. 2006; Hull et al. 2013).

An early Takic intrusion remains an alluring idea to explain the population influx in the Intermediate period in the Ballona and settlement changes throughout the Los Angeles Basin at this time. The lack of a maritime adaptation by these new residents of the Ballona is not consistent with thousands of years of occupation adjacent to Santa Monica Bay and the southern Channel Islands. Instead, the largely terrestrial and lagoonal subsistence focus of the Intermediate period Ballona population was more similar to that of earlier populations that exploited the pluvial lakes of the Mojave Desert. In fact, the technology and subsistence patterns used by these desert groups were preadapted to exploitation of the Ballona wetlands and adjoining coastal prairie (Ciolek-Torrello and Douglass 2002).

The Medieval Climatic Anomaly (MCA)

California archaeologists have often posited the MCA as a seminal event that transformed the cultures of the Southern California Bight from highly mobile egalitarian societies to much more residentially stable and socially complex societies. Cultural responses to the MCA between a.d. 800 and 1350 (1050 and 650 cal b.p.) were varied in coastal California and involved imbalances between populations and resources, drought-related environmental deterioration, and shortages of food and water (see Arnold 1992a, 1992b; Glassow et al. 2007; Jones et al. 1999; Jones and Schwitalla 2008; Kennett 2005; Martz et al. 1995). Arnold (1992a, 1992b) has linked a dramatic increase in the production of shell beads (as exchange commodities) on Santa Cruz Island to an interval of warm sea temperatures and depressed marine productivity and has explained the emergence of elite-managed craft specialization as a response to these catastrophic environmental changes.

Much of the Ballona was abandoned during the MCA, and only small, seasonal camps at LAN-211 and LAN-62 and a single settlement at LAN-47 were occupied at that time. Paleoenvironmental reconstruction (see Volume 1, this series) indicates that the Ballona witnessed periodic droughts and floods during the MCA. Furthermore, the wetlands were beginning to be choked by silt by this time, and their productive capacity was reduced commensurately. The flow of the Los Angeles River also may have shifted away from the Ballona, further reducing freshwater inputs.

One of the adaptive strategies and responses of hunter-gatherers in coastal California to the MCA was to change specific foraging patterns (Erlandson 2002b; Kennett 2005; Munns and Arnold 2002; Raab 2009b). In particular, this involved increased emphasis on fishing and maritime foraging in response to repressed availability of terrestrial resources. The trends in the Ballona faunal data do not fit well with the expectations of the MCA faunal-exploitation patterns noted in other areas of California, where exploitation of aquatic fauna increased significantly during the MCA. The exploitation of aquatic fauna in the Ballona during the MCA was largely unchanged from the preceding Intermediate period, with the exception of an increase in the exploitation of waterfowl and a slight increase in other lagoonal fauna. It must be recognized, however, that the size of the MCA (Late period) faunal collection was a small fraction of the size of faunal collections from the preceding and following periods in the Ballona. There were also few notable differences between the collections from the MCA and post-MCA (Protohistoric through Mission period), such as a slight increase in the exploitation of aquatic fauna but a notable decrease in the exploitation of both waterfowl and pelagic fish. When terrestrial-mammal exploitation is considered, there was no difference between the pre-MCA (Intermediate) and MCA periods, but there was a decrease from the MCA period to the post-MCA period. Although the consumption of small mammals (which always constituted the bulk of the Ballona faunal assemblages) decreased after the MCA, the exploitation of large and medium-sized mammals, especially artiodactyls, increased tremendously during the Mission period. Virtually every stable landform in the Ballona was occupied at some time during the Intermediate period. By the beginning of the Late period, only a single small site remained. That this site, LAN-47, was located at the edge of the lagoon suggests a greater focus on aquatic resources, but by a much smaller population. Thus, instead of focusing their subsistence practices more intensively on marine resources as did other populations of the Southern California Bight, the people of the Ballona responded to the adverse conditions of the MCA by largely leaving the area.

Hunter-Gatherer Subsistence and Settlement

As we have described throughout most of the volumes that make up this report, the occupation of the Ballona was characterized for almost 8,000 years by continuity in subsistence and technology. The few changes we observed were related largely to changes in resource availability that were the result of evolving conditions in the wetlands and climatic fluctuations. The establishment of larger and more-structured settlements during the Intermediate period, however, represented one of the most important changes in the long history of human occupation of the Ballona. This development was partly the result of changing environmental conditions, a climatic optimum, and a period of peak productivity of the Ballona wetlands and surrounding coastal prairie. Also important, however, was a movement of people from the desert to the coast.

Small, highly mobile foragers, possibly from the Mojave Desert, first settled the Ballona during the early Intermediate period, when conditions in the desert were less than optimal. The Ballona wetlands, with its estuaries and vernal pools, presented optimal adaptive opportunities, and traditional technologies and subsistence practices employed around the post-Pleistocene lakes of the Mojave Desert could be used with little modification. Thus, subsistence involved a primarily littoral adaptation that focused on terrestrial and lagoon resources and used technologies that differed little from those employed by desert populations in their lacustrine adaptations. The earliest settlements were both in the lowlands and on top of the bluffs. Littoral adaptations characterized the Ballona populations throughout time and were distinguished by a stronger focus on the terrestrial resources of the coast and the aquatic resources of coastal estuaries and open coastlines. Fish were primarily obtained from the lagoon with nets and spears, and possibly tule watercraft. Sea mammals and fish, especially pelagic species, constituted a small part of the diet, and technological hallmarks of the maritime adaptation, the *tomol* and the shell fishhook, were nearly absent. In general, the exploitation of large and medium-sized terrestrial mammals increased late in the sequence, during the Protohistoric and Mission periods.

With one notable exception, the Ballona was exploited during most of prehistory. The Ballona appears to have been abandoned during a portion of the Millingstone period, from 6000 to 5000 cal b.p. In addition, a period of lower occupation intensity was evident during the Late period (A.D. 950–1542) The dynamic nature of the wetlands was a major influence on settlement in the Ballona through much of the 8,000-year span of occupation. For example, the Ballona was first occupied in the early Millingstone period when Ballona Bay was formed. The most intensive and widespread settlement of the Ballona occurred in the Intermediate period when the Ballona Lagoon and freshwater marshes were at their greatest extent and their productivity was enhanced by a period of peak precipitation around 2000 cal b.p. Large, intensively used residential sites were established on the bluff tops, with strong evidence of site structure and the development of communal mortuary rituals associated with the mourning ceremony. Specialized sites for food procurement and processing were established along Centinela and Ballona Creeks. This evidence suggests that a permanent or semipermanent residential population was established in the Ballona at this time. By contrast, deteriorating environmental conditions associated with the MCA at the start of the Late period were associated with a great reduction in settlement and use of the Ballona, and only small, residentially mobile groups exploited the mudflats around the lagoon. With the end of the MCA, during the Protohistoric through Mission period, there was a marked resurgence of settlement that was likely associated with the return of the Los Angeles River to the Ballona, as noted above. This would have led to the revival of the wetlands after the droughts and periodic floods that characterized the Late period. Thus, changing settlement patterns in the Ballona can be seen largely as an attempt to exploit resource fluctuations around the lagoon and the surrounding coastal prairie. We cannot argue, however, that human occupation of the Ballona was entirely dependent upon environmental conditions, as human responses to environmental change were often conditioned by cultural and social patterns. For example, as discussed below, many scholars have argued that the adverse conditions of the MCA led to the development of a maritime adaptation and attendant social complexity. The residents of the Ballona apparently chose to abandon much of the Ballona rather than change their cultural patterns. Furthermore, while their island brethren and Chumash neighbors were deeply involved in a maritime adaptation in the Protohistoric period, the people of the Ballona greatly intensified artiodactyl hunting.

"Costly-signaling" theory has been used to account for an unexpected increase in large-game hunting in central California and the Great Basin at the end of the Middle Holocene (ca. 4000 cal b.p.) (Hildebrandt and McGuire 2002, 2003; McGuire and Hildebrandt 1994, 2005). McGuire and Hildebrandt (2005:695) have argued that hunting large game, namely artiodactyls, was less efficient as it required more skill and effort than small-game hunting. However, because artiodactyls provide much larger meat packages than small game, the products of big-game hunting were often shared in hunter-gatherer communities, and big-game hunters were accorded greater prestige. McGuire and Hildebrandt viewed this change in subsistence as a shift from an emphasis on maximizing calories to maximizing prestige, a pattern that reflected increased social complexity. Using different data sets, however, others have argued for continuity in artiodactyl exploitation through time (Broughton and Bayham 2003; Codding and Jones 2007; Jones et al. 2002; Jones, Porcasi, et al. 2008).

There is no evidence for an increase in artiodactyl, or any other big-game hunting in the Ballona area in prehistoric times. Instead, a major increase in the proportion of large game (and a commensurate increase in the number of projectile points) came only during the Protohistoric and Mission periods—not with the introduction of the bow and arrow during the late Intermediate period. Unlike many of the changes in resource use during the 8,000-year occupation of the Ballona, the increase in large-mammal exploitation during the Protohistoric and Mission periods cannot be attributed to environmental changes. Although a small portion of this increase can be attributed to the presence of domesticated fauna in the Ballona collections, the bulk of identifiable large game in the Protohistoric through Mission period assemblage consisted of native artiodactyl remains. Furthermore, the introduction of Old World domesticates into the Ballona would have resulted in competition for native artiodactyls and the foods on which they grazed, thus most likely leading to a reduction in native fauna. Thus, the great increase in the exploitation of large mammals (and a corresponding decrease in the exploitation of small mammals) during the Mission period suggests a change in food preferences and probably required an increase in foraging ranges to more-distant encounter patches to obtain sufficient resources. These changes were probably associated with the social changes that occurred in the Mission period (see below) and may reflect a pattern similar to the costly-signaling theory proposed for the much earlier time.

Although the Ballona, much like the rest of California, experienced major environmental changes in the Mission period associated with the introduction of herds of Old World domesticated animals, cultigens, and weeds (Allen 2010; Hackel 2005; Milliken 1995), these changes did not significantly impact the Ballona in an adverse way during much of the Mission period. For example, the remains of feasting at LAN-211 and the offerings of food in mourning ceremonies at LAN-62 suggest an abundance of native (and introduced) foods during the Mission period like never before seen in the Ballona. The patterns of consumption and the offerings support the common image of the Gabrielino/Tongva as one of the wealthiest native groups in California (McCawley 1996) and run counter to hypotheses of environmental degradation and resource stress brought about by the introduction of Old World crops and herds. Also, the Gabrielino/Tongva in the Ballona may have encouraged wild grasses opportunistically along the banks of Centinela and Ballona Creeks by tending wild-grass stands with periodic weeding and cleaning of undergrowth. In addition to the wild plants and animals that were readily exploited within the catchment area of the Ballona villages, some domesticated foods were obtained from the missions, the pueblo, and/or ranchos as payment for labor. On the surface, these patterns of consumption suggest that Hispanic missionaries and ranchers, at least initially, may have created a period of resource abundance for Native Californians. However, a darker side to this picture was the introduction of Old World diseases. The concentration of Mission period burials, all of which probably occurred within a 30–40-year period, and the mission records that document the deaths of many individuals, point to a demographic collapse among the native people of the Ballona similar to many of the coastal populations of California.

The destruction of the native habitat may not have occurred until after the Gabrielino/Tongva ceased to use the Ballona. Such destruction may not have reached a critical point until the first decade of the nineteenth century. Historical records reveal that the lands of the Ballona were given to the residents of the Pueblo of Los Angeles as a communal pasture, and herds of cattle and horses were grazing in the Ballona by the early 1790s (see Chapter 8, this volume). Their impact, however, may not have been immediate. Only a small number of neophytes were recruited to the pueblo or missions during this time. A major influx of neophytes, however, began after 1803, a time that roughly corresponds with the establishment of the Rancho de los Quintos in the Ballona.

For almost 8,000 years, the diet of Ballona residents comprised resources from the lagoon, vernal pools, the grasslands of the surrounding prairie, and the nearby bay shore. For much of the Mission period, the residents of the Ballona appear to have been sheltered from the deleterious effects of environmental degradation caused by the introduction of Old World domesticates and to have remained outside the sphere of the padres at Mission San Gabriel. The abundance of European goods and foods at LAN-62 and LAN-211 clearly reveal that they were in direct or indirect contact with either the missions or residents of the pueblo. The incorporation of these goods and foods in feasting, mortuary ritual, and mourning ceremonies clearly reveals that the traditional lifestyles of the Ballona residents were irrevocably altered. However, once Rancho de los Quintos was established in the early 1800s (around the time of the establishment of the Rancho Topanga Malibu Sequit in 1804 [Mason 2004]), the maintenance of any form of traditional native lifestyle was no longer tenable.

The nature of settlement within the Ballona changed from the initial, short-term, logistical, specialized food-procurement camps (shellfish vs. vertebrate resources) of the Millingstone period to the residential and mourning features of the Intermediate period, and to the dense burial area and its residential counterpart of the Protohistoric and Mission periods. Of all the sites in the Ballona, LAN-62 appears to have had the longest and most intensive use, extending from the early nineteenth century back roughly 6,000 years. Although other sites on the bluff tops dated to earlier periods, those occupations were short-lived, whereas LAN-62 appears to have been used as a settlement location relatively continuously. LAN-62 was situated on an extensive alluvial fan adjacent to the former Ballona Lagoon and Centinela Creek. Throughout the evolution of the Ballona, from an open embayment to a silted-in estuary, this fan was a stable surface and was the most favorable location for occupation in the area. LAN-62 is a good example of a persistent place (as defined by Schlanger [1992]) (see Chapter 3, this volume). For thousands of years, Native Californians occupied sites in the Ballona, favoring LAN-62 over many other locations, perhaps for its stable situation on the edge of the lagoon and wetland and its easy access to freshwater and to the coastal plain directly to the south. The burial area at LAN-62 may have been started at the end of the Late period or at the beginning of the Protohistoric period; at that time, the function of the southwestern portion of LAN-62 began to evolve from a residential locus to one with much more ceremonial and ritual importance, as the place to bury and mourn the dead. Given the large number of burials at LAN-62, it is possible that this area was used for ceremonial and mortuary activities by other settlements in the region, not just those in the Ballona.

Social Complexity

If not the most widely discussed research issue, more time and ink has probably been devoted to the discussion of emergent social complexity in the Southern California Bight than any other topic. Traditionally, archaeologists have viewed the Gabrielino/Tongva through a Chumash lens. The Chumash are generally inferred to be the most complex indigenous California society, replete with social stratification and chiefly political leadership (e.g., Arnold 2001a). The Gabrielino/Tongva are often viewed as a scaled down and slightly less complex version of the Chumash, still organized by ranks if not strata and run by a chiefly or priestly class (e.g., McCawley 1996). But this model has not gone unchallenged. Recently, Bettinger (2015) has offered a sweeping critique of social complexity models and argued that indigenous societies in California, while quite complicated, were not socially complex.

As the theoretical arguments have raged on, many have searched the archaeological record for clues about the nature of prehistoric social organization. Some have approached this issue from the vantage of emerging craft specialization (Arnold 1987; Arnold and Graesch 2001), others have explored settlement patterns (Grenda and Altschul 1994a, 1994b; Mason and Peterson 1994c), and others have studied specialized items of material culture such as beads (King 1990; L. King 1982) and plank canoes (Gamble 2008). The most important source of data on this issue, however, has always been mortuary data (Gamble 2008; Gamble et al. 2001; L. King 1969, 1982; Martz 1984; Stickel 1968). Perhaps the richest set of data and the most important research contributions of the PVAHP relate to the study of mortuary practices. The project also shed light on other indicators of social complexity, however, such as feasting and ritual. In the discussion below, we begin with mortuary practices and explore in turn, ceremonies and rituals and then feasting.

Mortuary Practices

The mortuary practices documented in the Ballona provide valuable insight into cultural continuity and change in a region that witnessed population influx during the Intermediate and Mission periods. Most significantly, the PVAHP has yielded one of the richest and best-documented Mission period mortuary data sets in coastal southern California and has provided a rare insight into mortuary-related behavior, particularly as it pertains to social structure.

Considerable evidence regarding mortuary and mourning practices has been recovered from several sites in the Ballona. Although most of the evidence relating to these activities dates to the Protohistoric through Mission period (a.d. 1542–1834), limited but significant evidence of mortuary practices was recovered from Intermediate period contexts, as well. The remains of more than 400 individuals have been recovered from burials and isolated contexts at 10 sites in the Ballona (LAN-47, LAN-54, LAN-61, LAN-62, LAN-63, LAN-64, LAN-193, LAN-206A, LAN-211, and LAN-2768), of which 5 sites (LAN-54, LAN-62, LAN-193, LAN-211, and LAN-2768) are part of the PVAHP. Most of the burial features (n = 374) were recovered at LAN-62, a site that dated to the Millingstone through Mission periods (see Chapter 6, this volume); however, most of the burials that could be dated at LAN-62 dated to sometime between the Late period and the Mission period; a smaller number dated as far back as the Intermediate period. These burial features were concentrated in an approximately 25-by-17-m burial area in the southwestern part of the site, which was the densest concentration of burials, by far, in the Ballona. The burial area at LAN-62 is one of only a small number of such concentrations documented within Gabrielino/Tongva and Chumash territories. Our analysis focused on 323 burial features from the 9 sites in the Ballona with primary individuals. Primarily on the basis of the presence of temporally diagnostic artifacts, such as shell beads and glass beads, other introduced artifacts and foods, and stratigraphic relationships, 322 of these 323 burial features were assigned to one of five temporal groups: Intermediate period (n = 26), Intermediate through Mission period (n = 53), Late period (n = 3), Late through Mission period (n = 64) and Protohistoric through Mission period (n = 176). One burial (from LAN-211) could not be assigned to any of these temporal groups because it lacked chronological indicators. The Protohistoric through Mission period burials included 46 burials that were assigned to the late Mission period (A.D. 1800–1816) and 3 burials that were assigned to the terminal Mission period (A.D. 1816–1834). These late and terminal Mission period burials were concentrated in a much smaller and well-defined, roughly circular area in the southwestern portion of the burial area.

No Millingstone period burials were found during the PVAHP; the earliest burials in the Ballona date to the Intermediate period and are associated with intensive, sedentary hunter-gatherers. These mortuary practices included both cremation and inhumation at this early date, although inhumations predominated. The recovery of burials dating to the Intermediate period in the Ballona is relatively rare; such burials have been found in either isolated or scattered burial features within or around living areas or, in the case of LAN-64, placed in a cluster of inhumations with a scattering of cremated remains in what may have been a defined burial area. These burials exhibited some patterning in burial treatment, with a mix of primary individuals who were semi-flexed, fully flexed, or flexed to an indeterminate degree; for whom supine was the most common position; and who were generally oriented to the northwestern quadrant. Grave goods were extremely rare. Several features on the bluff tops at LAN-63, and possibly LAN-61, represent an early form of the ethnohistorically documented Gabrielino/Tongva mourning ceremony (Douglass et al. 2005; Hull 2012; Hull et al. 2006; Hull et al. 2013; Walker 1952). Isolated cremated human remains have been found in some of these mourning features, often commingled with a variety of ritually broken ground stone tools, some of which probably were specifically manufactured for ritual purposes. There were no indications of wealth, prestige, or socioreligious status among these features. Rather, these features may have represented communal mourning and mortuary ritual in which the lives of many deceased members of the family or clan were venerated. These mourning ceremonies, Hull et al. (2013) argued, may have played a significant role in community building and the maintenance of community identity.

Mortuary practices during the Late period in the Ballona are poorly understood because the Ballona was largely unoccupied, with the exception of small camps at LAN-47 and LAN-62, and there is little evidence for burial practices at this time. However, people returned to the Ballona toward the end of the Late period (see Chapter 3, this volume) and began to develop a large, discrete burial area at LAN-62. The Late and Late through Mission period burials in this burial area could only be tentatively assigned to this time because temporal indicators were not as precise as those from later periods and those that were found in these burials were few. The primary individuals in these burials were predominantly fully flexed and oriented to the east. Approximately half were placed on their left sides. Burial features with more than very low frequencies of grave goods were still extremely rare, however, suggesting a lack of social differentiation.

Most burials in the Ballona, from periods throughout prehistory, lacked grave goods, and when present, these goods consisted primarily of a few utilitarian artifacts and a few items of personal adornment. By contrast, most burials that could be dated to the Protohistoric through Mission period contained much higher quantities and a greater diversity of grave goods, demonstrating great variation in wealth, prestige, and socioreligious roles in the population. With the arrival of Spanish missionaries and ranchers, the mortuary practices of the Gabrielino/Tongva in the Ballona underwent dramatic changes, both in the size and structure of the burial area and in the treatment of individual burials. The large numbers of burials assigned to the Mission period probably reflected increased death rates that resulted from introduced Old World diseases, which probably preceded the actual arrival of the Spanish. The burial area at LAN-62 became more defined and probably was demarcated by whalebone, which was scattered within its boundaries. The late and terminal Mission period burials were so tightly concentrated that a wooden fence, similar to what has been observed in contemporaneous Chumash burial areas, may have surrounded the small area in the southwestern part of the burial area. Perhaps most noteworthy was the dramatic increase in the numbers and types of grave goods, including tens of thousands of shell beads and glass beads. These and other grave goods indicate the emergence of status differentiation and the incipient development of a hierarchically structured social system with a variety of social classes and roles by the late Mission period. In contrast to the spatial segregation of the elite at the Mission period burial area at Humaliwo (Gamble 2008; Gamble et al. 2001), all late and terminal Mission period burials at LAN-62 were commingled throughout the southwestern part of the burial area.

By the late Mission period, Ballona society was structured into a number of distinct classes or social roles. Using traditional indicators of wealth, prestige, and religion (see Martz 1984), six distinct high-status social classes or roles were identified in the Ballona based on various combinations of these types of social status. These were (1) the wealthy, (2) political leaders (the prestige group as defined in Chapter 6, this volume), (3) religious practitioners, (4) wealthy political leaders, (5) wealthy religious practitioners, and (6) wealthy religious practitioners, who were also political leaders and probably represented a chiefly class. Outside these six high-status social classes were the remaining community members, who had very few grave goods and lacked evidence of wealth, prestige, or socioreligious roles. Seven adults (six females and one of indeterminate sex) and three nonadults were identified as wealthy people, who probably represented a secular and economically advantaged class but lacked indicators of social prestige and socioreligious roles. These individuals may have been the nouveaux riches in Ballona society, obtaining their wealth and status from contact with the Spanish, as the bulk of their wealth was in the form of glass beads and other items of European manufacture rather than items produced by traditional means. Because this wealth was derived from nontraditional sources, the members of this class may not have been able to acquire the prestige that usually went along with the wealthy in Gabrielino/Tongva society.

We interpreted people with prestige as those who were traditional political leaders and religious practitioners as the individuals who maintained social traditions and the cultural memories of the society. Only a single adult female and an infant represented the traditional political class, whereas the religious practitioners were represented by the largest number of individuals (14 adults [split among males, females, and adults of indeterminate sex] and a child). Wealthy religious practitioners were distinct from other religious practitioners in that they had wealth in addition to their socioreligious roles in the society. This latter group included 4 adults (1 male, 1 female, and 2 of indeterminate sex) and may have represented the local ʼ*antap*, a prestigious and powerful ritual association within Chumash culture, or the *yovaarekam*, a similar Gabrielino/Tongva organization (Hudson and Blackburn 1978; McCawley 1996:10).uda Notably, items of religious importance appear to have been almost exclusively restricted to adults, both men and women. Of the 24 individuals buried with items of religious importance, only 1 was a nonadult. Five burial features (containing a total of 7 primary individuals) at LAN-62 had indicators of all three status categories: wealth, prestige, and religious roles. These burial features had the largest numbers of grave goods, a diversity of religious paraphernalia, considerable wealth in the form of shell beads and glass beads, and significant quantities of high-status shell beads indicative of prestige. The individuals in these burials were the select few who participated in all aspects of the society and probably were the elite or chiefly class (*tomyaar*s [McCawley 1996:10]) in the society. Interestingly, this class included both adult men and women. By contrast, the 3 individuals buried with indicators of wealth and prestige, but no indicators of religious roles, were nonadults (a fetus and 2 infants) and may have been children of the *tomyaar*s.

Significantly, this level of social stratification emerged only very late in the history of the Ballona. Evidence of wealth in the form of large numbers of shell beads and glass beads, as well as large quantities of other grave goods, was restricted to late and terminal Mission period burials. By contrast, indicators of prestige and socioreligious roles were common in earlier Mission period burials. It is important to recognize that these roles appear to have been segregated in the early Mission period. Furthermore, more individuals were buried only with traditional indicators of religious roles in the Late period, Late through Mission period, and early Mission period than later in time. From this evidence, we may conclude that early in the Mission period, Ballona society was largely egalitarian with a relatively large number of individuals who had greater social prestige or were religious practitioners, but with no evidence for differences in wealth or of individuals who had accumulated multiple statuses or roles in society. Wealth and the amassing of power among a small group of individuals occurred only in the final decade or two of native occupation in the Ballona, a time that coincided with the establishment of ranching in the area. Notably, these individuals primarily were adults, including females and a male. It is not clear whether women acquired their wealth and political and religious roles independently or by association with their mates. It is clear, nevertheless, that they were afforded the same burial treatment as males of the same class.

In contrast to the late Mission period, the first decades of the Mission period appear to have witnessed little contact between the people of the Ballona and the Spanish. Small numbers of introduced Hispanic goods and products, as well as the increased death rate, indicate limited contact in the early Mission period. Not until the late Mission period, when Rancho de los Quintos was established, did a secular wealthy class that probably interacted heavily with the ranchers emerge (as indicated by the presence of large quantities of Hispanic goods in their graves). At the same time, a chiefly class emerged, distinguished both by traditional and Hispanic sources of wealth, as well as power derived from higher social prestige and the control of religious activities. That these social differences represented only an emergent social hierarchy was suggested by the lack of spatial segregation between these different social classes and commoners in the burial area and the absence of differences in other aspects of burial treatment, such as the type of grave or placement and orientation of the body. Perhaps equally important¸ the existence of this social hierarchy lasted no more than 10–15 years—a period too brief for true separation among different classes or for the consolidation of power by particular families.

This evidence has important implications for understanding Mission period native social organization and Gabrielino/Tongva burial practices. Gabrielino/Tongva and Chumash mortuary practices have often been considered very different. Cremation has generally been considered common among the Gabrielino/Tongva, whereas inhumation was the dominant pattern among the Chumash (Dillon and Boxt 1989:159–160; Kroeber 1925:633). Emerging evidence from the Ballona and other areas—Encino Village (Cerreto 1986), Landing Hill (Cleland et al. 2007), and Bolsa Chica (Whitney-Desautels 2010)—however, suggests that cremation was uncommon and inhumation was the dominant pattern in the Gabrielino/Tongva region throughout time. The use of well-defined, formal burial areas also characterized Chumash burial customs as early as the Intermediate period (e.g., Trancas Canyon and Rincon Point [Martz 1984; Stickel 1968]). This pattern continued into the Late and Mission periods as evidenced by Humaliwo and Medea Creek (Gamble et al. 2001; King 1981; Martz 1984). With the exception of the large communal burial area at ORA-64, which dated to the Millingstone period (Macko 1998), burials in the Gabrielino/Tongva region were not placed in formal burial areas. Most were isolated burials, although some may have been placed in small clusters that may have represented family plots, as observed at LAN-64 in the Ballona, Landing Hill (Cleland et al. 2007), and Bolsa Chica (Whitney-Desautels 2010).

Chumash mortuary patterns are also distinguished by an abundance of grave goods, whereas burials in the Gabrielino/Tongva region are, with few exceptions, perceived as "impoverished" (Dillon and Boxt 1989:160). Although Chumash graves with vast quantities of goods appear to have been restricted to the Protohistoric and Mission periods, grave goods were also abundant in Intermediate period burial areas, such as those at Humaliwo and Simo'mo*,* and provide evidence of an incipient stratified, hierarchical social system (Gamble 2008; Gamble et al. 2001; Martz 1984). Certainly, the striking differences between mortuary practices in the Ballona and the Chumash during the Intermediate period confirm the different natures of Chumash and Gabrielino/Tongva societies. The formal burial area at LAN-62 during the late Mission period, however, suggests a convergence of cultures by this time.

Mourning Ceremonies and Ritual

Some associate the mourning ceremony, an ethnohistorically observed ritual commemorating the departed, more closely with the Chumash than with the Gabrielino/Tongva (Dillon and Boxt 1989:159). Kroeber (1925:860), however, claimed that this ceremony found its "greatest development" among the Gabrielino/Tongva and Luiseño. According to McCawley (1996:155), death initiated a series of rituals intended to free the spirit of the deceased from this world and to aid it in its journey to the land of the dead. These rituals began with funeral observances and ended with the performance of the mourning ceremony 1–4 years later. A wide variety of grave offerings might be buried with the dead, including seeds; vessels; animal skins; baskets; wood, bone, and shell implements; and shell and glass beads. Many of these items were decorated with asphaltum. Most of the personal effects of an individual were burned upon death, but at least one of the deceased's possessions was reserved for burning in commemoration at the mourning ceremony. Hull has recently reviewed the ethnographic and ethnohistoric evidence for the mourning ceremony across cultural groups in the Los Angeles Basin and adjacent desert areas and has made convincing arguments regarding the archaeological correlates of the ceremony (Hull 2011, 2012; Hull et al. 2013).

Evidence of the mourning ceremony was found in a Mission period context adjacent to the large burial area at LAN-62 (see Chapter 6, this volume). There, offerings were placed in baskets and burned in a small area a few meters west of the burial area. The baskets contained various combinations of native and introduced foods and artifacts; some contained large quantities of glass and shell beads, stone tools, and food, whereas others contained smaller numbers of beads, food, and metal artifacts. *Comales*, manos, stone bowls, and metates were ritually broken and also placed as offerings. No human remains were intermixed with offerings. What is noteworthy is that this pattern of combining native and introduced items has been observed in California missions in association with neophyte contexts (Allen 2010; Voss 2008a) but not in many other native communities like the one in the Ballona. This might reflect, in part, the research focus on neophyte Mission contexts rather than rural native settlements during the Mission period. It is unclear if the ceremonies performed adjacent to the burial area at LAN-62 commemorated a single individual or multiple individuals. What is clear, however, is that large quantities of goods were burned in these commemorations.

Previous research across southern California suggests that much of what has been recorded as Gabrielino/Tongva mourning ritual may have been a relatively late phenomenon, perhaps confined to the late Mission period, as indicated by the great preponderance of late Mission period beads over earlier types. Research by Hull and colleagues (Hull 2011, 2012; Hull and Douglass 2005; Hull et al. 2006; Hull et al. 2013) in the Ballona and the Los Angeles Basin in general, however, suggests that the mourning ceremony may have roots several thousand years earlier. The earliest evidence of this ritual in the Ballona dates to the late Intermediate period (Hull et al. 2006; Hull et al. 2013). Although some suggest that the mourning ceremony may be a hallmark of the Takic culture that developed along the southern California coast (Sutton 2009), it is unclear.

Several examples of large, complex features containing elements suggestive of the mourning ceremony were found during SRI's and Van Horn's excavations on the bluff tops overlooking the Ballona. As has been discussed in reports (Douglass et al. 2005; Douglass and Ciolek-Torrello 2007) and papers by Hull and Douglass (2005), Hull et al. (2006), and Hull et al. (2013), these features contained large quantities of ritually broken, burned, and ocher-covered ground stone, whalebone, and small numbers of stone beads and other artifacts. Among the numerous broken ground stone objects at Feature 587 at LAN-63, was a broken 1-m-long, ocher-covered pestle exhibiting no use wear that appeared to have been created with no other purpose than to be used or broken during the mourning ceremony. These materials appeared to have been placed in pits but no evidence of baskets or plant remains were preserved in these old features. Similar and contemporaneous features have been documented by Walker (1952) at several sites in the San Fernando Valley and other areas of Los Angeles County and by Cleland et al. (2007) at Landing Hill in Orange County (see Hull [2011, 2012] for detailed discussions of previous research on the topic and the archaeological correlates of the practice). Perhaps the most important distinction between the mourning features of the Intermediate and Mission periods was that some of the earlier features were associated with the cremated remains of several different individuals, but those dating to the Mission period were not associated with cremated remains and were located adjacent to a large, complex burial area.

It is clear from this archaeological evidence that the Gabrielino/Tongva had a long tradition of memorializing the departed through the destruction of both utilitarian and ceremonial objects and through offerings of food and other items. The specific items used in these ceremonies changed over time as new technologies, foods, and other items became available and were incorporated into belief systems. Human remains, however, were not incorporated into the later mourning features. It is important to consider, however, the lack of temporal continuity between Intermediate and Mission period mourning ceremonies. It may be that the mourning ceremony was only practiced in the larger and more permanently occupied settlements. The absence of mourning features at other times in the Ballona may be explained by the fact that it was only sparsely populated or occupied on only a short-term, temporary basis. Alternatively, the resurrection of the mourning ceremony in the Mission period may also be associated with Chinigchinich (Sutton 2009) and other nativistic movements that developed at this time in attempts by Native Californians to cope with the innumerable stresses created by European contact. As such, the Gabrielino/Tongva and other native groups reached deep into their past to blend an important traditional practice with new practices inspired by contact with other native groups and Europeans (McCawley 1996:143–144).

Feasting during the Mission Period

Feasting was another activity that emerged in the Ballona during the Mission period, although unlike the mourning ceremony, feasting appears to have been restricted to this later time. Theoretical and methodological discussions of feasting have increased in the past decade as scholars have come to realize the importance of feasting as a ceremonial activity in both past and present societies (e.g., Dietler 1996; Dietler and Hayden 2001; Hayden 1996, 2001, 2009). Through the study of Mission period contexts at LAN-211, the extremely dense and diverse midden deposit at that site has been interpreted as the remnants of a combination of feasting and domestic activities (see Chapters 3, 4, and 6, this volume).

Reddy et al. (see Chapter 4, this volume) have discussed how feasting contexts in the Ballona yielded tremendous quantities of food remains in a confined midden area associated with hearths and related thermal features. The large quantities of food remains—mainly wild foods and some domesticated plants and animals obtained from ranchos and missions—clearly indicate that surplus food was not a rarity during the times when the landscape was being colonized by the Spanish and their nonindigenous plants and animals. Based on ethnographic discussions of Gabrielino/Tongva feasting, or "fiestas," as they were referred to by colonists during the Mission period, it is likely that both those living in native villages and neophytes recruited to the missions participated in these annual events, which functioned to reinforce solidarity among native peoples. To place feasting in the Ballona during the Mission period in a regional context, the closest examples are Chumash feasting on the mainland, as described by Gamble (2008), and perhaps on the islands, as described by Arnold (2001b) and Noah (2005). The Chumash staged competitive and alliance feasts in addition to feasts associated with mortuary activities. Based on the presence of the contemporary burial area at the nearby site of LAN-62, feasting in the Ballona was more likely associated with mortuary and mourning ceremonies and would have been akin to Hayden's (2009) concept of funeral feasting. Given the great number of features and food waste found in a small area of LAN-211, it is likely that people from around the Ballona and adjacent areas may have joined the small resident population of the site to engage in these ceremonies.

Feasting provides additional insight into developing social complexity in the Ballona. It is likely that only those of the wealthy elite class could organize and present feasts. Only they could gather sufficient food for the participants, either from their own supplies or by calling in favors from others. The presentation of feasts also would have served to reinforce the power and prestige of elite class.

Colonialism, Ethnogenesis, and Persistence

The picture of continuity and cultural conservatism that characterized most of the 8,000 years of human history in the Ballona stands in stark contrast to the final years of Native Californian occupation during the Mission period (A.D. 1771–1834). During this time when the aboriginal population of the Ballona was decimated by the diseases and environmental changes introduced by the European colonists, and the remaining residents were either recruited to Missions San Gabriel and San Fernando Rey or went elsewhere, the people of the Ballona underwent a significant cultural transformation or ethnogenesis. As documented in Chapter 4 (this volume), an ancient subsistence strategy that focused on the plants and small animals of the Los Angeles coastal prairie and the shellfish and fish of the Ballona wetlands during the prehistoric periods, was augmented during the Mission period with Old World domesticates, big-game hunting, and offshore fishing. As discussed in Chapter 3, dramatic changes in settlement occurred when a previously dispersed population began to aggregate at LAN-62 and LAN-211 near the end of the Late and early Mission periods. Chapter 6 describes evidence of the rapid development of a structured society during the Mission period with several distinct social classes, elaborate feasting that involved conspicuous consumption of native and introduced foods, and evidence of dramatic changes in mortuary behavior. Finally, in Chapters 7–9 of this volume, the authors offer important details regarding changes to the Gabrielino/Tongva society during the Mission period gleaned through detailed analysis of ethnohistoric documents and mission baptismal records.

The Mission period was a time of major change for the Gabrielino/Tongva. During the late eighteenth century, with the establishment of both the Pueblo of Los Angeles and Mission San Gabriel, increasing numbers of Gabrielino/Tongva (as well as many other Native Californians) were drawn to colonial institutions. Recruitment patterns at Mission San Gabriel suggest that in the early years, native people from villages near the mission were recruited first, and the more-distant villages became involved with mission life later (see Northwest Economic Associates and Chester King 2004 for details). Data suggest that recruitment from the Ballona, in particular from the native village of Guaspet, was initially sporadic; some of the baptisms occurred at the Pueblo of Los Angeles, where parents of baptized children may have been working. By the early 1800s (i.e., the late Mission period), two fundamental changes had occurred in the relations between residents of Guaspet and the colonists: (1) the Rancho de los Quintos was established in the Ballona, and (2) there was a spike in baptisms between 1803 and 1805 that was likely instigated by the establishment of the nearby rancho. Although the Pío Quinto Zúñiga family became involved with the residents of the Ballona, it may not have been the encouragement of the Quinto family that led to increased baptisms but their herds of horses and cattle which rapidly transformed the landscape and drove the people of Guaspet to the missions and pueblo. For perhaps 20 years earlier, after the establishment of the Mission San Gabriel and Pueblo of Los Angeles, native residents of the Ballona lived in relative isolation, as evidenced, in part, by the lack of baptisms of people from the communities of Guaspet and nearby Comicrabit in mission records. Widespread cultural changes occurred rapidly when direct contact came following the establishment of Rancho de los Quintos.

The abundance of beads and other Hispanic goods in burial and domestic contexts in the Mission period point to other important changes. Vast quantities of shell beads, with no evidence of their production in the Ballona, indicate a dramatic increase in exchange with neighboring native groups—another contrast with the relative cultural isolation of previous periods. King and Johnson (1999) have suggested there was interaction between residents of the Ballona and those of neighboring Chumash villages, based in part on their assertion of Chumash names in mission records for residents of nearby Comicrabit. In addition, Mission San Gabriel records include a marriage of a person from Guaspet to a Chumash from Muwu. Many burials also contained grave goods obtained through interaction with Hispanic colonists, including tens of thousands of glass beads, clothing items, metal tools, and weapons. In some cases, traditional items, such as waterworn pebbles, shell beads, and stone tools, were intermixed with these Hispanic items in burials, offering insight into the polyvalence of materials used in traditional contexts (see Robinson 2013). Although generally, up until that point, burials did not contain much in the way of items indicating status or wealth, many Mission period burials, including individuals of all ages and of both sexes, had large quantities of grave goods. Increased interactions with colonial institutions, such as the ranchos, missions, and pueblo, allowed the Gabrielino/Tongva to create wealth in nontraditional ways.

Hackel (2006), Hull (2009), and Lightfoot (2005), among many others, have argued that ethnogenesis—the creation of new identities—was common in California as native groups negotiated the new colonial era. Across California, Native Californian groups transformed their identities through, in part, the incorporation of new ideas, foods, and material goods into their daily lives, all within a traditional framework. The Mission period residents of the Ballona were not simply assimilated by the Hispanic colonists and acculturated to European lifeways. Assimilation and acculturation suggests the transformation of a subservient group to the culture and lifeways of a dominant, usually colonial power. By contrast, the people of the Ballona developed new and distinct cultural identities and beliefs, such as the Chinigchinich cult, which continued traditional Gabrielino/Tongva practices, while at the same time incorporating ideas and goods of both their Native Californian neighbors, such as the Chumash, as well as colonists. In this sense, "ethnogenesis can be seen as a process, or even an intentional strategy, of indigenous resistance or persistence" (Panich 2013:108). The transformation of aspects of traditional culture in the Ballona, including the incorporation of new foods and items, offers an important viewpoint for understanding colonialism.

Thus, the transformation of Gabrielino/Tongva culture that is evident in a wide variety of contexts in the Ballona during the Mission period should be viewed within the traditional cultural context. As discussed in Chapters 7 and 8 of this volume, the Gabrielino/Tongva were transformed by working on ranchos and in the Pueblo of Los Angeles, or were recruited to missions. Although it is clear that while some Gabrielino/Tongva underwent ethnogenesis by becoming involved in these new colonial institutions, these same native people continued aspects of core native traditions. As Hackel (2003) has argued, the failed rebellion at Mission San Gabriel in 1785 may have its founding in part on the missions' banning of traditional dancing, associated with such an important ritual as the mourning ceremony. While dressed in nontraditional clothing and performing ritual activities to an unfamiliar God, the Gabrielino/Tongva also continued their native belief systems. The long-term history of the Gabrielino/Tongva culture laid a fundamental framework of dynamic traditions and values to navigate a time of considerable change and destruction of the cultural and environmental landscape surrounding and including the Ballona (see Panich 2013:106–107 for general discussion of cultural persistence). Rather than focusing on these changes as only an end product of colonialism, what Panich (2013) and Wilcox (2009:11–15) have referred to as "terminal narratives," the transformation of Gabrielino/Tongva culture was based on the persistence of long-term core values and their varied expression in different forms. To focus simply on what is perceived of as Gabrielino/Tongva reaction to colonialism and European domination hides native action and intent.

The transformation of Gabrielino/Tongva society was a complex one that was shaped by long-term indigenous and local histories and processes (see Rubertone 2012:269–272), rather than an immediate reaction to new challenges that faced them. Panich (2013:108) argued for examining how indigenous groups in colonial settings actively constructed their identities before, during, and after the introduction of colonialism to better understand the process of transformations and the continuity and persistence of traditions and identity. By focusing on these processes and transition during the colonial era, rather than simply on perceived reactions, one can better understand broad cultural processes that are neither "precolonized" nor fully "colonized" (e.g., Hart et al. 2012:3). Panich (2013:109) (see also Ferris 2009) emphasized that one way to overcome "terminal narratives" is to view indigenous reactions to colonial contacts within the context of the long-term historical trajectories of native cultures, based on the recognition that native cultures were not static prior to the arrival of European colonists. Only through a careful examination of the historical context of change in native societies can we counter the emphasis on domination, assimilation, and cultural extinction in studying the impact of colonialism.

The long history of aboriginal occupation of the Ballona, as documented by the PVAHP, presents precisely the opportunity that Panich suggests to study how various aspects of indigenous culture changed when the residents of the Ballona came into contact with European colonists and institutions—how native peoples actively negotiated colonialism in their daily lives. As described in Chapters 7 and 8, it is well documented that native people recruited to the missions, ranchos, and pueblos continued many of their traditional practices despite indoctrination into Christianity and European lifeways. As Panich (2013:114) pointed out, this evidence shows how natives "reworked basic practices in light of new sets of constraints and opportunities." Evidence from the Ballona provides a much richer and more-nuanced record of how native people negotiated colonialism in their native settlements.

The mourning ceremony area adjacent to the burial area at LAN-62 is a good example of persistence within a rubric of transformation. As Hull et al. (2015) and Reddy et al. (2011) have recently argued (see also Chapter 6, this volume), this ritual area dedicated to mourning and remembering community members had its foundation in the Intermediate period (Hull et al. 2013), almost 2,000 years prior to its expression during the Mission period at LAN-62. Although there are certainly differences between Intermediate period mourning features at both nearby LAN-63 and at Landing Hill (ORA-264) in Orange County and the Mission period features at LAN-62 (most notably, Intermediate period mourning features contained scattered remains of multiple individuals), there are also broad similarities. The process of creation and ritual destruction of items, and the overall function of mourning features in both the Intermediate and Mission periods were similar (see Hull 2011, 2012). In some of the Mission period mourning features, introduced colonial items (including glass beads) were placed in pits alongside more traditional artifacts, such as broken ground stone, shell beads, textiles, basketry, flaked stone tools, and debitage. Rather than focusing on the presence of items of colonial origin as a sign of acculturation, the use of these items in the practice and performance of the mourning ceremony signals traditional cultural action and intent. The items of colonial origin should not be seen as strictly "native" or "colonial" but as, to quote Silliman (2005:68), items "taken up by individuals to forge their way in new colonial worlds" (see also Silliman 2009:215; Panich 2013:108). That is, the use of colonial items in traditional ritual ceremonies was transformative. Similar uses of colonial items were seen in burials, where introduced colonial items were treated in traditional ways. A copper chocolate pot, for example, had its base smashed, much like the ritual destruction of traditional ground stone artifacts. After this ritual destruction, the chocolate pot was wrapped in native textiles, along with glass beads, and placed in the burial area. This polyvalence (see Robinson 2013) is seen time and time again in colonial settings. Although the mourning ceremony changed through time, its place in long-lived Gabrielino/Tongva histories (e.g., Pauketat 2001, 2003) and diachronic persistence both before and through the Mission period offers important insight into the continuity of ritual traditions and the persistence of tradition.

Related to this, the burial area at LAN-62 is another example of transformation within the context of persistence of cultural traditions. During the Intermediate period at LAN-64 and at Landing Hill there is evidence of the beginnings of community burial areas. Five inhumations, as well as cremated bone, were found in a small area at LAN-64. Douglass et al. (2005) have argued that this small concentration of burials may suggest a family plot. At other sites in the Ballona during the Intermediate period, burials were individually placed, rather than together. By the end of the Late period, a portion of LAN-62 was transformed from a habitation or food-processing area to a dedicated burial and ritual area. Up until this time, few grave goods were placed with burials. This, as discussed above, changed during the Mission period, with an apparent transformation of burial patterns that likely reflects changes in social organization. Large numbers of grave goods—both native and colonial in origin—appeared for the first time in the Ballona. Although there was a clear change in social structure amongst the Gabrielino/Tongva living in the vicinity of LAN-62, this change also reflects the persistence of tradition. Although new sources of wealth emerged during the Mission period, as evidenced by the large amounts of shell and glass beads in many burials, along with a more complex hierarchy more similar to their Chumash neighbors, the Gabrielino/Tongva retained many of their traditional cultural values as seen through the persistence of important socioreligious roles and markers.

Nevertheless, as Panich (2013:115) warned, archaeologists must beware equating persistence with unbroken continuities and instead must embrace the flexibility of native cultures and identities and view change not only in the context of constraints placed by colonists but also as creating new opportunities for native people. Thus, the Mission period burial and mourning rituals in the Ballona reflect the important changes that developed in native Gabrielino/Tongva society. Intermediate period burials lacked grave goods and other evidence of social differentiation. Items of individual wealth and ritual roles were destroyed in mourning ceremonies that involved the remembrance of multiple individuals. By contrast, Mission period burials were associated with the ostentatious display of wealth and ritual and social power, reflecting the development of a hierarchically structured society, which in itself runs counter to traditional views of the destruction of native societies that came into contact with European colonists.

In the end, then, it is clear that there was a great transformation in Gabrielino/Tongva society during the Mission period. However, a diachronic perspective on these changes leads one to the conclusion that these changes were not solely reactions to, or against, newly arrived Hispanic colonists. Rather, these changes in core aspects of Gabrielino/Tongva culture, such as mortuary patterns, accumulation of wealth, subsistence, and ritual, originated internal to that culture based upon their worldview as they negotiated the newly emerged colonial structure and the constraints and opportunities it provided (see Mitchell and Scheiber 2010:18). These changes, therefore, ought to be seen in the context of the evolution of Gabrielino/Tongva society over thousands of years and its continued persistence during the Mission period. We must also recognize that the changes that transpired were not simply the product of interaction between the dominant colonial and a native society but also involved increased interaction with neighboring native groups. Through increased exchange (as evidenced by tens of thousands of shell beads and large quantities of steatite) and intermarriage, the Gabrielino/Tongva changed their neighbors and were, in turn, changed by them. Some changes observed were dramatic—such as the transformation of Gabrielino/Tongva social organization into a form similar to their Chumash neighbors—and likely resulted from interaction in the newly emerged colonial society within which many different native peoples found themselves. At the same time, from a long-term perspective, other aspects of transformation were part of what Panich (2013:109) has called "changing continuities." The incorporation, adaption, or rejection of new foods, trade items, and ideas (including religious systems) by the Gabrielino/Tongva, as seen through the archaeology in the Ballona, suggests both radical transformations and persistence of aspects of native culture.

Guaspet: Was There a Village?

The presence of a village in the Ballona has been a preeminent research topic since the onset of our research. Beginning with Johnston's (1962) publication, the Ballona was believed to be the locus of Sa'angna, a major ethnohistoric Gabrielino/Tongva village. Our initial investigations in the Ballona (Altschul et al. 1992) suggested no documentary evidence for such a village and the scant archaeological evidence found by Van Horn and his associates on the bluff tops (Van Horn 1987; Van Horn and Murray 1985) did not indicate otherwise. Thus when we discovered more substantial indications of Mission period occupation during test excavations at LAN-211 and LAN-1932 (one of runway sites redeposited by the Howard Hughes corporation) (Stoll et al. 2003), we set in motion an intensive program of documentary research involving Mission and other contemporary records. This research confirmed that the Ballona was the location of Guaspet (see also McCawley 1996:61). But was this a village?

The identification of villages described by early Spanish explorers and ethnohistoric accounts of coastal California, however, has often proved problematic and archaeologists have struggled to connect particular archaeological sites to villages named in ethnohistorical accounts (Dillon and Boxt 1989; King 1975; King et al. 1982; Raab 1993). Several sites in the Ballona (LAN-62, LAN-211, and LAN-193) have been termed "villages" by archaeologists. Such prehistoric sites in coastal southern California, however, are more typically referred to as residential sites (Byrd and Reddy 2002), habitation sites (Grenda et al. 1998), or seasonal camps (Altschul, Homburg, and Ciolek-Torrello 1992). The term "village" is used more often when discussing Mission period settlements, such as the Chumash sites of Humaliwo, Helo', and Muwu (Gamble 2008; Gamble et al. 1996; Gamble et al. 2002); Luiseño sites, such as Topomai (York et al. 2002); and Kumeyaay sites such as Otai (Gallegos 2002) (but see Arnold [2001b] for prehistoric Chumash complexity). Raab (1993:146), among others (see Dillon and Boxt 1989; Gallegos 2002), however, remarks that the criteria for categorizing sites as villages have not been made clear and that these "village sites have almost invariably been identified on the basis of ethnographic criteria" that "are not archaeological at all" and the ethnographic data on which they are based "contain inaccuracies and distortions." Galdikas-Brindamour (1970:130–131) was perhaps the first to outline specific archaeological criteria for recognizing prehistoric villages in the region. As presented by Dillon and Boxt 1989:153), these are the following:

> (1) . . . occupation sites which are never completely abandoned; (2) they are occupied for lengths of time spanning more than one generation; (3) permanence of occupation is signaled by the presence of a cemetery with inhumations of both sexes and all ages; (3) differential social status should be detectable within cemetery populations; (5) architectural evidence should be recoverable; (6) different subsistence and extrasubsistence activities performed at different seasons of the year by both sexes should be discoverable; and (7) a diversity of manufacturing and maintenance activities should be discernable.

Dillon and Boxt (1989:155) believed that many Protohistoric Chumash and Gabrielino/Tongva settlements along the coast satisfy these criteria for village status but not settlements in the inland Santa Monica Mountain region. Although the Spanish encountered population concentrations in the mountains, Dillon and Boxt did not consider that these merit the status of "village." Dillon and Boxt may have been overly optimistic, however, in restricting this problem to the Santa

Monica Mountain region, as the same can be said of much of the California Bight. They may have been closer to the mark, when they stated:

> Correlating archaeological sites with ethnohistoric place names faces the same obstacle wherever attempted in California: too many archaeological sites exist as candidates for too few historic locations, and the Spanish colonial-era descriptions are usually too brief to allow for differentiation between the possible archaeological candidates [Dillon and Boxt 1989:155].

The colonial Spanish term "*ranchería*" may be much more appropriate to describe most of the historical period settlements in the region (Dillon and Boxt 1989:157; Raab 1993:147). According to Dillon and Boxt (1989:157), *ranchería* in its eighteenth-century frontier usage best translates to "rural encampment" but has come to be routinely misused as a direct equivalent of "village". In its original sense, *ranchería* referred only to a small cluster of dwellings, not a pueblo or village, and many of the settlements characterized by ethnohistorians and archaeologists as villages should more appropriately be termed large *rancherías*.

The lack of perceived village settlements in the Ballona is directly related to this issue. Archaeological evidence reveals that the Ballona long served as an important location for human settlement, but never was the locus of a centralized village. A diverse settlement system developed during the Intermediate period with individual sites or activity loci at the base of the bluffs (LAN-60, LAN-62, LAN-193, LAN-211, and LAN-2768) and in the middle of the wetlands (LAN-54). These sites may have been used sporadically or for specific resource-procurement purposes. Although used for thousands of years, their location on the edge of the wetlands may suggest a more temporary occupation than sites on the bluff tops (LAN-59, LAN-61, LAN-53, LAN-64) because of the chance of flooding. LAN-62, however, appears to have been used more intensively than the other lowland sites because of its strategic location on a well-developed land form at the nexus of the lagoon, Centinela Creek, and the Lincoln Gap, which provided easy access to the bluff tops. Freshwater from Centinela Creek and a nearby small spring was probably also important for the location of the site. Some of the sites on the bluff tops appear to have more site structure and more diverse artifact assemblages and features suggesting a greater diversity of activities, including maintenance and ritual activities, and more intensive occupation. LAN-63, with its hundreds of features, dense midden, well-defined site structure, burials, and mourning ceremony features may represent the best candidate for what is traditionally viewed as a village. Although no structures were identified, their presence is inferred from the distribution of rock cairns, caches, and discrete refuse deposits. LAN-63, however, was a palimpsest (Binford 1979) and was never occupied by more than a few households at any one point in time or for an extended period of time. A well-defined burial area was not present and only a handful of burials was found in the bluff top settlements, or anywhere else in the Ballona during the Intermediate period. The Intermediate period settlement pattern can best be characterized as a highly dispersed *ranchería* with specialized resource procurement activities in the lowlands and residential loci scattered along the bluff tops. Use of these site locations probably shifted seasonally and over the course of the Intermediate period. LAN-61, LAN-62, LAN-63, and LAN-64—the Lincoln Gap Community described in Chapter 3 of this volume—were perhaps the most intensively used locales with LAN-63 and perhaps LAN-61 serving as the communal ritual centers.

During the Late period, the Ballona was probably occupied only on a temporary basis although LAN-47 may represent a small *ranchería*. The Protohistoric through Mission period occupation of the Ballona, however, was of an entirely different character. LAN-62 appears to meet all the criteria of a village as defined by Galdikas-Brindamour (1970:130–131). It contains a large, well-defined burial area with hundreds of individuals representing both sexes and all age groups. Social differentiation is clearly present at least by the late Mission period (see Chapter 6, this volume). Nonsubsistence activities are indicated by the presence of the burial area and adjacent Mourning Ceremony area. However, no evidence of architecture was found and the abundance of subsistence remains and food processing and storage features that was found date to earlier time periods. Thus, there is little to suggest that LAN-62 served as a locus of residential activities during the Protohistoric through Mission period, rather it was a ceremonial locus. By contrast, LAN-211, located upstream along Centinela Creek, exhibits substantial evidence of intensive occupation during the Protohistoric through Mission period. Again, however, evidence of architecture is lacking, although the presence of houses is inferred from the distribution of cairns and hearths. More important, like its Intermediate-period predecessor—LAN-63—LAN-211 was probably never occupied by more than a few families. The ephemeral evidence of use of LAN-61 and LAN-63 during the Protohistoric through Mission period indicates that these sites were not residential loci during this time.

Thus, we are faced with explaining where the hundreds of individuals placed in the burial area at LAN-62 lived. We believe that the great majority of these individuals were buried in the brief span between the establishment of Mission San Gabriel in 1771 and the beginning of the terminal Mission period in 1815—a span of less than three generations. Interestingly, our investigation of mission records (see Chapter 8, this volume), suggests that as many as 100 individuals came from Guaspet, a number that is consistent with ethnohistoric estimates of Gabrielino/Tongva settlement size (Bean and Smith 1978:540), but far in excess of the small residential group at LAN-211 and perhaps still too small for the burial population at LAN-62. Others have faced a similar conundrum in explaining the source of burials in the equally large burial area at Medea Creek in the Santa Monica Mountains. The residential area of the site (LAN-243), has also been characterized as "too small" for the large number of burials found in the nearby burial area (Dillon and Boxt 1989:161). L. King (1982) likened Medea Creek to a necropolis that included individuals from many settlements in the mountains and even from the coast (two individuals were buried with plank canoe remains).

This evidence suggests that we must alter our concept of Protohistoric through Mission period settlements along the southern California Bight. Settlements that qualify as true "villages" were probably relatively rare, and many of the place names identified by Spanish explorers and Mission records represent much smaller settlements that, at best, can be characterized only as *rancherías*. The structure of these settlements was also probably quite different from that of farming-based *rancherías* that the Spanish encountered in other regions of the New World. Residence was probably transient and the huts built in these settlements were most likely very ephemeral, leaving few archaeological traces. The presence of large burial areas may be the best archaeological indicator of these settlements.

It is in this manner that we must understand Guaspet. There never was a village in the Ballona. LAN-62 was the burial and ritual center of the *ranchería* or community known as Guaspet, while LAN-211 was its residential center. The extremely dense midden and numerous hearths found in Feature Block 1 at LAN-211, however, suggest evidence more of intensive food processing and consumption than residence. Only a relatively small permanent population, similar in size to that of LAN-63, its Intermediate period predecessor, may actually have occupied the site. Much of the population of Guaspet probably ranged throughout the Ballona and adjacent areas, never establishing permanent residence in any particular location. In fact, many of these people may have inhabited or utilized other lagoons or inland areas temporarily, returning to the Ballona to bury or mourn their dead. At such times and perhaps for other important ceremonial events, large groups may have assembled in the Ballona to participate in communal feasts. In this scenario, the Ballona may have been occupied by a small, relatively permanent residential group, but was used by a much larger group with kin or affinal ties, who claimed affiliation with Guaspet.

When we first discovered evidence of Mission period occupation in the Ballona, we developed the Cultural Adaptation model to explain the nature of this occupation (Chapter 1, this volume). Was Guaspet a native or gentile (non-Christianized) *ranchería*, a renegade (ex-neophyte) or fugitive (gentile) camp, a mission-support camp, or a settlement of native laborers working for a nearby rancho? At this point, we can state that the archaeological and ethnohistoric evidence clearly points to a native gentile settlement. Although the residents of Guaspet clearly interacted with Hispanic ranchers and missionaries and used some European tools and foods, they predominantly followed native lifeways, indicating they were neither mission neophytes nor rancho workers. Most of their food and material culture was native¸ burial practices revealed no indications of European influence, and those items of European manufacture found in the burial area appear to have been incorporated into traditional practices. Finally, the large burial area and the large and diverse Mission period material culture assemblage precludes the possibility that Guaspet was merely a camp associated with renegades, fugitives, or neophytes from the missions gathering supplementary foods.

Persistent Place and the Concept of Community

Of all the sites in the project area, LAN-62 had the longest occupation, extending from the early nineteenth century back at least 6,000 years. The very thick midden at the site contained clear and persistent examples of all the major occupational components identified in the Ballona. Certainly, some sites, such as LAN-64, contained significantly older components, but LAN-64 appears to have had a roughly 4,000-year gap in occupation between the early Millingstone and the Intermediate periods, whereas LAN-62 appears to have been occupied almost continuously from the late Millingstone through Mission periods. As such, LAN-62 appears to be an example of a persistent place (Schlanger 1992) in the Ballona. Persistent places, using Schlanger's (1992:97) terminology, are "neither strictly sites (that is, concentrations of cultural material) nor simply features of a landscape. Instead, they represent the conjunction of particular human behaviors on a particular landscape."

Schlanger (1992:92) has argued that persistent places can be created in three ways. First, they may be created through the recognition of unique qualities that make particular locations suitable for certain activities. These unique qualities may include the presence of freshwater, open marshland, good farmland, or vantage points. Second, persistent places may be created through cultural remains—such as hearths, shelters, or storage features—that allow and encourage reuse and reoccupation of an area. Third, persistent places may be created by the presence of cultural materials, such as grinding tools that may be reincorporated into a systemic context through the process of reclamation, recycling, or reuse. Interestingly, Schlanger (1992:107) has argued that persistent places evolve functionally through time. Whereas she argued that persistent places tend to form at former residential locations that later become peripheral (short-term camps), others have more recently adapted Schlanger's concept in other contexts. For example, Littleton and Allen (2007) have argued that prehistoric burial areas are good examples of the persistence of place for aboriginal peoples.

It is within this context that we consider LAN-62 as a persistent place on the landscape of the Ballona. Persistent places are components of systemic landscapes that are reused over long periods of time while other locations are not

(Schlanger 1992). Through time, these persistent places change in function as the settlement moves and reorganizes (Schlanger 1992:107). For thousands of years, LAN-62, located on an alluvial fan on the edge of the Ballona Lagoon, was used as a seasonal site for resource procurement or perhaps a habitation site. Although at least one site on top of the bluff was occupied earlier, LAN-62 appears to have been the first locale occupied below the bluffs. The physical nature of LAN-62 Locus A's location, which contained the oldest dates of the various portions of the site, may partially explain why it was the first occupied area below the bluffs. It is possible that the alluvial fan on which the site was situated, as well as a seasonal spring running down the slope from above, may have offered an advantage over other locales for early use areas below the bluffs. This alluvial fan would have been a much more stable location than some adjacent areas, as the alluvial fan was likely constantly aggrading. Although LAN-64 on the bluff tops contained earlier occupation, that early Millingstone component consisted entirely of single-use shell dumps and no apparent midden, as these features were dug into the B/C horizon. By contrast, the earliest signature of occupation at LAN-62, which partially dates to the same period of occupation at LAN-64, contained midden, a diversity of features, and other evidence of more substantial occupation. Therefore, although LAN-64 contained evidence of the earliest use of the Ballona, the early Millingstone material culture at LAN-62 suggests that this was a more favored location for perhaps sporadic habitation and use.

Beginning approximately 6,000 years ago, LAN-62 was used seasonally by native peoples as a resource-procurement location. Through its entire use life, this location was a preferred spot in the Ballona. During the first 5,000 years or so of use, its function likely did not change substantially, but as with all persistent places, the function of LAN-62 Locus A did begin to change during the Late period. During the Millingstone and Intermediate periods, as with all major sites in the Ballona, community members died and were buried in the midden at the site. The locations of these early burials were widely scattered across the midden. By the end of the Late period, however, burials began to be placed in a specific area of LAN-62 Locus A. Although few in numbers during this period, it is clear that a formal burial area was created in this specific portion of the site, and during the subsequent Protohistoric period, a few more burials were placed in this burial area. During the Mission period, however, the burial area became more formalized and tightly confined, with large pieces of whalebone marking the burial area. Approximately half of all burials in the burial area have been firmly dated to the Mission period, and it is likely that many others with less precise dating also belong to this period, suggesting that this portion of LAN-62 was a very important location.

It is possible that one factor in the creation of this burial area as sacred space for burials, as well as its function as a persistent place, relates to social memory and the history of the site and its long occupational history, much longer than any other site in the Ballona. It is clear that there was social memory of ancient occupations at the site, as some of the special grave goods associated with Mission period burials were curated artifacts that dated to much earlier times. These artifacts may have been dug up from earlier components of the site and placed with specific individuals as a connection to past use of the site. The concept of history is an important aspect to understanding these patterns of the Mission period. History is something very different from the simple linear ordering of events through time. In our view, history structures daily life. History dictates the meaning of places on the landscape and how they are used, how people relate to places and each other, and the ways people perform ceremonies and other activities. History is also a complex process through which the interactions of activities, practices, events, and circumstances create cultural and social change (Pauketat 2001, 2003). History refers to how activities, practices, intentions, and events are woven within a web of relationships that connect people to each other, to their ancestors, and to the world in which they live. The social and historical webs in which people live provide the foundation for understanding social life and social change. We view history as a means for understanding social relationships among people and places, for understanding who people are and where they came from, and the meaning of the past. Therefore, history was an important part of daily life to the inhabitants of the Ballona and played an important part in the identity and actions of these people during the Mission period. History and social memory likely played important roles in the creation and use of the burial area at LAN-62 and aided in the creation of sacred space within its confined area.

In sum, then, LAN-62 is a persistent place in Schlanger's (1992) terms. This site, and its changing function over approximately 6,000 years, from a seasonally occupied logistical camp to a large burial area, was an important part of the landscape of the Ballona. Although the site was important in the past, the creation of the burial area imparted a sacredness to the location. The creation of the burial area helped, in Schlanger's (1992:92) terms, to "structure the use and reuse of the larger landscape."

As the previous discussion indicates, there is little evidence of a village in the Ballona during its long span of native use, especially during the Mission period. Large, long-term aggregations of residents, organized and structured space, and other important attributes of villages are best reflected in the Intermediate period in the relatively large and diverse settlements like LAN-63 on the bluff. Even LAN-63, however, does not meet many of the requirements expected of a village. Rather, the Intermediate period Ballona community shifted among a number of large and diverse settlements like LAN-63, which for a short period of time may have been the ritual center of this community. By the Mission period, settlement was focused—albeit limited in comparison to the Intermediate period—at LAN-211, which may have been a center for communal events such as feasting. The concept of community, however, changed by the Mission period, and the burial area at LAN-62 became an important focus for the larger region as a mortuary ritual and burial area. It is likely that the burial area was an anchor not only for local settlements (such as the ethnohistoric community of Guaspet) in the Ballona, but for outlying native settlements, as well. The social memory and history of the site helped create this important landmark, which was used for perhaps a millennium.

Final Thoughts

We are fortunate to have had the opportunity to conduct, for more than 25 years, a study of the occupational history of an entire wetlands. The length and breadth of this study has provided us with a unique perspective on cultural development in the region. We have reconstructed the evolution of the Ballona and documented a conservative cultural pattern that persisted with little change for thousands of years in this area. Change, however, was widespread and came rapidly with the arrival of the Spanish in the late eighteenth century. We also have learned that Gabrielino/Tongva culture as described by ethnohistorians is very different from the ancient pattern of stability we documented in the Ballona, and that Gabrielino/Tongva culture as generally depicted in ethnohistoric and ethnographic accounts is largely the product of how indigenous people individually and in groups negotiated the constraints and opportunities created by different European colonial institutions—the missions, ranchos, and pueblos—in the last decades of the eighteenth century. We are not the first to come to this conclusion (see Martz 1984), but the archaeological and historical record generated by our work in the Ballona is perhaps the most comprehensive, most detailed, and best-documented record of ancient life in the region. Furthermore, the record generated by PVAHP provides a rare diachronic perspective that makes it possible to see both continuity and change in the native culture of the Ballona.

We also have taken to heart Panich's (2013:116) challenge to focus not just on the destruction of native society by disease, environmental catastrophe, and European indoctrination—or merely to document the loss of native cultural traits. Our diachronic perspective on cultural change in the Ballona has provided a rare opportunity to document the dynamic nature of Gabrielino/Tongva culture. We have shown how it changed from pre-contact times into the colonial period, how new cultural practices developed, and how new foods and material items were integrated into traditional practices. Our story ends at the beginning of the terminal Mission period, when the Gabrielino/Tongva left the Ballona. Thus, the Ballona record is silent on subsequent changes in Gabrielino/Tongva culture. Nevertheless, it is likely that these changes were shaped both by traditional practices and by the new practices that emerged in the highly volatile times of the Mission period.

Archaeology at its best is really not about the past. It provides testament to disenfranchised descendant communities that they not only exist, but that they matter. It provides local communities a grounding in a world that is constantly changing. It reminds all of us that we are here through accidents of history—some good, some bad, some horrific—and that the history we write will be encoded in the landscape that our children will have to negotiate. Archaeology at its best is not just a sequence of events, but a platform for a better future.

In 1991, Vera Rocha, Chief of the Gabrielino People, gave a blessing for the Playa Vista project on top of LAN-62. Gathered that day on what would later be determined to be a burial area were politicians, developers, community leaders, activists, archaeologists, and Native Americans. Vera spoke of how as a little girl her mother and grandmother would take her to the Ballona to gather reeds for baskets. She spoke of the importance of honoring "Mother Earth." She also spoke with pride about her people, the Gabrielino/Tongva, who others said were extinct, but who were right there that day on their ancient land. When Jeff Altschul told Vera that his company had been selected to lead the archaeological investigations, she had only one request: "Jeff, promise me you'll see it through." All those involved in the PVAHP have done our best to live up to that promise. While we have not answered all the questions we had hoped to, our research in the Ballona has presented a rare opportunity to study the evolution of an entire community that persisted over thousands of years. Our vast data set provides perhaps the most detailed picture available of the origin and development of Gabrielino/Tongva culture and an unusually rich perspective on their final days in the Ballona. What we could not answer, we hope future scholars will and that in that endeavor they find the data gathered here of value. If our work, as we believe it will, provides future generations of Gabrielino/Tongva, in particular, and Angelinos, in general, with a better understanding of who they are, where they came from, and how they came to be, then the effort will have been well worth it.

APPENDIX 1.1

Playa Vista Archaeological and Historical Project Publications

People in a Changing Land: The Archaeology and History of the Ballona in Los Angeles, California

Donn R. Grenda, Richard Ciolek-Torello, and Jeffrey H. Altschul, series editors

Homburg, Jeffrey A., John G. Douglass, and Seetha N. Reddy (editors)
2014 *Paleoenvironment and Culture History*. People in a Changing Land: The Archaeology and History of the Ballona in Los Angeles, California, vol. 1, Donn R. Grenda, Richard Ciolek-Torello, and Jeffrey H. Altschul, series editors. Technical Series 94, vol. 1. Statistical Research, Redlands, California, and Tucson, Arizona.

Vargas, Benjamin R., John G. Douglass, and Seetha N. Reddy (editors)
2016 *Archaeological Sites and Chronology*. People in a Changing Land: The Archaeology and History of the Ballona in Los Angeles, California, vol. 2, Donn R. Grenda, Richard Ciolek-Torello, and Jeffrey H. Altschul, series editors. Technical Series 94, vol. 2. Statistical Research, Redlands, California, and Tucson, Arizona.

Reddy, Seetha N., and John G. Douglass (editors)
2016 *Material Culture and Subsistence Practices*. People in a Changing Land: The Archaeology and History of the Ballona in Los Angeles, California, vol. 3, Donn R. Grenda, Richard Ciolek-Torello, and Jeffrey H. Altschul, series editors. Technical Series 94, vol. 3. Statistical Research, Redlands, California, and Tucson, Arizona.

Stanton, Patrick B., John G. Douglass, and Seetha N. Reddy (editors)
2016 *Bioarchaeology and Paleodemography*. People in a Changing Land: The Archaeology and History of the Ballona in Los Angeles, California, vol. 4, Donn R. Grenda, Richard Ciolek-Torello, and Jeffrey H. Altschul, series editors. Technical Series 94, vol. 4. Statistical Research, Redlands, California, and Tucson, Arizona.

Douglass, John G., Seetha N. Reddy, Richard Ciolek-Torello, and Donn R. Grenda (editors)
2016 *Gabrielino/Tongva Origins and Development: A View from Guaspet*. People in a Changing Land: The Archaeology and History of the Ballona in Los Angeles, California, vol. 5, Donn R. Grenda, Richard Ciolek-Torello, and Jeffrey H. Altschul, series editors. Technical Series 94, vol. 5. Statistical Research, Redlands, California, and Tucson, Arizona.

Test Excavation Reports

1 *Settlement on the Lagoon Edge: Archaeological Treatment Plan for CA-LAN-2676, Marina del Rey, California,* edited by Jeffrey H. Altschul, Christopher J. Doolittle, and Su Benaron. Playa Vista Monograph Series, Test Excavation Report 1. December 10, 1998. Statistical Research, Tucson, Arizona, and Redlands, California.

2 *At the Head of the Marsh: Middle Period Settlement along Upper Centinela Creek; Archaeological Treatment Plan for CA-LAN-60, CA-LAN-193, and CA-LAN-2768, Marina del Rey, California,* edited by Jeffrey H. Altschul, Su Benaron, and Christopher J. Doolittle. Playa Vista Monograph Series, Test Excavation Report 2. June 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

3 *On Ballona Creek: Archaeological Treatment Plan for CA-LAN-54, Marina del Rey, California*, by Benjamin R. Vargas and Jeffrey H. Altschul. Playa Vista Monograph Series, Test Excavation Report 3. January 2, 2001. Statistical Research, Tucson, Arizona, and Redlands, California.

4 *At the Base of the Bluff: Archaeological Inventory and Evaluation along Lower Centinela Creek, Marina del Rey, California,* edited by Jeffrey H. Altschul, Anne Q. Stoll, Donn R. Grenda, and Richard Ciolek-Torrello. Playa Vista Monograph Series, Test Excavation Report 4. July 2003. Statistical Research, Tucson, Arizona, and Redlands, California.

Technical Reports

1 *Visual and Aesthetic Impact of the Playa Vista Project on Adjacent Properties of 45 Years of Age or Older,* by Mark T. Swanson. Playa Vista Archaeological and Historical Project, Technical Report 1. 1991. Statistical Research, Tucson, Arizona.

2 *Historical Test Excavations, Playa Vista, Los Angeles, California,* by R. Paul Hampson. Playa Vista Archaeological and Historical Project, Technical Report 2. 1991. Statistical Research, Tucson, Arizona, and Greenwood and Associates, Pacific Palisades, California.

3 *Historical Resource Evaluation, CA-LAN-1970H (SR2), Playa Vista, Los Angeles, California,* by John M. Foster. Playa Vista Archaeological and Historical Project, Technical Report 3. 1991. Statistical Research, Tucson, Arizona, and Greenwood and Associates, Pacific Palisades, California.

4 *Historic Property Survey Report for the Hughes Aircraft Site at Playa Vista,* by Statistical Research, Greenwood and Associates, and Historic Resources Group. Playa Vista Archaeological and Historical Project, Technical Report 4. 1991. Statistical Research, Tucson, Arizona; Greenwood and Associates, Pacific Palisades, California; and Historic Resources Group, Hollywood, California.

5 *Historic American Engineering Record: Hughes Aircraft Company, Howard Hughes Industrial Complex,* by Greenwood and Associates. Playa Vista Archaeological and Historical Project, Technical Report 5. 1995. Greenwood and Associates, Pacific Palisades, California.

6 *Work Plan for Archaeological Inventory and Evaluation of the Entertainment, Media & Technology District and Portions of the Riparian Corridor, Playa Vista, Marina del Rey, California,* by Jeffrey H. Altschul and Richard S. Ciolek-Torrello. Playa Vista Archaeological and Historical Project, Technical Report 6. December 4, 1997. Statistical Research, Tucson, Arizona.

7 *Work Plan for Archaeological Inventory and Evaluation of the 49104-01 Tract Map, Freshwater Marsh, and Associated Features,* by Richard Ciolek-Torrello, Donn R. Grenda, and Jeffrey H. Altschul. Playa Vista Archaeological and Historical Project, Technical Report 7. January 8, 1998. Statistical Research, Tucson, Arizona.

8 *Work Plan for Archaeological Inventory and Evaluation of the Balance of Area D, including Boundary Testing at CA-LAN-62 and CA-LAN-211,* by Donn R. Grenda, Su Benaron, and Jeffrey H. Altschul. Playa Vista Archaeological and Historical Project, Technical Report 8. March 12, 1999. Statistical Research, Tucson, Arizona.

9 *Evaluation of SR 10, a Nonarchaeological Assemblage in the Ballona Wetlands, Marina del Rey, California,* by Angela H. Keller. Playa Vista Archaeological and Historical Project, Technical Report 9. May 25, 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

10 *Preliminary Report on Data Recovery at Site CA-LAN-54, Marina del Rey, California,* by Angela H. Keller and Jeffrey H. Altschul. Playa Vista Archaeological and Historical Project, Technical Report 10. July 31, 2002. Statistical Research, Redlands, California, and Tucson, Arizona.

11 *Playa Vista Archaeological and Historical Project: At the Base of the Bluff. Updated Research Design for the Playa Vista Archaeological and Historical Project and Archaeological Treatment Plan for CA-LAN-211/H, Marina del Rey, California,* by Jeffrey H. Altschul, Anne Q. Stoll, Donn R. Grenda, and Richard Ciolek-Torrello. Playa Vista Archaeological and Historical Project, Technical Report 11. March 2003. Statistical Research, Redlands, California, and Tucson, Arizona.

12 *Preliminary Report on Data Recovery within the Phase 1 Project Area at CA-LAN-62, Playa Vista, California*, by Benjamin R. Vargas, Jeffrey H. Altschul, John G. Douglass, Richard Ciolek-Torrello, Donn R. Grenda, Robert M. Wegener, and William L. Deaver. Playa Vista Archaeological and Historical Project, Technical Report 12. March 2005. Statistical Research, Redlands, California, and Tucson, Arizona.

13 *Preliminary Report on Data Recovery within the Phase 2 Project Area at CA-LAN-62, Locus D, and CA-LAN-211/H, Playa Vista, California*, by Sarah J. Van Galder, Benjamin R. Vargas, Jeffrey H. Altschul, John G. Douglass, Richard Ciolek-Torrello, and Donn R. Grenda. Playa Vista Archaeological and Historical Project, Technical Report 13. September 2006. Statistical Research, Redlands, California.

14 *Assessment of Preservation in Place of Archaeological Resources (CA-LAN-62 Locus D and CA-LAN-211) in Proposed Village at Playa Vista Project*, by John G. Douglass, Donn R. Grenda, and Benjamin R. Vargas. Playa Vista Archaeological and Historical Project, Technical Report 14. April 2008. Statistical Research, Redlands, California.

15 *Preliminary Report on Data Recovery at CA-LAN-62 Locus G, within the Proposed School Site Parcel, Phase 1, Playa Vista, California*, by Benjamin R. Vargas and John G. Douglass. Playa Vista Archaeological and Historical Project, Technical Report 15. May 2009. Statistical Research, Redlands, California.

Monitoring Reports

1 *Field and Laboratory Methods for Archaeological Monitoring,* by Angela H. Keller. Playa Vista Archaeological and Historical Project, Monitoring Report 1. October 12, 1998. Statistical Research, Tucson, Arizona, and Redlands, California.

2 *Archaeological Monitoring Report, March 1998,* by Angela H. Keller. Playa Vista Archaeological and Historical Project, Monitoring Report 2. October 12, 1998. Statistical Research, Tucson, Arizona, and Redlands, California.

3 *Archaeological Monitoring Report, April 1998,* by Angela H. Keller. Playa Vista Archaeological and Historical Project, Monitoring Report 3. October 12, 1998. Statistical Research, Tucson, Arizona, and Redlands, California.

4 *Archaeological Monitoring Report, May 1998,* by Angela H. Keller. Playa Vista Archaeological and Historical Project, Monitoring Report 4. March 8, 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

5 *Archaeological Monitoring Report, June 1998,* by Christina M. Fiore. Playa Vista Archaeological and Historical Project, Monitoring Report 5. March 8, 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

6 *Archaeological Monitoring Report, July 1998,* by Christina M. Fiore. Playa Vista Archaeological and Historical Project, Monitoring Report 6. March 8, 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

7 *Archaeological Monitoring Report, August 1998,* by Christina M. Fiore and Angela H. Keller. Monitoring Report 7. March 26, 1999.

8 *Archaeological Monitoring Report, September 1998,* by Lori L. Erickson. Playa Vista Archaeological and Historical Project, Monitoring Report 8. March 8, 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

9 *Archaeological Monitoring Report, October 1998,* by Lori L. Erickson. Playa Vista Archaeological and Historical Project, Monitoring Report 9. March 26, 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

10 *Archaeological Monitoring Report, November 1998,* by Lori L. Erickson. Playa Vista Archaeological and Historical Project, Monitoring Report 10. March 26, 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

11 *Archaeological Monitoring Report, December 1998,* by Lori L. Erickson, Christina M. Fiore, and Angela H. Keller. Playa Vista Archaeological and Historical Project, Monitoring Report 11. March 26, 1999. Statistical Research, Tucson, Arizona, and Redlands, California.

12 *Archaeological Monitoring Report, 1st Quarter 1999,* by Ayse Taskiran and Anne Q. Stoll. Playa Vista Archaeological and Historical Project, Monitoring Report 12. February 2000. Statistical Research, Tucson, Arizona, and Redlands, California.

13 *Archaeological Monitoring Report, Second Quarter 1999,* by Ayse Taskiran and Anne Q. Stoll. Playa Vista Archaeological and Historical Project, Monitoring Report 13. February 2000. Statistical Research, Tucson, Arizona, and Redlands, California.

14 *Archaeological Monitoring Report, 3rd and 4th Quarters 1999,* by Anne Q. Stoll and C. Dennis Taylor. Playa Vista Archaeological and Historical Project, Monitoring Report 14. Spring 2000. Statistical Research, Tucson, Arizona, and Redlands, California.

15 *Archaeological Monitoring Report, 1st Quarter 2000,* by Anne Q. Stoll, C. Dennis Taylor, and William E. Hayden. Playa Vista Archaeological and Historical Project, Monitoring Report 15. Summer 2000. Statistical Research, Tucson, Arizona, and Redlands, California.

16 *Archaeological Monitoring Report, Second Quarter 2000,* by F. R. Beardsley. Playa Vista Archaeological and Historical Project, Monitoring Report 16. Winter 2001. Statistical Research, Tucson, Arizona, and Redlands, California.

17 *Archaeological Monitoring Report, Third Quarter 2000,* by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 17. Fall 2001. Statistical Research, Tucson, Arizona, and Redlands, California.

18 *Archaeological Monitoring Report, Fourth Quarter 2000,* by F. R. Beardsley, John G. Douglass, and Richard Ciolek-Torrello. Playa Vista Archaeological and Historical Project, Monitoring Report 18. Summer 2002. Statistical Research, Tucson, Arizona, and Redlands, California.

19 *Archaeological Monitoring Report, First Quarter 2001,* by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 19. Summer 2002. Statistical Research, Tucson, Arizona, and Redlands, California.

20 *Archaeological Monitoring Report, Second Quarter 2001,* by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 20. March 2004. Statistical Research, Tucson, Arizona, and Redlands, California.

21 *Archaeological Monitoring Report, Third and Fourth Quarters 2001,* by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 21. April 2004. Statistical Research, Tucson, Arizona, and Redlands, California.

22 *Archaeological Monitoring Report, First Quarter 2002,* by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 22. April 2004. Statistical Research, Tucson, Arizona, and Redlands, California.

23 *Archaeological Monitoring Report, Second Quarter 2002,* by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 23. April 2004. Statistical Research, Tucson, Arizona, and Redlands, California.

24 *Archaeological Monitoring Report, Third Quarter 2002,* by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 24. April 2004. Statistical Research, Tucson, Arizona, and Redlands, California.

25 *Archaeological Monitoring Report, Fourth Quarter 2002,* by John G. Douglass and Marcy Rockman. Playa Vista Archaeological and Historical Project, Monitoring Report 25. April 2004. Statistical Research, Tucson, Arizona, and Redlands, California.

26 *Archaeological Monitoring Report, 1st through 3rd Quarters, 2003*, by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 26. June 2004. Statistical Research, Tucson, Arizona, and Redlands, California.

27 *Archaeological Monitoring Report, Fourth Quarter 2003 and First Quarter 2004,* by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 27. December 2004. Statistical Research, Tucson, Arizona, and Redlands, California.

28 *Archaeological Monitoring Report, Second and Third Quarter 2004*, by Katherine H. Pollock and John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 28. July 2006. Statistical Research, Tucson, Arizona, and Redlands, California.

29 *Archaeological Monitoring Report, Fourth Quarter 2004*, by Katherine H. Pollock and John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 29. July 2006. Statistical Research, Tucson, Arizona, and Redlands, California.

30 *Archaeological Monitoring Report, First and Second Quarter 2005*, by Elizabeth Denniston and John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 30. June 2007. Statistical Research, Tucson, Arizona, and Redlands, California.

31 *Archaeological Monitoring Report, Third Quarter 2005*, by Elizabeth Denniston and John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 31. June 2007. Statistical Research, Tucson, Arizona, and Redlands, California.

32 *Archaeological Monitoring Report, Fourth Quarter 2005 and First through Fourth Quarter 2006*, by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 32. June 2007. Statistical Research, Tucson, Arizona, and Redlands, California.

33 *Archaeological Monitoring Report, First through Fourth Quarter 2007*, by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 33. March 2008. Statistical Research, Tucson, Arizona, and Redlands, California.

34 *Archaeological Monitoring Report, First through Fourth Quarter 2008*, by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 34. August 2009. Statistical Research, Tucson, Arizona, and Redlands, California.

35 *Archaeological Monitoring Report, First through Fourth Quarter 2009*, by John G. Douglass. Playa Vista Archaeological and Historical Project, Monitoring Report 35. July 2010. Statistical Research, Tucson, Arizona, and Redlands, California.

Other Reports

Research Design, by Jeffrey H. Altschul. 1991. Playa Vista Archaeological and Historical Project. Technical Series 29, pt. 1. Statistical Research, Tucson, Arizona.

Data Recovery Plan for CA-LAn-62 and CA-LAn-211, by Jeffrey H. Altschul. 1991. Playa Vista Archaeological and Historical Project. Statistical Research, Tucson, Arizona.

Evaluation Plan for SR 8, SR 9, SR 10, SR 11, LAN-54, and Road Improvements along Lincoln and Jefferson, by Donn R. Grenda and Jeffrey H. Altschul. October 1997. Playa Vista Archaeological and Historical Project. Statistical Research, Tucson, Arizona.

City of Los Angeles Permit & California Coastal Commission Permit, by Stephen D. Shelley and Richard Ciolek-Torrello. April 17, 1998. Playa Vista Archaeological and Historical Project. Statistical Research, Tucson, Arizona.

Preliminary Report of Data Recovery at CA-LAN-2768/H Locus A, Located on Lots 18–20 of Tract 49104-04, the Campus at Playa Vista, California, by Kenneth M. Becker and Patrick B. Stanton. 2016. Technical Report 14-01. Statistical Research, Tucson, Arizona.

APPENDIX 1.2

Presented Papers, Posters, and Publications related to the Playa Vista Archaeological and Historical Project

1990s

Altschul, Jeffrey H.

1993 Cultural Dynamics in the Ballona Wetlands. Poster presented at the 27th Annual Meeting of the Society for California Archaeology, Monterey.

Altschul, Jeffrey H., and Richard Ciolek-Torrello

1990 Prehistoric Exploitation of a Southern California Coastal Lagoon. Paper presented at the 55th Annual Meeting of the Society for American Archaeology, Las Vegas, Nevada.

Altschul, Jeffrey H., Richard Ciolek-Torrello, and Jeffrey A. Homburg

1991 Late Prehistoric Cultural Change in the Ballona Wetlands. Paper presented at the 25th Annual Meeting of the Society for California Archaeology, Sacramento.

1992 Late Prehistoric Change in the Ballona Wetland. In *Archaeological Investigations of Some Significant Sites on the Central Coast of California*, edited by Herb Dallas, Jr., and Gary S. Breschini, pp. 89–108. Archives of California Prehistory No. 37, Gary S. Breschini and Trudy Haversat, general editors. Coyote Press, Salinas, California.

Grenda, Donn R.

1999 The Playa Vista Archaeological Project: Methods for Finding, Testing, and Recovering Deeply Buried Sites. Paper presented at the 33rd Annual Meeting of the Society for California Archaeology, Sacramento.

Grenda, Donn R., and Jeffrey H. Altschul

1994 The Evolution of Coastal Settlements: A View from the Ballona Lagoon. In *Proceedings of the Society for California Archaeology*, vol. 7, edited by Martin D. Rosen, Susan M. Hector, and Don Laylander, pp. 213–226. Society for California Archaeology, San Diego.

1995 Islanders and Mainlanders: A Regional Approach to Channel Island Prehistory. *Pacific Coast Archaeological Society Quarterly* 31(3):28–38.

2000

Ciolek-Torrello, Richard, Jeffrey H. Altschul, Donn Grenda, and Anne Q. Stoll

2000 Settlement Dynamics in the Ballona Wetlands. Paper presented at the 34th Annual Meeting of the Society for California Archaeology, Riverside.

2001

Ciolek-Torrello, Richard, and Donn R. Grenda
2001 Middle Period Settlement in the Ballona: A Decade of Archaeological Research along Santa Monica Bay, Southern California. Paper presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans, Louisiana.

Homburg, Jeffrey H., Eric Brevik, Jeffrey H. Altschul, Antony Orme, and Steven D. Shelley
2001 Evolving Holocene Landscapes and Cultural Land-Use Patterns in the Ballona Wetlands. Poster presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans, Louisiana. [Awarded SAA Professional Poster of the Year]

Vargas, Benjamin, Anne Q. Stoll, and Richard Ciolek-Torrello
2001 Contact Period Occupation and Acculturation in a Non-Mission Context along the Southern California Coast. Paper presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans, Louisiana.

2002

Altschul, Jeffrey H., and Donn R. Grenda (editors)
2002 *Islanders and Mainlanders: Prehistoric Context for the Southern California Bight.* SRI Press, Tucson, Arizona.

Ciolek-Torrello, Richard, and John G. Douglass
2002 Wetlands Adaptation by Hunter-Gatherers: A Coastal Perspective from La Ballona, Southern California. Paper presented at the 67th Annual Meeting of the Society for American Archaeology, Denver, Colorado.

Palacios-Fest, Manuel R., and Jeffrey A. Homburg
2002 Ostracode Paleoecology in the Ballona Lagoon of Coastal Southern California. Poster presented at the 67th Annual Meeting of the Society for American Archaeology, Denver, Colorado. [Awarded SAA Professional Poster of the Year]

2003

Altschul, Jeffrey H.
2003 Cultural Fault Lines of Southern California. Paper presented at the 68th Annual Meeting of the Society for American Archaeology, Milwaukee, Wisconsin.

Grenda, Donn R., and Roderic McLean
2003 Paradise or Purgatory? A Study of the Regulatory and Research Environments in Southern California Coastal Wetlands. Paper presented at the 68th Annual Meeting of the Society for American Archaeology, Milwaukee, Wisconsin.

Homburg, Jeffrey A.
2003 Geoarchaeology of the Ballona Wetlands in Los Angeles. Paper presented at the 68th Annual Meeting of the Society for American Archaeology, Milwaukee, Wisconsin.

2004

Brevik, Eric C., and Jeffrey A. Homburg
2004 A 5,000 Year Record of Carbon Sequestration from a Coastal Lagoon and Wetland Complex, Southern California, USA. *Catena* 57(3):221–232.

Ciolek-Torrello, Richard, and Donn R. Grenda
2004 Seeking Site Structure in the Ballona Wetlands, Los Angeles. Paper presented at the 38th Annual Meeting of the Society for California Archaeology, Riverside.

Dore, Christopher D., Patrick Stanton, Malcolm Hooe, Donn R. Grenda, and Jeffrey H. Altschul
2004 Non-Contact Digital 3D Laser Scanning of Human Skeletal Remains: A Solution for Science, Native Americans, and Project Developers. Paper presented at the conference "3D Imaging in Anthropological Research: Acquisition, Analysis, and Dissemination," London, Ontario, Canada.

Douglass, John G., Cindi Alvitre, and Jeffrey H. Altschul
2004a The Politics of Archaeology: Diverse Concerns and Interests at the West Bluffs Project, Los Angeles, California. Paper presented at the 38th Annual Meeting of the Society for California Archaeology, Riverside.

2004b The Politics of Archaeology: Diverse Concerns and Interests at the West Bluffs Project, Los Angeles, California. Paper presented at the 69th Annual Meeting of the Society for American Archaeology, Montreal, Quebec, Canada.

Palacios-Fest, Manuel R., and Jeffrey A. Homburg
2004 Ostracod Analysis: A Review of Archaeological and Paleoenvironmental Applications in the Greater Southwest. Paper presented at the 9th Annual Southwest Symposium, Chihuahua, Chihuahua, Mexico.

Shelley, Steven D., Jeffrey A. Homburg, Manuel R. Palacios-Fest, Eric C. Brevik, Anthony R. Orme, Richard Ciolek-Torrello, Jeffrey H. Altschul, Donn R. Grenda, Benjamin R. Vargas, David Maxwell, Kenneth M. Becker, Robert M. Wegener, and Peter E. Wigand
2004 Holocene Landscapes and Human Land-Use in the Ballona Wetlands of West Los Angeles, California. Poster presented at the Archaeological Sciences of the Americas Symposium, Tucson, Arizona.

2005

Altschul, Jeffrey H., Richard Ciolek-Torrello, Donn R. Grenda, Jeffrey A. Homburg, Su Benaron, and Anne Q. Stoll
2005 Ballona Archaeology: A Decade of Multidisciplinary Research. In *Proceedings of the Society for California Archaeology*, vol. 18, edited by Sharon A. Waechter and Don Laylander, pp. 283–301. Society for California Archaeology, Chico.

Altschul, Jeffrey H., John G. Douglass, Richard Ciolek-Torrello, and Donn R. Grenda
2005 Human Adaptation to Coastal Wetlands: A View from the Ballona. Paper presented at the 39th Annual Meeting of the Society for California Archaeology, Sacramento.

Ciolek-Torrello, Richard, Benjamin Vargas, Frederick W. Lange, and Anne Q. Stoll
2005 Spanish Colonial Impacts: A View from a Gentile Native American Burial Ground in Southern California. Paper presented at the 70th Annual Meeting of the Society for American Archaeology, Salt Lake City, Utah.

Douglass, John G., Jeffrey H. Altschul, Richard Ciolek-Torrello, Benjamin R. Vargas, Kathleen Hull, and Donn R. Grenda
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2014

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APPENDIX 5.1

Parameter Estimates Used for Hazard Model Construction

Site/Sample	Parameter	Estimate
LAN-62		
All	a1	88.206
	b1	894.514
	a2	0.000
	a3	0.019
	b3	0.021
Mission period	a1	35.153
	b1	8.22E+02
	a2	0.000
	a3	0.014627349
	b3	0.036
Humaliwo		
Prehistoric	a1	33.007
	b1	557.760
	a2	0.000
	a3	2.057E-02
	b3	0.029
Mission period	a1	87.048
	b1	254.247
	a2	0.000
	a3	0.059
	b3	0.006
Yaanga		
All	a1	30.792
	b1	302.887
	a2	0.000
	a3	0.011
	b3	0.025
Mission record		
All	a1	0.000
	b1	356.141
	a2	0.000
	a3	0.033
	b3	0.025
Gauspet	a1	0.239
	b1	0.429
	a2	0.000
	a3	0.008
	b3	0.043

continued on next page

Site/Sample	Parameter	Estimate
2 parameter GOMPERTZ Models		
Mission record		
Gauspet (adults)		
	a	0.006
	b	0.050
LAN-62		
Mission period (adults)		
	a	0.005
	b	0.061
Humaliwo		
All	a1	72.350
	b1	510.411
	a2	0.000
	a3	1.827E-02
	b3	0.031

Burial Features with Primary Individuals at LAN-62

Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
4	1		Late through Mission	Late through Mission	inhumation w/o burning
5	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
6	1		Mission	Protohistoric through Mission	inhumation w/o burning
7	1	1	Mission	late Mission	inhumation w/o burning
8	1		Mission	late Mission	inhumation w/o burning
10	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
11	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
13	1	3	Mission	terminal Mission	inhumation w/o burning
14	1	3	Mission	late Mission	inhumation w/o burning
20	1	3	late Intermediate through Mission	late Intermediate through Mission	inhumation w/o burning
23	1		unknown	Intermediate through Mission	inhumation w/o burning
24	2	1	unknown	Intermediate through Mission	partial cremation
26	1		unknown	Intermediate through Mission	inhumation w/o burning
28	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
31	1		Mission	late Mission	inhumation w/o burning
32	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
34	1	3	Mission	Protohistoric through Mission	inhumation w/ burning
36	1	1	unknown	Intermediate through Mission	inhumation w/o burning
37	1		Mission	Protohistoric through Mission	inhumation w/o burning
38	2	3	Mission	terminal Mission	inhumation w/o burning
40	1		unknown	Intermediate through Mission	inhumation w/o burning
42	1	3	Mission	late Mission	inhumation w/o burning
46	1		Mission	Protohistoric through Mission	inhumation w/o burning
49	1		early Intermediate through Mission	early Intermediate through Mission	inhumation w/o burning
50	1	2	Mission	late Mission	inhumation w/o burning
52	1		Mission	late Mission	inhumation w/o burning

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Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
53	1		Mission	Protohistoric through Mission	inhumation w/o burning
54	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
57	1	1	Mission	late Mission	inhumation w/o burning
58	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
59	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
60	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
61	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
63	1		Mission	Protohistoric through Mission	inhumation w/o burning
64	1		Mission	Protohistoric through Mission	inhumation w/o burning
66	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
67	1	1	Late through Mission	Late through Mission	inhumation w/o burning
69	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
73	1		unknown	Intermediate through Mission	inhumation w/o burning
74	1		unknown	Intermediate through Mission	inhumation w/o burning
76	1	2	Mission	terminal Mission	inhumation w/o burning
80	1		Mission	Protohistoric through Mission	inhumation w/o burning
82	1		Mission	Protohistoric through Mission	inhumation w/o burning
84	1		Protohistoric through Mission	Protohistoric through Mission	inhumation w/o burning
85	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
90	1		Mission	late Mission	inhumation w/o burning
91	1	2	Mission	Protohistoric through Mission	full cremation
94	1		Late through Mission	Late through Mission	full cremation
96	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
98	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
100	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
101	1		Mission	late Mission	inhumation w/o burning
103	1		Mission	Protohistoric through Mission	inhumation w/o burning

Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
104	1	1	Mission	late Mission	inhumation w/o burning
105	1		Mission	late Mission	inhumation w/o burning
107	1	1	unknown	Intermediate through Mission	inhumation w/o burning
108	1	3	Mission	Protohistoric through Mission	partial cremation
109	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
110	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
113	1	3	Late through Mission	Late through Mission	inhumation w/o burning
117	1		Late through Mission	Late through Mission	inhumation w/o burning
118	1		Mission	Protohistoric through Mission	inhumation w/o burning
120	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
121	1		Mission	Protohistoric through Mission	inhumation w/o burning
123	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
125	1		unknown	Intermediate through Mission	inhumation w/o burning
128	1	1	Mission	late Mission	inhumation w/o burning
131	1	1	unknown	Intermediate through Mission	inhumation w/o burning
134	1	3	Mission	late Mission	inhumation w/o burning
136	1	3	Late through Mission	Late through Mission	inhumation w/o burning
137	1		Late through Mission	Late through Mission	inhumation w/o burning
143	1	2	Mission	late Mission	inhumation w/o burning
144	2	2	Mission	late Mission	inhumation w/o burning
145	1	2	Late through Mission	Late through Mission	inhumation w/o burning
147	1		unknown	Intermediate through Mission	partial cremation
149	1	5	Mission	Protohistoric through Mission	inhumation w/o burning
150	1		Mission	Protohistoric through Mission	partial cremation
152	1		Mission	late Mission	inhumation w/o burning
153	1	1	Mission	late Mission	inhumation w/o burning

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Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
154	1		Mission	Protohistoric through Mission	inhumation w/o burning
155	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
156	1		unknown	Intermediate through Mission	inhumation w/o burning
162	1	1	late Intermediate through Mission	late Intermediate through Mission	inhumation w/o burning
164	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
165	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
166	1		unknown	Intermediate through Mission	inhumation w/o burning
170	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
172	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
173	2		Mission	Protohistoric through Mission	inhumation w/o burning
174	1		Late through Mission	Late through Mission	inhumation w/o burning
176	1		Mission	Protohistoric through Mission	inhumation w/o burning
177	1	1	Mission	late Mission	inhumation w/o burning
180	1		unknown	Intermediate through Mission	inhumation w/o burning
181	1	2	Mission	late Mission	inhumation w/o burning
183	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
184	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
185	1	1	Mission	Protohistoric through Mission	partial cremation
186	1	3	late Intermediate through Mission	late Intermediate through Mission	inhumation w/o burning
187	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
188	1	2	unknown	Intermediate through Mission	inhumation w/o burning
191	1		Mission	Protohistoric through Mission	inhumation w/o burning
194	1		Late through Mission	Late through Mission	full cremation
196	2	1	Mission	late Mission	inhumation w/o burning
197	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
204	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
206	1	1	Mission	Protohistoric through Mission	inhumation w/o burning

Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
207	1	1	Late through Mission	Late through Mission	inhumation w/o burning
209	1	2	late Intermediate through Mission	late Intermediate through Mission	inhumation w/o burning
210	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
211	1	1	Late through Protohistoric	Late through Protohistoric	inhumation w/o burning
212	1	3	Late through Mission	Late through Mission	inhumation w/o burning
213	1	1	Late through Mission	Late through Mission	inhumation w/o burning
214	1		Late	Late	inhumation w/o burning
215	1	2	Late through Mission	Late through Mission	inhumation w/o burning
216	1	5	Mission	Protohistoric through Mission	inhumation w/ burning
218	1	2	Mission	late Mission	inhumation w/o burning
219	1		Late through Mission	Late through Mission	inhumation w/o burning
221	1		Mission	Protohistoric through Mission	partial cremation
222	1	3	Mission	late Mission	inhumation w/o burning
223	1	7	Mission	late Mission	inhumation w/o burning
225	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
227	1	4	Mission	late Mission	inhumation w/o burning
228	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
231	1	2	Late through Mission	Late through Mission	partial cremation
233	1		Late through Protohistoric	Late through Protohistoric	inhumation w/o burning
234	1	2	Late through Mission	Late through Mission	inhumation w/ burning
237	1		Mission	late Mission	inhumation w/o burning
239	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
240	1	4	Late through Mission	Late through Mission	inhumation w/o burning
241	1		unknown	Intermediate through Mission	full cremation
243	1	1	Mission	late Mission	inhumation w/o burning
244	1	2	Mission	Protohistoric through Mission	inhumation w/o burning

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Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
245	1	3	unknown	Intermediate through Mission	inhumation w/ burning
247	1		unknown	Intermediate through Mission	inhumation w/o burning
248	1	8	Late through Protohistoric	Late through Protohistoric	inhumation w/o burning
249	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
250	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
253	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
256	1	2	Late through Mission	Late through Mission	inhumation w/o burning
260	1	4	Late through Mission	Late through Mission	inhumation w/o burning
261	1		Mission	late Mission	inhumation w/o burning
262	1	2	Late through Mission	Late through Mission	inhumation w/o burning
263	1		Mission	Protohistoric through Mission	inhumation w/o burning
265	1		Mission	late Mission	inhumation w/o burning
266	1		Late through Mission	Late through Mission	inhumation w/o burning
267	1	1	Late through Mission	Late through Mission	inhumation w/o burning
268	1	2	Mission	late Mission	inhumation w/o burning
269	1		Late through Mission	Late through Mission	inhumation w/o burning
270	1		Late through Mission	Late through Mission	inhumation w/o burning
271	1	3	Late through Mission	Late through Mission	inhumation w/o burning
273	1		Mission	Protohistoric through Mission	full cremation
274	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
275	1	1	unknown	Intermediate through Mission	inhumation w/o burning
276	1		Mission	late Mission	inhumation w/o burning
277	1		Mission	late Mission	inhumation w/o burning
278	1	2	Mission	late Mission	inhumation w/o burning
282	1	2	Mission	late Mission	inhumation w/o burning
284	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
287	1		Mission	Protohistoric through Mission	inhumation w/o burning

Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
288	1		Late through Mission	Late through Mission	inhumation w/o burning
289	1		Mission	Protohistoric through Mission	inhumation w/o burning
292	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
294	1		Late through Mission	Late through Mission	inhumation w/o burning
295	1	2	Late through Mission	Late through Mission	inhumation w/o burning
300	1	1	Late through Mission	Late through Mission	inhumation w/o burning
302	1		unknown	Intermediate through Mission	inhumation w/o burning
304	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
306	1		Mission	late Mission	inhumation w/o burning
308	1		Mission	Protohistoric through Mission	inhumation w/o burning
309	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
311	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
312	1	2	Late through Mission	Late through Mission	partial cremation
313	2	1	Mission	late Mission	inhumation w/o burning
314	1	2	Late through Mission	Late through Mission	inhumation w/o burning
316	1	2	Late through Mission	Late through Mission	inhumation w/o burning
317	1		Mission	Protohistoric through Mission	inhumation w/o burning
318	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
319	1	3	Mission	late Mission	inhumation w/o burning
320	1		Mission	Protohistoric through Mission	inhumation w/o burning
323	1		Mission	late Mission	inhumation w/o burning
325	1		unknown	Intermediate through Mission	inhumation w/o burning
326	1	2	unknown	Intermediate through Mission	inhumation w/o burning
327	1		Mission	late Mission	inhumation w/o burning
329	1		late Intermediate through Mission	late Intermediate through Mission	inhumation w/o burning
332	1	1	Mission	Protohistoric through Mission	inhumation w/o burning

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Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
334	1	6	Mission	Protohistoric through Mission	inhumation w/o burning
336	1	1	Protohistoric through Mission	Protohistoric through Mission	inhumation w/o burning
339	1	1	Late through Mission	Late through Mission	inhumation w/o burning
341	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
344	1	2	Mission	late Mission	inhumation w/o burning
346	1	2	Late through Mission	Late through Mission	partial cremation
347	1		Late through Mission	Late through Mission	inhumation w/o burning
349	1		Mission	Protohistoric through Mission	inhumation w/o burning
353	1	2	Late through Mission	Late through Mission	inhumation w/o burning
355	1	4	Late through Mission	Late through Mission	inhumation w/o burning
358	1	2	Late through Mission	Late through Mission	inhumation w/o burning
359	1	2	Mission	late Mission	inhumation w/o burning
363	1		Mission	Protohistoric through Mission	full cremation
364	1		unknown	Intermediate through Mission	partial cremation
367	1		Mission	late Mission	inhumation w/o burning
368	1	1	Late through Mission	Late through Mission	inhumation w/o burning
370	3	4	Mission	Protohistoric through Mission	inhumation w/o burning
371	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
372	1	2	Mission	late Mission	inhumation w/o burning
375	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
376	2	1	unknown	Intermediate through Mission	inhumation w/o burning
386	1		unknown	Intermediate through Mission	inhumation w/o burning
392	1	2	Late	Late	inhumation w/o burning
396	1	1	Late through Mission	Late through Mission	inhumation w/o burning
397	1		Mission	Protohistoric through Mission	inhumation w/o burning
398	1	3	Late through Mission	Late through Mission	inhumation w/o burning
405	1	3	Late through Mission	Late through Mission	inhumation w/o burning

Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
406	1		Mission	Protohistoric through Mission	partial cremation
408	1	1	Mission	late Mission	inhumation w/o burning
409	1		Late through Protohistoric	Late through Protohistoric	inhumation w/o burning
410	1		Late through Mission	Late through Mission	partial cremation
412	1	2	Late through Mission	Late through Mission	inhumation w/o burning
415	1	2	Mission	late Mission	inhumation w/o burning
417	1	6	Late through Protohistoric	Late through Protohistoric	inhumation w/o burning
423	1		Mission	Protohistoric through Mission	inhumation w/o burning
426	1		Late through Mission	Late through Mission	partial cremation
427	1	1	Late through Mission	Late through Mission	inhumation w/o burning
428	1		Mission	Protohistoric through Mission	inhumation w/o burning
429	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
430	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
435	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
438	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
439	1		unknown	Intermediate through Mission	inhumation w/ burning
440	1		Late through Mission	Late through Mission	inhumation w/o burning
444	1	2	Protohistoric through Mission	Protohistoric through Mission	inhumation w/o burning
447	1		Mission	Protohistoric through Mission	inhumation w/o burning
455	1	1	unknown	Intermediate through Mission	inhumation w/o burning
459	1		Mission	Protohistoric through Mission	inhumation w/o burning
461	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
472	1		Mission	Protohistoric through Mission	inhumation w/o burning
473	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
476	1	3	Late through Mission	Late through Mission	inhumation w/o burning
477	1	5	Mission	Protohistoric through Mission	inhumation w/o burning

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Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
481	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
493	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
494	1		Late through Protohistoric	Late through Protohistoric	inhumation w/o burning
496	1	3	unknown	Intermediate through Mission	inhumation w/o burning
498	1	1	Mission	late Mission	inhumation w/o burning
499	1		Late through Mission	Late through Mission	inhumation w/o burning
500	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
501	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
505	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
508	1	3	Protohistoric through Mission	Protohistoric through Mission	inhumation w/o burning
511	1		late Intermediate through Mission	late Intermediate through Mission	inhumation w/o burning
512	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
513	1		prehistoric	Intermediate through Mission	inhumation w/o burning
515	1	1	unknown	Intermediate through Mission	inhumation w/o burning
516	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
522	1		Mission	Protohistoric through Mission	inhumation w/o burning
523	1		Mission	Protohistoric through Mission	inhumation w/o burning
525	1	3	Late	Late	inhumation w/o burning
526	1	2	Late through Mission	Late through Mission	inhumation w/o burning
529	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
533	1	2	Late through Mission	Late through Mission	inhumation w/o burning
537	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
538	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
543	1	2	Mission	Protohistoric through Mission	inhumation w/o burning
547	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
550	1		unknown	Intermediate through Mission	inhumation w/o burning
551	1	1	unknown	Intermediate through Mission	inhumation w/o burning

Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
554	1	3	unknown	Intermediate through Mission	inhumation w/o burning
558	1	7	unknown	Intermediate through Mission	inhumation w/o burning
562	1		Protohistoric through Mission	Protohistoric through Mission	inhumation w/o burning
564	1		unknown	Intermediate through Mission	inhumation w/o burning
565	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
568	1	1	Mission	Protohistoric through Mission	inhumation w/o burning
570	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
576	1	1	Late through Mission	Late through Mission	inhumation w/o burning
577	1	1	unknown	Intermediate through Mission	inhumation w/o burning
579	1	2	unknown	Intermediate through Mission	inhumation w/o burning
580	1	6	unknown	Intermediate through Mission	inhumation w/o burning
581	1		Late through Mission	Late through Mission	inhumation w/o burning
583	1		unknown	Intermediate through Mission	inhumation w/o burning
584	1	5	Mission	Protohistoric through Mission	inhumation w/o burning
586	1		unknown	Intermediate through Mission	inhumation w/o burning
587	1		Mission	Protohistoric through Mission	full cremation
589	1	1	Protohistoric through Mission	Protohistoric through Mission	inhumation w/o burning
591	1		unknown	Intermediate through Mission	inhumation w/o burning
593	1	2	unknown	Intermediate through Mission	inhumation w/o burning
594	1	2	unknown	Intermediate through Mission	inhumation w/o burning
600	1	4	Late through Mission	Late through Mission	inhumation w/o burning
601	1	3	Mission	Protohistoric through Mission	inhumation w/o burning
606	1	3	Late through Mission	Late through Mission	inhumation w/o burning
611	1		Late through Mission	Late through Mission	inhumation w/o burning
613	1	4	Mission	Protohistoric through Mission	inhumation w/o burning
615	1		Late through Mission	Late through Mission	inhumation w/o burning

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Burial Feature No.	No. of Primary Individuals	No. of Additional Individuals[a]	Originally Assigned Period (see Volume 4)	Refined Period Based on Further Analyses (this chapter)	Burial Type
631	1	1	unknown	Intermediate through Mission	inhumation w/o burning
653	1		unknown	Intermediate through Mission	inhumation w/o burning
667	1		unknown	Intermediate through Mission	inhumation w/o burning

Key: Inhumation w/ burning = inhumation with incidental burning; inhumation w/o burning = inhumation without incidental burning. For definitions of burial types, see Chapter 6, this volume.

[a] No. of Additional Individuals is the number of nonprimary individuals found during the recovery of a burial. During analysis, some of these individuals were found to be components of an individual from a nearby burial feature. Although the reassigned individuals are not listed in Appendix 6.3, thus giving the appearance of individuals missing from the numbering sequence in that appendix, the number of additional individuals found during recovery is preserved in this appendix and Appendix 6.2 to provide a more accurate representation of minimum number of individuals (MNI) of a given burial feature at the time of discovery. The reader is directed to Volume 4, Appendix M of this series for detailed information regarding individual burial features.

APPENDIX 6.2

Mission Period Burial Features with Primary Individuals at LAN-62

Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
5	69	1	3	P	adult female	west	south	left side	inhumation w/o burning	fully flexed
6	154	1		P	adult female	west	south	left side	inhumation w/o burning	fully flexed
7	101	1	1	P	adult female	indeterminate	southeast	right side	inhumation w/o burning	fully flexed
8	98	1		P	adult indeterminate sex	southeast	northeast	left side	inhumation w/o burning	semiflexed
10	723	1	3	P	adult female	west	south	left side	inhumation w/o burning	indeterminate
11	811	1	3	P	adult female	northwest	southeast	supine	inhumation w/o burning	fully flexed
13	2,538	1	3	P	adult female	west	southeast	left side	inhumation w/o burning	fully flexed
14	5,883	1	3	P	adult male	southwest	southeast	left side	inhumation w/o burning	fully flexed
28	8	1	3	P	adult male	southwest	west	prone	inhumation w/o burning	fully flexed
31	845	1		P	adult female	down	southeast	prone	inhumation w/o burning	fully flexed
32	3	1	1	P	adult female	southeast	south	right side	inhumation w/o burning	fully flexed
34	207	1	3	P	adult indeterminate sex	indeterminate	southeast	left side	inhumation w/ burning	fully flexed
37	2	1		P	adult female	northeast	west	left side	inhumation w/o burning	fully flexed
38	7,021	2	3	P1	adult female	south	northwest	left side	inhumation w/o burning	fully flexed
38				P2	adult indeterminate sex	south	east	left side	inhumation w/o burning	fully flexed
42	216	1	3	P	adult male	northwest	southeast	left side	inhumation w/o burning	fully flexed
46	17	1		P	adult male	indeterminate	west	supine	inhumation w/o burning	indeterminate
50	1,718	1	2	P	adult indeterminate sex	west	southeast	left side	inhumation w/o burning	fully flexed
52	26	1		P	adult female	west	southeast	prone	inhumation w/o burning	fully flexed
53	11	1		P	adult female	west	southeast	left side	inhumation w/o burning	fully flexed
54	1	1	2	P	adult male	down	east	right side	inhumation w/o burning	semiflexed
57	56	1	1	P	adult female	south	southwest	prone	inhumation w/o burning	fully flexed
58	62	1	3	P	adult female	west	southeast	left side	inhumation w/o burning	semiflexed

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Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
59	62	1	2	P	adult female	southwest	east	left side	inhumation w/o burning	fully flexed
60	191	1	1	P	adult male	northwest	south	left side	inhumation w/o burning	semiflexed
61	13	1	1	P	adult female	northeast	southeast	prone	inhumation w/o burning	fully flexed
63	4	1		P	adult male				inhumation w/o burning	semiflexed
64	8	1		P	adult female	indeterminate	north	supine	inhumation w/o burning	semiflexed
66	2	1	1	P	adult male	west	east	left side	inhumation w/o burning	indeterminate
69	206	1	2	P	adult female	west	south	left side	inhumation w/o burning	fully flexed
76	6,391	1	2	P	adult male	northwest	east	left side	inhumation w/o burning	fully flexed
80	3	1		P	adult male	down	southeast	prone	inhumation w/o burning	fully flexed
82	14	1		P	adult indeterminate sex	indeterminate	southeast	left side	inhumation w/o burning	fully flexed
85	1,088	1	2	P	adult indeterminate sex	northwest	southeast	left side	inhumation w/o burning	fully flexed
90	1,926	1		P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
91	4	1	2	P	subadult indeterminate sex	indeterminate	indeterminate	indeterminate	full cremation	secondary
96	884	1	1	P	fetus/infant indeterminate sex	up	west	indeterminate	inhumation w/o burning	indeterminate
98	2	1	2	P	adult female	north	southwest	left side	inhumation w/o burning	fully flexed
100	10	1	4	P	adult female	northeast	southwest	right side	inhumation w/o burning	fully flexed
101	56	1		P	adult female	west	southeast	left side	inhumation w/o burning	fully flexed
103	42	1		P	adult female	west	southeast	supine	inhumation w/o burning	fully flexed
104	22	1	1	P	adult female	south	east	supine	inhumation w/o burning	fully flexed
105	5,073	1		P	fetus/infant indeterminate sex	indeterminate	southwest	supine	inhumation w/o burning	indeterminate
108	6	1	3	P	adult male	up	west	prone	partial cremation	primary
109	9	1	3	P	adult male	up	east	supine	inhumation w/o burning	extended

Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
110	336	1	2	P	adult female	east	southwest	right side	inhumation w/o burning	indeterminate
118	5	1		P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
120	70	1	4	P	adult indeterminate sex	west	east	prone	inhumation w/o burning	fully flexed
121	9	1		P	adult female	south	east	left side	inhumation w/o burning	fully flexed
123	4	1	2	P	adult female	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
128	8	1	1	P	adult indeterminate sex	southeast	west	right side	inhumation w/o burning	fully flexed
134	138	1	3	P	adult male	southwest	east	left side	inhumation w/o burning	semiflexed
143	608	1	2	P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
144	8	2	2	P1	child indeterminate sex	down	indeterminate	indeterminate	inhumation w/o burning	indeterminate
144				P2	adult indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	fully flexed
149	18	1	5	P	adult male	indeterminate	indeterminate	indeterminate	inhumation w/o burning	flexed, degree indeterminate
150	5	1		P	adult indeterminate sex	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate
152	114	1		P	adult female	south	southwest	left side	inhumation w/o burning	fully flexed
153	46	1	1	P	adult indeterminate sex	west	south	left side	inhumation w/o burning	fully flexed
154	4	1		P	indeterminate age female	indeterminate	northwest	indeterminate	inhumation w/o burning	indeterminate
155	3,518	1	3	P	adult female	down	southeast	left side	inhumation w/o burning	fully flexed
164	3	1	1	P	indeterminate age female	indeterminate	southeast	left side	inhumation w/o burning	fully flexed

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Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
165	1,365	1	1	P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
170	870	1	1	P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
172	35	1	2	P	child indeterminate sex	indeterminate	east	left side	inhumation w/o burning	semiflexed
173	14	2		P1	adult female	down	southeast	prone	inhumation w/o burning	fully flexed
173				P2	adult female	northwest	west	left side	inhumation w/o burning	fully flexed
176	13	1		P	adult indeterminate sex	west	north	left side	inhumation w/o burning	fully flexed
177	26	1	1	P	adult male	indeterminate	southeast	prone	inhumation w/o burning	fully flexed
181	67	1	2	P	child indeterminate sex	west	northwest	supine	inhumation w/o burning	indeterminate
183	14	1	2	P	adult female	down	southeast	right side	inhumation w/o burning	fully flexed
184	11	1	1	P	adult male	southeast	north	left side	inhumation w/o burning	semiflexed
185	9	1	1	P	subadult indeterminate sex	indeterminate	indeterminate	indeterminate	partial cremation	primary
187	41	1	2	P	adult male	east	north	left side	inhumation w/o burning	fully flexed
191	68	1		P	adult male	northwest	southeast	right side	inhumation w/o burning	semiflexed
196	558	2	1	P1	adult female	southeast	southwest	left side	inhumation w/o burning	indeterminate
196				P2	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
197	12	1	1	P	adult indeterminate sex	down	northwest	prone	inhumation w/o burning	fully flexed
204	1,916	1	4	P	adult female	east	south	left side	inhumation w/o burning	fully flexed
206	3	1	1	P	adult male	east	south	right side	inhumation w/o burning	fully flexed
210	86	1	4	P	adult female	up	south	left side	inhumation w/o burning	fully flexed
216	43	1	5	P	adult female	northwest	southeast	right side	inhumation w/ burning	fully flexed
218	146	1	2	P	adult female	east	south	right side	inhumation w/o burning	fully flexed

Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
221	7	1		P	adult female	indeterminate	indeterminate	indeterminate	partial cremation	primary
222	3,810	1	3	P	fetus/infant indeterminate sex	down	east	prone	inhumation w/o burning	indeterminate
223	2,001	1	7	P	adult female	west	south	left side	inhumation w/o burning	flexed, degree indeterminate
225	249	1	3	P	adult indeterminate sex	north	south	left side	inhumation w/o burning	fully flexed
227	665	1	4	P	adult female	west	east	right side	inhumation w/o burning	semiflexed
228	7	1	1	P	adult male	northwest	east	right side	inhumation w/o burning	fully flexed
237	64	1		P	adult male	indeterminate	east	right side	inhumation w/o burning	fully flexed
239	31	1	3	P	adult female	northwest	northeast	right side	inhumation w/o burning	fully flexed
243	602	1	1	P	adult indeterminate sex	west	south	left side	inhumation w/o burning	fully flexed
244	2,203	1	2	P	adult female	down	south	left side	inhumation w/o burning	flexed, degree indeterminate
249	5	1	1	P	adult female	southwest	northeast	left side	inhumation w/o burning	fully flexed
250	41	1	4	P	adult female	down	southeast	left side	inhumation w/o burning	fully flexed
253	6	1	1	P	adult male	north	southeast	right side	inhumation w/o burning	fully flexed
261	86	1		P	adult male	east	southwest	right side	inhumation w/o burning	fully flexed
263	2	1		P	adult indeterminate sex	indeterminate	south	right side	inhumation w/o burning	flexed, degree indeterminate
265	2,293	1		P	adult female	northwest	southeast	right side	inhumation w/o burning	fully flexed
268	625	1	2	P	adult female	east	south	right side	inhumation w/o burning	fully flexed
273	412	1		P	adult indeterminate sex	indeterminate	indeterminate	indeterminate	full cremation	primary
274	24	1	1	P	adult female	down	northeast	prone	inhumation w/o burning	semiflexed
276	1,777	1		P	child indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate

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Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
277	195	1		P	adult male	north	east	right side	inhumation w/o burning	fully flexed
278	14	1	2	P	subadult female	west	southeast	left side	inhumation w/o burning	fully flexed
282	1,261	1	2	P	adult male	northwest	southeast	left side	inhumation w/o burning	fully flexed
284	21	1	1	P	adult female	north	east	right side	inhumation w/o burning	fully flexed
287	14	1		P	adult male	northeast	southeast	right side	inhumation w/o burning	fully flexed
289	21	1		P	adult female	northwest	west	left side	inhumation w/o burning	fully flexed
292	17	1	2	P	adult female	up	northwest	supine	inhumation w/o burning	semiflexed
304	23	1	4	P	adult male	west	northeast	left side	inhumation w/o burning	fully flexed
306	23	1		P	adult female	southeast	south	prone	inhumation w/o burning	fully flexed
308	14	1		P	adult male	northwest	northwest	right side	inhumation w/o burning	fully flexed
309	16	1	1	P	adult female	west	east	right side	inhumation w/o burning	fully flexed
311	17	1	1	P	adult female	down	northeast	prone	inhumation w/o burning	fully flexed
313	5,108	2	1	P1	adult indeterminate sex	west	east	left side	inhumation w/o burning	fully flexed
313				P2	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
317	3	1		P	adult female	northwest	southwest	left side	inhumation w/o burning	fully flexed
318	2	1	1	P	adult indeterminate sex	down	west	right side	inhumation w/o burning	semiflexed
319	449	1	3	P	adult male	east	southeast	prone	inhumation w/o burning	fully flexed
320	234	1		P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
323	449	1		P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
327	3,976	1		P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
332	13	1	1	P	adult indeterminate sex	north	southeast	right side	inhumation w/o burning	fully flexed

Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
334	856	1	6	P	adult indeterminate sex	down	southeast	left side	inhumation w/o burning	fully flexed
341	20	1	2	P	adult female	northwest	southwest	right side	inhumation w/o burning	fully flexed
344	60	1	2	P	adult indeterminate sex	north	west	left side	inhumation w/o burning	semiflexed
349	12	1		P	adult male	west	southeast	left side	inhumation w/o burning	fully flexed
359	32	1	2	P	adult female	west	southeast	left side	inhumation w/o burning	fully flexed
363	225	1		P	adult indeterminate sex	indeterminate	indeterminate	indeterminate	full cremation	indeterminate
367	32	1		P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
370	74	3	4	P1	adult male	north	southeast	right side	inhumation w/o burning	semiflexed
370				P2	adult male	southwest	northeast	left side	inhumation w/o burning	fully flexed
370				P3	child indeterminate sex	indeterminate	southeast	indeterminate	inhumation w/o burning	indeterminate
371	10	1	2	P	adult female	indeterminate	northeast	right side	inhumation w/o burning	semiflexed
372	110	1	2	P	adult indeterminate sex	indeterminate	southeast	indeterminate	inhumation w/o burning	fully flexed
375	32	1	1	P	adult female	down	southeast	left side	inhumation w/o burning	fully flexed
397	69	1		P	adult female	southwest	northeast	left side	inhumation w/o burning	fully flexed
406	20	1		P	adult female	southwest	indeterminate	indeterminate	partial cremation	indeterminate
408	6,540	1	1	P	adult female	northwest	south	left side	inhumation w/o burning	fully flexed
415	169	1	2	P	subadult indeterminate sex	down	northwest	left side	inhumation w/o burning	fully flexed
423	9	1		P	adult indeterminate sex	indeterminate	west	right side	inhumation w/o burning	fully flexed
428	13	1		P	adult female	east	south	right side	inhumation w/o burning	fully flexed

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Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
429	28	1	1	P	subadult indeterminate sex	down	southeast	prone	inhumation w/o burning	semiflexed
430	87	1	1	P	adult indeterminate sex	southwest	east	left side	inhumation w/o burning	fully flexed
435	20	1	3	P	adult male	east	south	right side	inhumation w/o burning	fully flexed
438	1,441	1	2	P	adult female	north	southeast	right side	inhumation w/o burning	fully flexed
447	10	1		P	adult female	south	east	left side	inhumation w/o burning	fully flexed
459	15	1		P	adult female	south	northeast	left side	inhumation w/o burning	fully flexed
461	234	1	2	P	subadult indeterminate sex	down	indeterminate	indeterminate	inhumation w/o burning	indeterminate
472	3	1		P	adult indeterminate sex	west	east	right side	inhumation w/o burning	fully flexed
473	3	1	1	P	fetus/infant indeterminate sex	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
477	22	1	5	P	adult female	indeterminate	indeterminate	supine	inhumation w/o burning	fully flexed
481	4	1	1	P	adult female	north	east	prone	inhumation w/o burning	fully flexed
493	9	1	2	P	adult female	east	southwest	right side	inhumation w/o burning	fully flexed
498	69	1	1	P	adult indeterminate sex	south	east	left side	inhumation w/o burning	fully flexed
500	6	1	1	P	adult male	down	west	prone	inhumation w/o burning	fully flexed
501	12	1	3	P	adult indeterminate sex	northwest	northwest	left side	inhumation w/o burning	semiflexed
505	26	1	2	P	adult female	southwest	southeast	supine	inhumation w/o burning	semiflexed
512	53	1	2	P	adult female	indeterminate	south	right side	inhumation w/o burning	fully flexed
516	2,785	1	3	P	adult indeterminate sex	indeterminate	southeast	left side	inhumation w/o burning	fully flexed
522	20	1		P	adult male	down	northeast	prone	inhumation w/o burning	fully flexed
523	7	1		P	adult indeterminate sex	southeast	east	left side	inhumation w/o burning	fully flexed

Burial Feature No.	Total Grave Goods	No. of Primary Individuals	No. of Additional Individuals[a]	Individual ID[b]	Age and Sex[c]	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
529	42	1	1	P	adult indeterminate sex	indeterminate	east	left side	inhumation w/o burning	fully flexed
537	27	1	4	P	adult female	southeast	east	left side	inhumation w/o burning	semiflexed
538	14	1	3	P	adult indeterminate sex	south	east	left side	inhumation w/o burning	fully flexed
543	13	1	2	P	adult male	down	east	prone	inhumation w/o burning	extended
547	6	1	4	P	adult female	indeterminate	northeast	right side	inhumation w/o burning	fully flexed
565	89	1	3	P	subadult indeterminate sex	northwest	northwest	left side	inhumation w/o burning	fully flexed
568	1	1	1	P	child indeterminate sex	up	south	supine	inhumation w/o burning	extended
570	11	1	3	P	adult female	indeterminate	southeast	right side	inhumation w/o burning	semiflexed
584	97	1	5	P	adult indeterminate sex	indeterminate	indeterminate	right side	inhumation w/o burning	flexed, degree indeterminate
587	13	1		P	indeterminate age and sex	indeterminate	indeterminate	indeterminate	full cremation	secondary
601	22	1	3	P	adult indeterminate sex	southwest	northeast	right side	inhumation w/o burning	fully flexed
613	11	1	4	P	adult indeterminate sex	southwest	east	left side	inhumation w/o burning	fully flexed

Key: Inhumation w/ burning = inhumation with incidental burning; inhumation w/o burning = inhumation without incidental burning. For explanations of burial types, see Chapter 6, this volume.

[a] No. of Additional Individuals is the number of nonprimary individuals found during the recovery of a burial. During analysis, some of these individuals were found to be components of an individual from a nearby burial feature. Although the reassigned individuals are not listed in Appendix 6.3, thus giving the appearance of individuals missing from the numbering sequence in that appendix, the number of additional individuals found during recovery is preserved in Appendixes 6.1 and 6.2 to provide a more accurate representation of minimum number of individuals (MNI) of a given burial feature at the time of discovery. The reader is directed to Volume 4, Appendix M, of this series for detailed information regarding individual burial features.

[b] P = primary individual; P1 = primary individual 1; P2 = primary individual 2.

[c] Individuals listed as “cf. female” or “cf. male” in Appendix 6.3 are listed here as “female” and “male,” respectively. “cf. female” individuals were counted as “female” and “cf. male” individuals as “male” throughout the mortuary analysis.

APPENDIX 6.3

Mortuary Attributes of Individuals in Burial Features at LAN-62

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
4	P	25	35	cf. female	low	low	west	south	supine	inhumation w/o burning	fully flexed
5	1	3	10	indeterminate	indeterminate	none					
5	2	0.75	1.2	indeterminate	indeterminate	none					
5	3	18	35	indeterminate	indeterminate	none					
5	P	20	30	female	high	high	west	south	left side	inhumation w/o burning	fully flexed
6	P	25	35	cf. female	low	not recorded	west	south	left side	inhumation w/o burning	fully flexed
7	1	20	30	indeterminate	indeterminate	none					
7	P	18	25	cf. female	medium	high	indeterminate	southeast	right side	inhumation w/o burning	fully flexed
8	P	25	35	indeterminate	low	high	southeast	northeast	left side	inhumation w/o burning	semiflexed
9	1	17	25	cf. female	indeterminate	none					
9	2	7 (MIU)	birth	indeterminate	indeterminate	none					
9	3	18	99	cf. male	indeterminate	none					
9	4	18	99	indeterminate	indeterminate	none					
9	5	6	7	indeterminate	indeterminate	none					
10	1	1.5	2	indeterminate	indeterminate	none					
10	2	18	34	indeterminate	indeterminate	none					
10	3	0.25	0.75	indeterminate	indeterminate	none					
10	P	30	40	cf. female	medium	medium	west	south	left side	inhumation w/o burning	indeterminate
11	1	3	5	indeterminate	indeterminate	none					
11	2			indeterminate	indeterminate	none					
11	3	18	99	indeterminate	indeterminate	indeterminate					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
11	P	20	30	female	medium	not recorded	northwest	southeast	supine	inhumation w/o burning	fully flexed
13	1	18	99	indeterminate	none	none	indeterminate	indeterminate	indeterminate	indeterminate	indeterminate
13	2	18	99	indeterminate	indeterminate	none					
13	3			indeterminate	indeterminate	none					
13	P	25	35	female	medium	medium	west	southeast	left side	inhumation w/o burning	fully flexed
14	1	2	4	indeterminate	indeterminate	none					
14	2	15	25	indeterminate	not recorded	none					
14	3			indeterminate	indeterminate	none					
14	P	40	55	cf. male	low	medium	southwest	southeast	left side	inhumation w/o burning	fully flexed
20	1	25	35	indeterminate	indeterminate	none					
20	2	8.5	12	indeterminate	indeterminate	none					
20	3			indeterminate	indeterminate	none					
20	P	25	35	female	high	high	east	south	right side	inhumation w/o burning	fully flexed
23	P	20	30	cf. female	low	none	north	southwest	left side	inhumation w/o burning	fully flexed
24	1	0.5	1.3	indeterminate	indeterminate	indeterminate					
24	P1	28	78	male	indeterminate	high	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate
24	P2	18	99	indeterminate	indeterminate	high	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate
26	P	20	30	female	low	none	southeast	northwest	right side	inhumation w/o burning	fully flexed
28	1	1	2	indeterminate	indeterminate	none					
28	2	9	11	indeterminate	indeterminate	none					
28	3	18	99	indeterminate	indeterminate	indeterminate					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
28	P	25	35	male	not recorded	not recorded	southwest	west	prone	inhumation w/o burning	fully flexed
31	P	28	40	cf. female	not recorded	not recorded	down	southeast	prone	inhumation w/o burning	fully flexed
32	1			indeterminate	indeterminate	not recorded					
32	P	18	45	cf. female	low	not recorded	southeast	south	right side	inhumation w/o burning	fully flexed
33	1	25	35	cf. male	indeterminate	none					
33	2	18	99	indeterminate	indeterminate	none					
34	1	18	99	indeterminate	indeterminate	indeterminate					
34	2	1	3	indeterminate	indeterminate	none					
34	3	35	45	indeterminate	indeterminate	none					
34	P	20	30	indeterminate	not recorded	not recorded	indeterminate	southeast	left side	inhumation w/ burning	fully flexed
36	1	12	17	indeterminate	indeterminate	indeterminate					
36	P	35	55	cf. male	medium	medium	northeast	southeast	left side	inhumation w/o burning	fully flexed
37	P	20	35	female	low	not recorded	northeast	west	left side	inhumation w/o burning	fully flexed
38	1	20	30	cf. female	indeterminate	none					
38	2	16	22	cf. male	indeterminate	none					
38	3	18	99	indeterminate	indeterminate	indeterminate					
38	P1	20	30	female	high	high	south	northwest	left side	inhumation w/o burning	fully flexed
38	P2	20	30	indeterminate	not recorded	not recorded	south	east	left side	inhumation w/o burning	fully flexed
39	1	35	45	cf. male	indeterminate	none					
39	2	17	25	indeterminate	indeterminate	none				indeterminate	indeterminate

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
39	3	30	40	cf. male	indeterminate	none					
40	P	6	7	indeterminate	low	not recorded	southwest	northwest	indeterminate	inhumation w/o burning	indeterminate
41	1			cf. female	indeterminate	none					
42	1	18	99	indeterminate	indeterminate	none					
42	2	18	99	indeterminate	indeterminate	none					
42	3	0	0.25	indeterminate	indeterminate	none					
42	P	20	40	cf. male	medium	high	northwest	southeast	left side	inhumation w/o burning	fully flexed
46	P	40	99	male	low	high	indeterminate	west	supine	inhumation w/o burning	indeterminate
49	P	35	45	female	medium	high	north	southeast	supine	inhumation w/o burning	fully flexed
50	1	15	18	indeterminate	indeterminate	indeterminate					
50	2	20	24	indeterminate	indeterminate	none					
50	P	20	30	indeterminate	low	low	west	southeast	left side	inhumation w/o burning	fully flexed
52	P	30	40	female	medium	high	west	southeast	prone	inhumation w/o burning	fully flexed
53	P	35	43	cf. female	medium	medium	west	southeast	left side	inhumation w/o burning	fully flexed
54	1	35	45	female	none	none					
54	2	18	99	indeterminate	indeterminate	indeterminate					
54	P	30	40	male	high	high	down	east	right side	inhumation w/o burning	semiflexed
55	1	18	99	cf. male	none	low					
55	2	13	17	indeterminate	indeterminate	none					
56	1	25	35	cf. female	none	none					
57	1	7	11	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
57	P	25	35	cf. female	medium	high	south	southwest	prone	inhumation w/o burning	fully flexed
58	1	25	35	indeterminate	indeterminate	none					
58	2	15	20	indeterminate	indeterminate	none					
58	3	2	8	indeterminate	indeterminate	none					
58	P	20	30	cf. female	high	high	west	southeast	left side	inhumation w/o burning	semiflexed
59	1	18	99	cf. female	indeterminate	none					
59	2	18	99	indeterminate	indeterminate	none					
59	P	20	30	female	high	medium	southwest	east	left side	inhumation w/o burning	fully flexed
60	1			indeterminate	indeterminate	none					
60	P	20	30	cf. male	high	high	northwest	south	left side	inhumation w/o burning	semiflexed
61	1	16	20	cf. male	indeterminate	medium				partial cremation	indeterminate
61	P	40	99	female	medium	high	northeast	southeast	prone	inhumation w/o burning	fully flexed
63	P	25	35	male	medium	high				inhumation w/o burning	semiflexed
64	P	18	99	female	low	low	indeterminate	north	supine	inhumation w/o burning	semiflexed
65	1	30	40	indeterminate	indeterminate	none					
65	2	1	2	indeterminate	indeterminate	none					
65	3			indeterminate	indeterminate	none					
66	1	1.5	4	indeterminate	indeterminate	none					
66	P	20	25	cf. male	low	low	west	east	left side	inhumation w/o burning	indeterminate

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
67	1	17	25	indeterminate	indeterminate	none		indeterminate		indeterminate	indeterminate
67	P	18	21	cf. female	medium	high	south	east	left side	inhumation w/o burning	fully flexed
69	1	35	45	cf. male	indeterminate	none					
69	2	30	40	indeterminate	indeterminate	none					
69	P	20	35	female	medium	medium	west	south	left side	inhumation w/o burning	fully flexed
71	1	17	25	indeterminate	indeterminate	none					
73	P	0.9	1.16	indeterminate	low	none	north	east	indeterminate	inhumation w/o burning	indeterminate
74	P	18	99	male	low	medium	indeterminate	southeast	left side	inhumation w/o burning	indeterminate
76	1	20	25	indeterminate	indeterminate	none					
76	2	20	30	female	indeterminate	low					
76	P	23	30	cf. male	high	high	northwest	east	left side	inhumation w/o burning	fully flexed
77	1	18	99	male	indeterminate	none				indeterminate	indeterminate
77	2	35	50	male	indeterminate	indeterminate					
77	3	20	50	cf. male	indeterminate	none					
77	4	1	9	indeterminate	indeterminate	none					
80	P	35	45	male	high	high	down	southeast	prone	inhumation w/o burning	fully flexed
82	P	18	99	indeterminate	medium	high	indeterminate	southeast	left side	inhumation w/o burning	fully flexed
84	P	35	45	cf. female	low	low	west	southeast	indeterminate	inhumation w/o burning	fully flexed
85	1	18	99	indeterminate	indeterminate	none					
85	2	9	11	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
85	P	30	40	indeterminate	medium	high	northwest	southeast	left side	inhumation w/o burning	fully flexed
90	P	0	2	indeterminate	low	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
91	1	18	99	indeterminate	indeterminate	none					
91	2	0	4	indeterminate	indeterminate	none					
91	P	12	17	indeterminate	low	none	indeterminate	indeterminate	indeterminate	full cremation	secondary
94	P	1	3	indeterminate	none	none	indeterminate	indeterminate	indeterminate	full cremation	primary
96	1	18	99	indeterminate	indeterminate	none					
96	P	1.5	2.5	indeterminate	low	low	up	west	indeterminate	inhumation w/o burning	indeterminate
98	1	25	35	indeterminate	indeterminate	none	indeterminate		indeterminate	indeterminate	indeterminate
98	2	10	16	indeterminate	indeterminate	none					
98	P	30	40	cf. female	low	medium	north	southwest	left side	inhumation w/o burning	fully flexed
100	1	30	40	cf. female	none	none	indeterminate	indeterminate	indeterminate	indeterminate	indeterminate
100	2	18	99	indeterminate	indeterminate	none					
100	3	3	4	indeterminate	indeterminate	none					
100	4			indeterminate	indeterminate	none					
100	P	30	40	cf. female	medium	high	northeast	southwest	right side	inhumation w/o burning	fully flexed
101	P	20	25	cf. female	low	medium	west	southeast	left side	inhumation w/o burning	fully flexed
103	P	25	35	female	low	medium	west	southeast	supine	inhumation w/o burning	fully flexed
104	1	2	4	indeterminate	indeterminate	none					
104	P	20	30	female	low	medium	south	east	supine	inhumation w/o burning	fully flexed

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
105	P	7 (MIU)	birth	indeterminate	high	none	indeterminate	southwest	supine	inhumation w/o burning	indeterminate
107	1			indeterminate	indeterminate	indeterminate	indeterminate				
107	P	35	45	male	low	high	north	southeast	right side	inhumation w/o burning	fully flexed
108	1	18	99	cf. female	indeterminate	none				full cremation	indeterminate
108	2	7	12	indeterminate	indeterminate	none					
108	3	2	3	indeterminate	indeterminate	none					
108	P	30	45	male	high	medium	up	west	prone	partial cremation	primary
109	1	12	18	indeterminate	indeterminate	none					
109	2	0.5	0.75	indeterminate	indeterminate	none					
109	3	3	4	indeterminate	indeterminate	none					
109	P	20	30	male	high	high	up	east	supine	inhumation w/o burning	extended
110	1	18	99	indeterminate	indeterminate	none					
110	2	4	8	indeterminate	indeterminate	none					
110	P	20	30	cf. female	medium	high	east	southwest	right side	inhumation w/o burning	indeterminate
112	1	20	25	cf. female	indeterminate	high					
112	2	20	25	cf. female	none	medium	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
112	3	3	4	indeterminate	indeterminate	none					
112	4	25	35	indeterminate	indeterminate	none					
112	5	6.6	7.6	indeterminate	indeterminate	none					
112	6	12	18	indeterminate	indeterminate	none	indeterminate	indeterminate	indeterminate	indeterminate	indeterminate
113	1	18	22	female	indeterminate	none					
113	2	0	1	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
113	3			indeterminate	indeterminate	none					
113	P	20	30	female	medium	high	north	southeast	right side	inhumation w/o burning	fully flexed
117	P	25	39	female	high	high	south	northeast	left side	inhumation w/o burning	fully flexed
118	P	0	1	indeterminate	low	low	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
120	1	18	34	indeterminate	indeterminate	none					
120	2	1	3	indeterminate	indeterminate	none					
120	4			indeterminate	indeterminate	none					
120	P	40	55	indeterminate	high	high	west	east	prone	inhumation w/o burning	fully flexed
121	P	30	40	female	high	high	south	east	left side	inhumation w/o burning	fully flexed
123	1	2	3	indeterminate	indeterminate	none					
123	2	18	99	indeterminate	indeterminate	none					
123	P	18	99	female	low	low	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
125	P	3.5	5	indeterminate	high	high	southwest	east	left side	inhumation w/o burning	semiflexed
126	1	6 (MIU)	birth	indeterminate	indeterminate	none					
126	2	12	17	indeterminate	none	none					
126	3	0.5	0.583	indeterminate	indeterminate	none					
127	1	11	13	indeterminate	indeterminate	indeterminate					
128	1			indeterminate	indeterminate	none					
128	P	20	30	indeterminate	low	medium	southeast	west	right side	inhumation w/o burning	fully flexed

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
131	1	18	99	indeterminate	indeterminate	none					
131	P	9	11	indeterminate	medium	medium	indeterminate	east	right side	inhumation w/o burning	fully flexed
134	1	2	4	indeterminate	indeterminate	none					
134	2	17	22	indeterminate	indeterminate	none					
134	3	30	45	cf. male	indeterminate	none					
134	P	25	35	male	medium	medium	southwest	east	left side	inhumation w/o burning	semiflexed
136	1	3	5	indeterminate	indeterminate	none					
136	2	18	99	indeterminate	indeterminate	none					
136	3	0.5	1	indeterminate	indeterminate	none					
136	P	28	35	male	high	high	north	east	right side	inhumation w/o burning	semiflexed
137	P	25	35	female	medium	medium	south	southeast	left side	inhumation w/o burning	semiflexed
141	1	18	99	cf. female	indeterminate	none					
141	2	18	99	cf. male	indeterminate	none					
143	1	18	22	indeterminate	indeterminate	none					
143	2			indeterminate	indeterminate	none					
143	P	0	1	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
144	1	0	0.5	indeterminate	indeterminate	none					
144	2	12	18	indeterminate	indeterminate	none					
144	P1	5	6	indeterminate	low	low	down	indeterminate	indeterminate	inhumation w/o burning	indeterminate
144	P2	18	99	indeterminate	low	high	indeterminate	indeterminate	indeterminate	inhumation w/o burning	fully flexed
145	1	16	20	indeterminate	indeterminate	none					
145	2			indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
145	P	25	35	female	medium	high	down	northeast	prone	inhumation w/o burning	fully flexed
147	P	18	99	indeterminate	low	medium	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate
148	1	2	7	indeterminate	indeterminate	none					
148	2	20	30	cf. female	indeterminate	none					
148	3	9	12	indeterminate	indeterminate	none					
148	4	2	12	indeterminate	indeterminate	indeterminate					
148	5	18	99	indeterminate	indeterminate	indeterminate					
149	1	6	9	indeterminate	indeterminate	not recorded					
149	2	18	99	indeterminate	indeterminate	none					
149	3	0.5	1.5	indeterminate	indeterminate	none					
149	4	34 (WIU)	34 (WIU)	indeterminate	indeterminate	none					
149	5			indeterminate	indeterminate	none					
149	P	18	99	male	low	medium	indeterminate	indeterminate	indeterminate	inhumation w/o burning	flexed, degree indeterminate
150	P	18	99	indeterminate	medium	medium	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate
152	P	25	40	cf. female	medium	medium	south	southwest	left side	inhumation w/o burning	fully flexed
153	1	25	35	indeterminate	indeterminate	none					
153	P	25	35	indeterminate	low	medium	west	south	left side	inhumation w/o burning	fully flexed
154	P			cf. female	low	high	indeterminate	northwest	indeterminate	inhumation w/o burning	indeterminate
155	1	3.75	6.25	indeterminate	indeterminate	low					
155	3	18	99	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
155	P	30	45	female	low	medium	down	southeast	left side	inhumation w/o burning	fully flexed
156	P	20	30	female	medium	medium	northwest	southwest	indeterminate	inhumation w/o burning	fully flexed
162	1	18	99	indeterminate	indeterminate	none					
162	P	0	1	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
164	1			indeterminate	indeterminate	not recorded					
164	P			female	low	low	indeterminate	southeast	left side	inhumation w/o burning	fully flexed
165	1	18	99	indeterminate	indeterminate	none					
165	P	30 (WIU)	36 (WIU)	indeterminate	medium	low	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
166	P	18	99	male	high	high	indeterminate	east	right side	inhumation w/o burning	fully flexed
167	1	35	39	female	indeterminate	none					
167	2	18	99	indeterminate	indeterminate	none					
167	3	6	8	indeterminate	indeterminate	none					
170	1	18	99	indeterminate	indeterminate	none					
170	P	0.583	0.667	indeterminate	medium	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
171	1	18	25	indeterminate	indeterminate	none					
171	2	7	9	indeterminate	indeterminate	none					
171	3	25	35	cf. male	indeterminate	none					
171	4			indeterminate	indeterminate	none					
172	2	0.5	1.5	indeterminate	indeterminate	none					
172	P	7	8	indeterminate	medium	medium	indeterminate	east	left side	inhumation w/o burning	semiflexed

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
173	P1	40	55	female	high	high	down	southeast	prone	inhumation w/o burning	fully flexed
173	P2	35	50	female	high	high	northwest	west	left side	inhumation w/o burning	fully flexed
174	P	25	35	female	high	high	down	southeast	left side	inhumation w/o burning	fully flexed
175	1	25	35	cf. male	indeterminate	none					
175	2	20	25	indeterminate	indeterminate	none					
175	3	7	15	indeterminate	indeterminate	none					
176	P	17	25	indeterminate	low	medium	west	north	left side	inhumation w/o burning	fully flexed
177	1	17	25	indeterminate	indeterminate	none					
177	P	20	35	cf. male	medium	high	indeterminate	southeast	prone	inhumation w/o burning	fully flexed
178	1	18	34	indeterminate	indeterminate	none					
178	2	18	34	indeterminate	indeterminate	none					
178	3	2	4	indeterminate	indeterminate	none					
180	P	32 (WIU)	36 (WIU)	indeterminate	high	high	northeast	northwest	supine	inhumation w/o burning	semiflexed
181	1	9	12	indeterminate	indeterminate	none					
181	2	35	49	indeterminate	indeterminate	none					
181	P	3	4	indeterminate	medium	high	west	northwest	supine	inhumation w/o burning	indeterminate
183	1	0	0.5	indeterminate	indeterminate	none					
183	2	3	5	indeterminate	indeterminate	none					
183	P	35	45	female	high	high	down	southeast	right side	inhumation w/o burning	fully flexed
184	1			indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
184	P	35	45	male	medium	medium	southeast	north	left side	inhumation w/o burning	semiflexed
185	1	0	2	indeterminate	indeterminate	none					
185	P	15	17	indeterminate	medium	low	indeterminate	indeterminate	indeterminate	partial cremation	primary
186	1	1.33	2.66	indeterminate	indeterminate	none					
186	2	7	12	indeterminate	indeterminate	none					
186	3	18	99	indeterminate	indeterminate	none					
186	P	25	35	indeterminate	medium	medium	down	northeast	right side	inhumation w/o burning	semiflexed
187	1	40	44	indeterminate	indeterminate	none					
187	2	3	4	indeterminate	indeterminate	none					
187	P	30	40	male	high	high	east	north	left side	inhumation w/o burning	fully flexed
188	1	0	1	indeterminate	indeterminate	none					
188	2			indeterminate	indeterminate	none					
188	P	35	40	female	high	high	southwest	northeast	prone	inhumation w/o burning	fully flexed
189	1	0	0.5	indeterminate	indeterminate	none					
189	2	9	12	indeterminate	indeterminate	none					
191	P	18	20	cf. male	medium	low	northwest	southeast	right side	inhumation w/o burning	semiflexed
192	1	20	30	indeterminate	indeterminate	none					
192	2	2	12	indeterminate	indeterminate	none					
194	P	12	25	indeterminate	low	none	indeterminate	southeast	indeterminate	full cremation	secondary
196	1	15	20	indeterminate	indeterminate	none					
196	P1	25	35	cf. female	low	high	southeast	southwest	left side	inhumation w/o burning	indeterminate

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
196	P2	1 (MIU)	0.25	indeterminate	low	low	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
197	1	16	22	indeterminate	indeterminate	none					
197	P	30	45	indeterminate	high	medium	down	northwest	prone	inhumation w/o burning	fully flexed
198	1	25	35	cf. female	indeterminate	none					
198	2			indeterminate	indeterminate	none					
204	1	10	12	indeterminate	indeterminate	none					
204	2	18	99	cf. male	indeterminate	none					
204	3	18	99	cf. female	indeterminate	none					
204	4	18	99	indeterminate	indeterminate	none					
204	P	16	20	cf. female	medium	high	east	south	left side	inhumation w/o burning	fully flexed
206	1	18	99	indeterminate	indeterminate	none					
206	P	25	35	cf. male	low	low	east	south	right side	inhumation w/o burning	fully flexed
207	1	9 (MIU)	birth	indeterminate	indeterminate	none					
207	P	40	55	male	high	high	down	east	prone	inhumation w/o burning	semiflexed
208	1	18	34	indeterminate	indeterminate	none					
209	1			indeterminate	indeterminate	none					
209	2	6	8	indeterminate	indeterminate	none					
209	P	35	50	cf. male	high	high	down	northeast	left side	inhumation w/o burning	fully flexed
210	1	4	6	indeterminate	indeterminate	none					
210	2	18	35	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
210	3	30 (WIU)	36 (WIU)	indeterminate	indeterminate	none					
210	4			indeterminate	indeterminate	none					
210	P	45	99	cf. female	medium	medium	up	south	left side	inhumation w/o burning	fully flexed
211	1	35	45	indeterminate	indeterminate	none					
211	P	40	50	female	low	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
212	1	12	17	indeterminate	indeterminate	none					
212	2	18	99	indeterminate	indeterminate	none					
212	3			indeterminate	indeterminate	none					
212	P	35	50	female	high	high	up	northeast	supine	inhumation w/o burning	fully flexed
213	1	25	50	cf. male	indeterminate	none					
213	P	30	40	male	high	high	south	east	left side	inhumation w/o burning	semiflexed
214	P	17	24	female	medium	high	west	east	right side	inhumation w/o burning	semiflexed
215	1	18	99	indeterminate	indeterminate	none					
215	2	0.5	1	indeterminate	indeterminate	none					
215	P	0.5	1	indeterminate	low	high	southwest	east	right side	inhumation w/o burning	semiflexed
216	2	3	5	indeterminate	indeterminate	none					
216	3	0.5	1	indeterminate	indeterminate	none					
216	4	10	12	indeterminate	indeterminate	none					
216	5	30 (WIU)	32 (WIU)	indeterminate	indeterminate	none					
216	P	35	45	cf. female	high	high	northwest	southeast	right side	inhumation w/ burning	fully flexed

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
217	1	12	17	indeterminate	indeterminate	none					
217	2	18	35	indeterminate	indeterminate	none					
217	3	18	34	indeterminate	indeterminate	none					
217	4			indeterminate	indeterminate	none					
217	5	18	34	indeterminate	indeterminate	none					
218	1	18	99	indeterminate	indeterminate	none					
218	2	2	12	indeterminate	indeterminate	none					
218	P	18	25	cf. female	low	medium	east	south	right side	inhumation w/o burning	fully flexed
219	P	10	11	indeterminate	medium	high	down	southwest	left side	inhumation w/o burning	fully flexed
220	1	18	99	indeterminate	indeterminate	none					
220	2	18	99	indeterminate	indeterminate	none					
220	4	0.5	1.5	indeterminate	indeterminate	none					
220	5	18	99	indeterminate	indeterminate	none					
221	P	21	99	female	low	low	indeterminate	indeterminate	indeterminate	partial cremation	primary
222	1	0.75	1.5	indeterminate	indeterminate	none					
222	2	18	99	indeterminate	indeterminate	none					
222	3			indeterminate	indeterminate	none					
222	P	1	2	indeterminate	medium	low	down	east	prone	inhumation w/o burning	indeterminate
223	1	15	20	indeterminate	indeterminate	none					
223	2	18	99	indeterminate	indeterminate	none					
223	3	18	99	indeterminate	indeterminate	none					
223	4	20	99	indeterminate	indeterminate	none					
223	5	3	5	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
223	6	5	7	indeterminate	indeterminate	none					
223	7	0.5	0.75	indeterminate	indeterminate	none					
223	P	18	25	cf. female	low	low	west	south	left side	inhumation w/o burning	flexed, degree indeterminate
225	1	17	25	indeterminate	indeterminate	none					
225	2	12	15	indeterminate	indeterminate	none					
225	3			indeterminate	indeterminate	none					
225	P	25	35	indeterminate	low	low	north	south	left side	inhumation w/o burning	fully flexed
227	1	3	6	indeterminate	indeterminate	none					
227	2	16	25	indeterminate	indeterminate	none					
227	3	3	6	indeterminate	indeterminate	none					
227	4	3	5	indeterminate	indeterminate	none					
227	P	17	25	female	low	medium	west	east	right side	inhumation w/o burning	semiflexed
228	1			indeterminate	indeterminate	none					
228	P	20	28	cf. male	high	high	northwest	east	right side	inhumation w/o burning	fully flexed
231	1	4	6	indeterminate	indeterminate	none					
231	2	0.5	1	indeterminate	indeterminate	indeterminate					
231	P	11	16	female	low	high	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate
233	P	40	55	female	medium	high	down	northeast	prone	inhumation w/o burning	fully flexed
234	1	0	0.385	indeterminate	indeterminate	none					
234	2			indeterminate	indeterminate	none					
234	P	17	25	female	high	high	northwest	east	right side	inhumation w/ burning	fully flexed
236	1	15	25	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
236	2	20	30	indeterminate	indeterminate	none					
237	P	25	99	male	medium	medium	indeterminate	east	right side	inhumation w/o burning	fully flexed
239	1	1	2	indeterminate	indeterminate	none					
239	2	18	99	indeterminate	indeterminate	none					
239	3	18	99	indeterminate	indeterminate	none					
239	P	18	34	cf. female	medium	medium	northwest	northeast	right side	inhumation w/o burning	fully flexed
240	1	30	40	indeterminate	indeterminate	none					
240	2	0	2	indeterminate	indeterminate	none					
240	3	14	17	indeterminate	indeterminate	none					
240	4	30	35	indeterminate	indeterminate	none					
240	P	17	18	cf. female	high	high	southwest	northeast	left side	inhumation w/o burning	fully flexed
241	P	0	2	indeterminate	low	none	indeterminate	indeterminate	indeterminate	full cremation	indeterminate
243	1	20	50	indeterminate	indeterminate	none					
243	P	30	45	indeterminate	low	medium	west	south	left side	inhumation w/o burning	fully flexed
244	1	4	6	indeterminate	indeterminate	none					
244	2	17	25	indeterminate	indeterminate	none					
244	P	20	30	female	low	medium	down	south	left side	inhumation w/o burning	flexed, degree indeterminate
245	1	30	35	cf. female	indeterminate	none					
245	2	0	2	indeterminate	indeterminate	none					
245	3	12	15	indeterminate	indeterminate	none					
245	P	40	55	male	medium	high	southwest	southeast	left side	inhumation w/ burning	fully flexed

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
246	1	18	99	indeterminate	indeterminate	none					
246	2	7	9	indeterminate	indeterminate	none					
247	P	0	0.5	indeterminate	high	high	down	east	prone	inhumation w/o burning	extended
248	1	1	6	indeterminate	indeterminate	none					
248	2	5	10	indeterminate	indeterminate	none					
248	3	6	8	indeterminate	indeterminate	none					
248	4	10	18	indeterminate	indeterminate	none					
248	5	30	45	cf. male	indeterminate	none					
248	6	9 (MIU)	birth	indeterminate	indeterminate	none					
248	7	18	34	indeterminate	indeterminate	none					
248	8			indeterminate	indeterminate	none					
248	P	35	45	cf. female	medium	low	southeast	northwest	left side	inhumation w/o burning	semiflexed
249	1	18	99	indeterminate	indeterminate	none					
249	P	25	35	female	medium	high	southwest	northeast	left side	inhumation w/o burning	fully flexed
250	1	17	25	cf. male	indeterminate	none					
250	2	25	40	cf. female	indeterminate	none					
250	3	20	25	cf. female	indeterminate	none					
250	4	3 (MIU)	4 (MIU)	indeterminate	indeterminate	none					
250	P	25	35	female	medium	high	down	southeast	left side	inhumation w/o burning	fully flexed
253	1			indeterminate	indeterminate	none					
253	P	25	35	male	medium	medium	north	southeast	right side	inhumation w/o burning	fully flexed
255	1	35	45	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
255	2	1	4	indeterminate	indeterminate	none					
255	3	17	25	indeterminate	indeterminate	none					
255	4	25	35	indeterminate	indeterminate	none					
255	5	17	30	indeterminate	indeterminate	indeterminate					
255	6	17	20	indeterminate	indeterminate	none					
256	1	18	99	indeterminate	indeterminate	none					
256	2	0	2	indeterminate	indeterminate	none					
256	P	23	28	female	high	high	northwest	east	right side	inhumation w/o burning	semiflexed
257	1			indeterminate	indeterminate	none					
257	2	7	30	indeterminate	indeterminate	none					
257	3	15	20	indeterminate	indeterminate	none					
257	4	18	99	indeterminate	indeterminate	none					
260	1	0	2	indeterminate	indeterminate	none					
260	3	30	99	indeterminate	indeterminate	none					
260	4	3	4	indeterminate	indeterminate	none					
260	P	25	35	indeterminate	high	high	north	southeast	right side	inhumation w/o burning	fully flexed
261	P	17	25	cf. male	high	medium	east	southwest	right side	inhumation w/o burning	fully flexed
262	1	10	20	indeterminate	indeterminate	none					
262	2	18	99	indeterminate	indeterminate	none					
262	P	0.5	0.67	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
263	P	18	99	indeterminate	medium	high	indeterminate	south	right side	inhumation w/o burning	flexed, degree indeterminate

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
265	P	25	35	cf. female	low	low	northwest	southeast	right side	inhumation w/o burning	fully flexed
266	P	1	1.5	indeterminate	high	none	indeterminate	southwest	indeterminate	inhumation w/o burning	indeterminate
267	1			indeterminate	indeterminate	indeterminate					
267	P	25	33	female	high	medium	down	northeast	prone	inhumation w/o burning	fully flexed
268	1	1	4	indeterminate	indeterminate	none					
268	2	18	99	indeterminate	indeterminate	none					
268	P	17	25	cf. female	medium	high	east	south	right side	inhumation w/o burning	fully flexed
269	P	20	35	female	high	high	down	east	right side	inhumation w/o burning	fully flexed
270	P	45	99	indeterminate	low	none	indeterminate	northeast	left side	inhumation w/o burning	indeterminate
271	1	17	20	indeterminate	indeterminate	none					
271	2	16	20	indeterminate	indeterminate	none					
271	3	5	6	indeterminate	indeterminate	none					
271	P	20	24	indeterminate	medium	medium	up	northeast	right side	inhumation w/o burning	semiflexed
273	P	18	99	indeterminate	high	none	indeterminate	indeterminate	indeterminate	full cremation	primary
274	1	18	99	indeterminate	indeterminate	none					
274	P	29	31	female	high	high	down	northeast	prone	inhumation w/o burning	semiflexed
275	1			indeterminate	indeterminate	none					
275	P	32 (WIU)	34 (WIU)	indeterminate	medium	none	indeterminate	southeast	indeterminate	inhumation w/o burning	indeterminate
276	P	3	10	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
277	P	30	35	male	high	high	north	east	right side	inhumation w/o burning	fully flexed
278	1	15	20	indeterminate	indeterminate	none					
278	2	0.75	2	indeterminate	indeterminate	none					
278	P	15	18	female	medium	medium	west	southeast	left side	inhumation w/o burning	fully flexed
280	1	12	18	indeterminate	indeterminate	none					
280	2	18	99	indeterminate	indeterminate	low					
280	3	1	4	indeterminate	indeterminate	none					
280	4	18	99	indeterminate	indeterminate	none					
280	7	11	14	indeterminate	indeterminate	none					
280	8	18	99	indeterminate	indeterminate	indeterminate					
280	9			indeterminate	indeterminate	indeterminate					
282	1	20	30	indeterminate	indeterminate	none					
282	2	20	25	cf. female	indeterminate	indeterminate					
282	P	20	30	male	medium	medium	northwest	southeast	left side	inhumation w/o burning	fully flexed
284	1			indeterminate	indeterminate	none					
284	P	40	60	female	high	high	north	east	right side	inhumation w/o burning	fully flexed
285	1	25	35	indeterminate	indeterminate	none					
285	2	4	8	indeterminate	indeterminate	none					
285	3	18	99	indeterminate	indeterminate	none					
285	4	36 (WIU)	38 (WIU)	indeterminate	indeterminate	none					
285	5	18	99	indeterminate	indeterminate	none					
285	6	18	99	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
285	7	18	20	indeterminate	indeterminate	none					
285	8	2	17	indeterminate	indeterminate	none					
286	1	18	99	male	indeterminate	none					
286	2	18	99	female	indeterminate	none					
286	3	4	5	indeterminate	indeterminate	none					
286	4	2	3	indeterminate	indeterminate	none					
286	5			indeterminate	indeterminate	none					
287	P	30	45	male	high	high	northeast	southeast	right side	inhumation w/o burning	fully flexed
288	P	5	9	indeterminate	low	low	south	east	right side	inhumation w/o burning	semiflexed
289	P	30	45	female	high	high	northwest	west	left side	inhumation w/o burning	fully flexed
292	1	1	1.5	indeterminate	indeterminate	none					
292	2	18	99	female	indeterminate	none					
292	P	35	39	female	medium	medium	up	northwest	supine	inhumation w/o burning	semiflexed
294	P	35	45	male	medium	high	southwest	east	left side	inhumation w/o burning	fully flexed
295	1	1	3	indeterminate	indeterminate	indeterminate					
295	2	18	99	indeterminate	indeterminate	none					
295	P	30	45	female	medium	medium	indeterminate	northeast	left side	inhumation w/o burning	fully flexed
299	1	18	99	cf. female	indeterminate	indeterminate					
300	1	2	12	indeterminate	indeterminate	indeterminate					
300	P	30	40	male	medium	high	north	east	prone	inhumation w/o burning	extended
302	P	12	14	indeterminate	low	medium	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
304	1	15	20	indeterminate	indeterminate	none					
304	2	12	17	indeterminate	indeterminate	none					
304	3	2	4	indeterminate	indeterminate	none					
304	4	25	35	indeterminate	indeterminate	none					
304	P	18	25	male	low	low	west	northeast	left side	inhumation w/o burning	fully flexed
305	1	0.5	0.75	indeterminate	indeterminate	indeterminate					
305	2	30	40	male	indeterminate	none					
306	P	22	35	female	medium	medium	southeast	south	prone	inhumation w/o burning	fully flexed
308	P	35	45	male	medium	medium	northwest	northwest	right side	inhumation w/o burning	fully flexed
309	1	18	99	indeterminate	indeterminate	none					
309	P	25	35	female	high	high	west	east	right side	inhumation w/o burning	fully flexed
311	1			indeterminate	indeterminate	none					
311	P	40	99	female	medium	medium	down	northeast	prone	inhumation w/o burning	fully flexed
312	1	20	50	cf. male	indeterminate	none					
312	2	3	6	indeterminate	indeterminate	none					
312	P	20	40	female	low	low	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate
313	1	0	0.25	indeterminate	indeterminate	indeterminate					
313	P1	25	35	indeterminate	low	medium	west	east	left side	inhumation w/o burning	fully flexed
313	P2	5 (MIU)	5 (MIU)	indeterminate	low	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
314	1	18	34	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
314	2	7 (MIU)	8 (MIU)	indeterminate	indeterminate	none					
314	P	18	34	cf. female	low	medium	north	north	supine	inhumation w/o burning	fully flexed
316	1	18	99	cf. male	indeterminate	indeterminate					
316	2	6	8	indeterminate	indeterminate	none					
316	P	13	21	indeterminate	medium	low	northwest	southeast	left side	inhumation w/o burning	fully flexed
317	P	20	30	cf. female	medium	medium	northwest	southwest	left side	inhumation w/o burning	fully flexed
318	1	0	1	indeterminate	indeterminate	indeterminate					
318	P	20	25	indeterminate	low	medium	down	west	right side	inhumation w/o burning	semiflexed
319	1	0	1	indeterminate	indeterminate	none					
319	2	9	12	indeterminate	indeterminate	none					
319	3	17	25	indeterminate	indeterminate	none					
319	P	15	25	cf. male	low	low	east	southeast	prone	inhumation w/o burning	fully flexed
320	P	0	1	indeterminate	low	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
323	P	0	1	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
325	P	30	45	female	medium	high	indeterminate	west	supine	inhumation w/o burning	fully flexed
326	1	10	17	indeterminate	indeterminate	none					
326	2	18	99	cf. female	indeterminate	indeterminate					
326	P	18	25	cf. male	low	low	east	south	right side	inhumation w/o burning	semiflexed
327	P	0.25	0.5	indeterminate	low	low	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
329	P	24	28	female	medium	medium	indeterminate	east	prone	inhumation w/o burning	indeterminate
332	1	18	99	indeterminate	indeterminate	none					
332	P	25	35	indeterminate	medium	medium	north	southeast	right side	inhumation w/o burning	fully flexed
334	1	2	4	indeterminate	indeterminate	none					
334	2	17	20	indeterminate	indeterminate	none					
334	3	6	8	indeterminate	indeterminate	none					
334	4	8	12	indeterminate	indeterminate	none					
334	5	20	30	indeterminate	indeterminate	none					
334	6	15	20	indeterminate	indeterminate	none					
334	P	20	30	indeterminate	low	low	down	southeast	left side	inhumation w/o burning	fully flexed
336	1	12	34	indeterminate	indeterminate	none					
336	P	25	35	male	low	high	down	northeast	prone	inhumation w/o burning	flexed, degree indeterminate
339	1			indeterminate	indeterminate	none					
339	P	20	34	indeterminate	medium	medium	southeast	southwest	left side	inhumation w/o burning	fully flexed
341	1	1.5	2.5	indeterminate	indeterminate	none					
341	2	25	35	indeterminate	indeterminate	none					
341	P	17	25	cf. female	low	low	northwest	southwest	right side	inhumation w/o burning	fully flexed
344	1	18	99	indeterminate	indeterminate	none					
344	2	15	25	indeterminate	indeterminate	none					
344	P	21	35	indeterminate	low	low	north	west	left side	inhumation w/o burning	semiflexed
346	1	1	2	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
346	2	25	35	indeterminate	indeterminate	none					
346	P	31	42	male	high	medium	southwest	indeterminate	indeterminate	partial cremation	primary
347	P	30	45	female	low	low	southwest	southeast	left side	inhumation w/o burning	fully flexed
349	P	45	55	cf. male	high	medium	west	southeast	left side	inhumation w/o burning	fully flexed
352	1	10	14	indeterminate	indeterminate	none					
352	2	18	22	indeterminate	indeterminate	none					
353	1	18	99	indeterminate	indeterminate	none					
353	2	12	17	indeterminate	indeterminate	none					
353	P	30 (WIU)	birth	indeterminate	medium	low	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
355	1	5	7	indeterminate	indeterminate	none					
355	2	0	2	indeterminate	indeterminate	none					
355	3			indeterminate	indeterminate	none					
355	4	17	25	indeterminate	indeterminate	indeterminate					
355	P	35	45	cf. male	medium	medium	east	south	left side	inhumation w/o burning	indeterminate
358	1	18	99	indeterminate	none	low					
358	2	11	12	indeterminate	indeterminate	none					
358	P	18	99	indeterminate	medium	medium	indeterminate	southeast	left side	inhumation w/o burning	fully flexed
359	1	18	99	indeterminate	indeterminate	none					
359	2	2	12	indeterminate	indeterminate	none					
359	P	22	32	cf. female	high	low	west	southeast	left side	inhumation w/o burning	fully flexed
361	1	12	20	indeterminate	indeterminate	none					
361	2			indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
363	P	18	99	indeterminate	low	none	indeterminate	indeterminate	indeterminate	full cremation	indeterminate
364	P	18	99	indeterminate	low	low	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate
367	P	36 (WIU)	1	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
368	1	0.5	0.667	indeterminate	indeterminate	none					
368	P	15	20	indeterminate	medium	medium	west	south	left side	inhumation w/o burning	semiflexed
370	1	18	99	indeterminate	indeterminate	none					
370	2			indeterminate	indeterminate	none					
370	3	2	4	indeterminate	indeterminate	none					
370	4	4	11	indeterminate	indeterminate	none					
370	P1	25	35	male	low	high	north	southeast	right side	inhumation w/o burning	semiflexed
370	P2	20	35	cf. male	medium	low	southwest	northeast	left side	inhumation w/o burning	fully flexed
370	P3	4	5	indeterminate	low	low	indeterminate	southeast	indeterminate	inhumation w/o burning	indeterminate
371	1	18	99	indeterminate	indeterminate	none					
371	2	18	99	indeterminate	indeterminate	none					
371	P	20	30	female	low	low	indeterminate	northeast	right side	inhumation w/o burning	semiflexed
372	1	8	12	indeterminate	indeterminate	none					
372	2	0	2	indeterminate	indeterminate	none					
372	P	17	21	indeterminate	low	low	indeterminate	southeast	indeterminate	inhumation w/o burning	fully flexed
375	1	4	5.5	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
375	P	25	35	female	medium	high	down	southeast	left side	inhumation w/o burning	fully flexed
376	1	25	35	cf. male	indeterminate	low					
376	P1	17	25	indeterminate	low	medium	down	south	prone	inhumation w/o burning	fully flexed
376	P2	0.75	1	indeterminate	low	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
386	P	3	6	indeterminate	low	high	indeterminate	west	prone	inhumation w/o burning	fully flexed
388	1	18	99	indeterminate	indeterminate	none					
390	1	17	30	indeterminate	low	low	indeterminate			partial cremation	indeterminate
390	2	3	5	indeterminate	indeterminate	none					
390	3	18	99	indeterminate	indeterminate	none					
390	4	7	9	indeterminate	indeterminate	none					
390	5	1	2	indeterminate	indeterminate	none					
392	1	5	7	indeterminate	indeterminate	none					
392	2	12	15	indeterminate	indeterminate	none					
392	P	25	35	male	low	low	southeast	west	right side	inhumation w/o burning	semiflexed
396	1	0	1	indeterminate	indeterminate	none					
396	P	32	55	male	medium	medium	south	northeast	supine	inhumation w/o burning	semiflexed
397	P	30	40	female	medium	medium	southwest	northeast	left side	inhumation w/o burning	fully flexed
398	1	18 (WIU)	20 (WIU)	indeterminate	indeterminate	none					
398	2	18	99	indeterminate	indeterminate	none					
398	3			indeterminate	indeterminate	indeterminate					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
398	P	21	34	female	high	medium	northeast	southwest	right side	inhumation w/o burning	fully flexed
403	1	13	17	indeterminate	none	low	indeterminate	indeterminate	indeterminate	indeterminate	indeterminate
403	2	6	8	indeterminate	indeterminate	none					
403	3	20	99	indeterminate	indeterminate	none					
405	1	12	17	indeterminate	indeterminate	none					
405	2	18	99	indeterminate	indeterminate	none					
405	3	18	99	indeterminate	indeterminate	none					
405	P	18	49	female	medium	low	down	south	left side	inhumation w/o burning	fully flexed
406	P	30	65	cf. female	high	low	southwest	indeterminate	indeterminate	partial cremation	indeterminate
408	1	13	17	indeterminate	indeterminate	none					
408	P	30	40	female	medium	high	northwest	south	left side	inhumation w/o burning	fully flexed
409	P	18	99	male	medium	high	indeterminate	east	left side	inhumation w/o burning	fully flexed
410	P	30	45	female	low	low	southeast	indeterminate	not recorded	partial cremation	secondary
412	1	18	44	female	none	none	indeterminate	indeterminate	indeterminate	indeterminate	indeterminate
412	2	12	18	indeterminate	indeterminate	none					
412	P	30	40	male	high	high	down	south	prone	inhumation w/o burning	fully flexed
415	1	1	6	indeterminate	indeterminate	none					
415	2	17	20	indeterminate	indeterminate	none					
415	P	12	15	indeterminate	medium	high	down	northwest	left side	inhumation w/o burning	fully flexed
417	1	25	35	cf. male	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
417	2	20	35	cf. male	indeterminate	none					
417	3	18	34	indeterminate	indeterminate	none					
417	4	18	34	cf. male	indeterminate	none					
417	5	3	5	indeterminate	indeterminate	none					
417	6	0	1	indeterminate	indeterminate	none					
417	P	18	25	cf. male	medium	medium	north	southwest	right side	inhumation w/o burning	semiflexed
423	P	20	30	indeterminate	low	low	indeterminate	west	right side	inhumation w/o burning	fully flexed
426	P	18	34	indeterminate	low	low	indeterminate	indeterminate	indeterminate	partial cremation	primary
427	1	1	1.5	indeterminate	indeterminate	none					
427	P	30	45	cf. male	high	high	up	southwest	prone	inhumation w/o burning	fully flexed
428	P	25	35	cf. female	medium	high	east	south	right side	inhumation w/o burning	fully flexed
429	1			indeterminate	indeterminate	none					
429	P	12	17	indeterminate	low	low	down	southeast	prone	inhumation w/o burning	semiflexed
430	1	17	25	indeterminate	indeterminate	none					
430	P	25	35	indeterminate	low	low	southwest	east	left side	inhumation w/o burning	fully flexed
435	1	5	8	indeterminate	indeterminate	none					
435	2	3	6	indeterminate	indeterminate	none					
435	3			indeterminate	indeterminate	none					
435	P	20	35	cf. male	low	low	east	south	right side	inhumation w/o burning	fully flexed
437	1	3	5	indeterminate	indeterminate	none					
437	2	18	99	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
438	1	18	99	indeterminate	indeterminate	none					
438	2	0	1	indeterminate	indeterminate	none					
438	P	25	35	female	high	medium	north	southeast	right side	inhumation w/o burning	fully flexed
439	P	0	1	indeterminate	low	low	down	indeterminate		inhumation w/ burning	indeterminate
440	P	45	99	male	high	high	east	northeast	left side	inhumation w/o burning	fully flexed
443	1	18	99	indeterminate	indeterminate	none					
443	2	3	7	indeterminate	indeterminate	none					
444	1			indeterminate	indeterminate	none					
444	2	12	17	indeterminate	indeterminate	none					
444	P	25	35	cf. female	medium	high	north	east	right side	inhumation w/o burning	fully flexed
447	P	35	40	female	high	medium	south	east	left side	inhumation w/o burning	fully flexed
451	1	18	99	indeterminate	indeterminate	none					
451	2	0.75	1	indeterminate	indeterminate	none					
453	1	18	99	male	indeterminate	medium					
453	2	18	99	indeterminate	indeterminate	none					
453	3			indeterminate	indeterminate	none					
453	4	18	99	indeterminate	indeterminate	none					
453	5	1	8	indeterminate	indeterminate	none					
453	6	12	17	indeterminate	indeterminate	none					
455	1			indeterminate	indeterminate	indeterminate					
455	P	35	45	female	medium	medium	down	west	left side	inhumation w/o burning	fully flexed

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
457	1	5 (MIU)	5 (MIU)	indeterminate	indeterminate	none					
457	2	18	25	indeterminate	none	none	indeterminate	indeterminate	indeterminate	indeterminate	indeterminate
459	P	30	40	female	low	high	south	northeast	left side	inhumation w/o burning	fully flexed
461	1	25	35	indeterminate	indeterminate	none					
461	2	12	15	indeterminate	indeterminate	none					
461	P	16	17	indeterminate	low	indeterminate	down	indeterminate	indeterminate	inhumation w/o burning	indeterminate
468	1	18	99	indeterminate	indeterminate	low					
470	1	10	15	indeterminate	indeterminate	none					
470	2	20	30	indeterminate	indeterminate	none					
472	P	18	20	indeterminate	medium	high	west	east	right side	inhumation w/o burning	fully flexed
473	1			indeterminate	indeterminate	none					
473	P	1.5	2.5	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
476	1	3.66	6.33	indeterminate	indeterminate	none					
476	2	18	99	indeterminate	indeterminate	none					
476	3	36 (WIU)	38 (WIU)	indeterminate	indeterminate	none					
476	P	0.25	0.75	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
477	1			indeterminate	indeterminate	none					
477	2	12	18	indeterminate	indeterminate	none					
477	3	9 (MIU)	1	indeterminate	indeterminate	none					
477	4	30	99	male	indeterminate	low					
477	5	20	30	female	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
477	P	35	99	female	none	low	indeterminate	indeterminate	supine	inhumation w/o burning	fully flexed
481	1	0	0.5	indeterminate	indeterminate	none					
481	P	18	30	female	high	medium	north	east	prone	inhumation w/o burning	fully flexed
482	1			indeterminate	indeterminate	low					
485	1	0	17	indeterminate	indeterminate	none					
485	2	18	99	indeterminate	none	none					
485	3			indeterminate	indeterminate	none					
491	1			indeterminate	indeterminate	none					
493	1	18	99	indeterminate	indeterminate	none					
493	2	18	99	indeterminate	indeterminate	none					
493	P	18	20	female	high	high	east	southwest	right side	inhumation w/o burning	fully flexed
494	P	24	35	female	high	high	northwest	southeast	prone	inhumation w/o burning	fully flexed
496	2	18	99	indeterminate	indeterminate	none					
496	3			indeterminate	indeterminate	indeterminate					
496	P	25	35	female	low	medium	northwest	southeast	left side	inhumation w/o burning	fully flexed
497	1	1	3	indeterminate	indeterminate	none					
497	2	3	12	indeterminate	indeterminate	none					
497	3	5	12	indeterminate	indeterminate	none					
497	4	18	99	indeterminate	indeterminate	none					
498	1			indeterminate	indeterminate	indeterminate					
498	P	18	99	indeterminate	low	medium	south	east	left side	inhumation w/o burning	fully flexed

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
499	P	18	35	indeterminate	low	low	north	southeast	left side	inhumation w/o burning	fully flexed
500	1	18	99	indeterminate	indeterminate	none					
500	P	30	45	male	high	high	down	west	prone	inhumation w/o burning	fully flexed
501	1	2	3	indeterminate	indeterminate	none					
501	2	18	25	indeterminate	indeterminate	none					
501	3	7	9	indeterminate	indeterminate	none					
501	P	18	25	indeterminate	medium	low	northwest	northwest	left side	inhumation w/o burning	semiflexed
502	1	2	4	indeterminate	indeterminate	none					
502	2	17	25	indeterminate	indeterminate	none					
502	3	0.5	1	indeterminate	indeterminate	none					
502	4	17	25	indeterminate	indeterminate	none					
502	5	20	30	cf. female	indeterminate	none					
502	6	17	25	indeterminate	indeterminate	none					
502	7	25	35	indeterminate	indeterminate	none					
504	1	18	25	indeterminate	indeterminate	none					
504	2	18	99	indeterminate	indeterminate	none					
505	1	1.5	3	indeterminate	indeterminate	none					
505	2	0	1	indeterminate	indeterminate	none					
505	P	25	35	female	high	medium	southwest	southeast	supine	inhumation w/o burning	semiflexed
508	1	18	25	male	low	low	indeterminate			partial cremation	secondary
508	2	18	99	indeterminate	indeterminate	none					
508	3	0	2	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
508	P	25	30	cf. female	high	high	down	southeast	left side	inhumation w/o burning	fully flexed
511	P	30	45	male	low	medium	north	indeterminate	right side	inhumation w/o burning	indeterminate
512	1	18	99	cf. female	indeterminate	none					
512	2	10	14	indeterminate	indeterminate	indeterminate					
512	P	17	19	cf. female	low	low	indeterminate	south	right side	inhumation w/o burning	fully flexed
513	P	7	14	indeterminate	low	medium	indeterminate	indeterminate	left side	inhumation w/o burning	flexed, degree indeterminate
515	1			indeterminate	indeterminate	none					
515	P	45	59	cf. female	medium	high	indeterminate	northeast	left side	inhumation w/o burning	fully flexed
516	1	20	30	indeterminate	low	low					
516	2	15	20	indeterminate	none	none					
516	3	18	99	indeterminate	indeterminate	none					
516	P	40	99	indeterminate	low	low	indeterminate	southeast	left side	inhumation w/o burning	fully flexed
517	1	18	99	indeterminate	indeterminate	none					
517	2			indeterminate	indeterminate	none					
517	3	18	99	cf. male	indeterminate	none					
519	1	18	99	indeterminate	none	none	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
522	P	20	30	male	high	high	down	northeast	prone	inhumation w/o burning	fully flexed
523	P	30	45	indeterminate	high	medium	southeast	east	left side	inhumation w/o burning	fully flexed
524	1	18	99	indeterminate	high	none	indeterminate	indeterminate	indeterminate	partial cremation	indeterminate

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
525	1			indeterminate	indeterminate	none					
525	2	0.417	1	indeterminate	indeterminate	none					
525	3	2	3	indeterminate	indeterminate	none					
525	P	20	30	cf. female	medium	medium	north	east	right side	inhumation w/o burning	fully flexed
526	1			indeterminate	indeterminate	none					
526	2			indeterminate	indeterminate	none					
526	P	35	45	male	medium	medium	southwest	southeast	left side	inhumation w/o burning	semiflexed
529	1			indeterminate	indeterminate	none					
529	P	18	99	indeterminate	low	medium	indeterminate	east	left side	inhumation w/o burning	fully flexed
531	1	0	1	indeterminate	indeterminate	none					
531	2	18	99	indeterminate	indeterminate	none					
533	1	6	8	indeterminate	indeterminate	none					
533	2	40	99	indeterminate	indeterminate	none					
533	P	25	35	cf. female	medium	medium	northwest	east	right side	inhumation w/o burning	fully flexed
537	1	3	5	indeterminate	indeterminate	none					
537	2	25	35	indeterminate	indeterminate	none					
537	3			indeterminate	indeterminate	none					
537	4	13	20	indeterminate	indeterminate	none					
537	P	30	45	female	medium	high	southeast	east	left side	inhumation w/o burning	semiflexed
538	1	18	99	indeterminate	indeterminate	none					
538	2	0.66	1.5	indeterminate	indeterminate	none					
538	3	2	12	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
538	P	20	35	indeterminate	high	high	south	east	left side	inhumation w/o burning	fully flexed
539	1	20	30	indeterminate	indeterminate	none					
539	2	18	99	indeterminate	indeterminate	none					
539	3			indeterminate	indeterminate	indeterminate					
543	1	20	30	indeterminate	indeterminate	none					
543	2			indeterminate	indeterminate	indeterminate					
543	P	17	25	male	high	high	down	east	prone	inhumation w/o burning	extended
546	1	25	50	cf. male	none	low	indeterminate	indeterminate	indeterminate	inhumation w/o burning	indeterminate
546	2	20	30	indeterminate	indeterminate	none					
546	3	0	0.33	indeterminate	indeterminate	none					
547	1	18	99	cf. female	indeterminate	none					
547	2	6	12	indeterminate	indeterminate	none					
547	3	3	4	indeterminate	indeterminate	none					
547	4	18	99	indeterminate	indeterminate	none					
547	P	18	30	cf. female	high	medium	indeterminate	northeast	right side	inhumation w/o burning	fully flexed
548	1	18	25	indeterminate	indeterminate	none					
548	2	18	99	cf. male	indeterminate	none					
548	3	18	99	cf. female	indeterminate	none					
548	4	0	1	indeterminate	indeterminate	none					
550	P	35	40	cf. female	medium	medium	northwest	northeast	right side	inhumation w/o burning	semiflexed
551	1	12	17	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
551	P	17	25	male	low	low	indeterminate	southeast	left side	inhumation w/o burning	fully flexed
552	1	8	10	indeterminate	indeterminate	none					
552	2			indeterminate	indeterminate	none					
552	3	12	17	indeterminate	indeterminate	low					
554	1	16	99	cf. female	indeterminate	none					
554	2	5	10	indeterminate	indeterminate	none					
554	3			indeterminate	indeterminate	none					
554	P	17	25	male	low	medium	indeterminate	east	right side	inhumation w/o burning	fully flexed
556	1	10	15	indeterminate	indeterminate	none					
556	2	3	7	indeterminate	indeterminate	none					
556	3	7	10	indeterminate	indeterminate	none					
557	1	18	99	cf. female	indeterminate	none					
558	1	0.75	2	indeterminate	indeterminate	none					
558	2	12	17	indeterminate	indeterminate	none					
558	4	20	35	indeterminate	indeterminate	none					
558	5	18	34	indeterminate	indeterminate	none					
558	6	4	5	indeterminate	indeterminate	none					
558	7			indeterminate	indeterminate	none					
558	P	7	10	indeterminate	medium	medium	north	southeast	prone	inhumation w/o burning	extended
559	1	17	25	indeterminate	indeterminate	none					
559	2	8	12	indeterminate	indeterminate	none					
559	3	20	30	indeterminate	indeterminate	none					
559	4	40	45	indeterminate	indeterminate	none					
559	5	45	55	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
562	P	30	45	male	high	high	southwest	east	left side	inhumation w/o burning	fully flexed
564	P	18	99	cf. male	none	low	indeterminate	indeterminate		inhumation w/o burning	indeterminate
565	1	7	9	indeterminate	indeterminate	none					
565	2	12	17	indeterminate	indeterminate	none					
565	3	12	17	indeterminate	indeterminate	none					
565	P	11	15	indeterminate	medium	medium	northwest	northwest	left side	inhumation w/o burning	fully flexed
567	1	1.5	2	indeterminate	none	none	indeterminate	indeterminate	indeterminate	indeterminate	indeterminate
567	2	1	11	indeterminate	indeterminate	none					
567	3	18	99	indeterminate	indeterminate	none					
567	4	25	35	indeterminate	indeterminate	indeterminate					
567	5	18	99	cf. female	indeterminate	none					
567	6	15	20	indeterminate	indeterminate	none					
567	7	6	9	indeterminate	indeterminate	none					
568	1	18	99	indeterminate	indeterminate	none					
568	P	4	6	indeterminate	low	low	up	south	supine	inhumation w/o burning	extended
569	1			indeterminate	indeterminate	none					
570	1	18	99	indeterminate	indeterminate	none					
570	2	0	2	indeterminate	indeterminate	none					
570	3	18	99	indeterminate	indeterminate	indeterminate					
570	P	18	99	female	high	low	indeterminate	southeast	right side	inhumation w/o burning	semiflexed
575	1	18	99	indeterminate	indeterminate	low					
575	2	3	5	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
575	3	3	5	indeterminate	indeterminate	low					
575	4	18	99	indeterminate	indeterminate	none					
575	5	15	21	indeterminate	indeterminate	none					
575	6	2	12	indeterminate	indeterminate	none					
576	1	25	35	indeterminate	indeterminate	none					
576	P	35	45	male	high	high	north	northwest	right side	inhumation w/o burning	semiflexed
577	1			indeterminate	indeterminate	none					
577	P	30	40	cf. female	high	medium	south	east	left side	inhumation w/o burning	fully flexed
578	1			indeterminate	indeterminate	none					
578	2	9 (MIU)	2	indeterminate	indeterminate	none					
579	1	4	7	indeterminate	indeterminate	none					
579	2	18	99	indeterminate	indeterminate	indeterminate					
579	P	25	35	cf. male	none	none	down	indeterminate	indeterminate	inhumation w/o burning	indeterminate
580	1	35	45	cf. female	indeterminate	low					
580	2	1	4	indeterminate	indeterminate	none					
580	3	12	20	indeterminate	indeterminate	none					
580	4	3	8	indeterminate	indeterminate	none					
580	5	4	7	indeterminate	indeterminate	none					
580	6	9	12	indeterminate	indeterminate	none					
580	P	20	30	female	high	high	east	southwest	right side	inhumation w/o burning	fully flexed
581	P	20	30	cf. female	low	low	south	east	left side	inhumation w/o burning	fully flexed
583	P	20	35	indeterminate	low	low	south	east	left side	inhumation w/o burning	fully flexed

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
584	1	2	6	indeterminate	indeterminate	none					
584	2	9	11	indeterminate	indeterminate	none					
584	3	0	1.5	indeterminate	indeterminate	none					
584	4	1.5	4	indeterminate	indeterminate	none					
584	5	11	15	indeterminate	indeterminate	none					
584	P	18	99	indeterminate	low	low	indeterminate	indeterminate	right side	inhumation w/o burning	flexed, degree indeterminate
586	P	17	25	indeterminate	low	low	indeterminate	east	left side	inhumation w/o burning	indeterminate
587	P			indeterminate	high	none	indeterminate	indeterminate	indeterminate	full cremation	secondary
588	1	30	45	indeterminate	indeterminate	none					
588	2	17	25	indeterminate	indeterminate	none					
588	3	6	10	indeterminate	indeterminate	none					
588	4	7	9	indeterminate	indeterminate	none					
588	5	1	3	indeterminate	indeterminate	none					
588	6	11	15	indeterminate	indeterminate	none					
588	7	18	99	indeterminate	indeterminate	none					
589	1	18	99	indeterminate	indeterminate	none					
589	P	30	40	male	medium	high	down	northeast	prone	inhumation w/o burning	semiflexed
591	P	18	25	indeterminate	low	none	south	east	left side	inhumation w/o burning	indeterminate
592	1	17	20	indeterminate	indeterminate	none					
592	2	1.5	4	indeterminate	indeterminate	none					
592	3	9	12	indeterminate	indeterminate	none					
592	4	6	10	indeterminate	indeterminate	none					
592	5	3	6	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
592	6	18	25	indeterminate	indeterminate	none					
592	7	12	20	indeterminate	indeterminate	none					
593	1	18	99	indeterminate	indeterminate	none					
593	2	0	2	indeterminate	indeterminate	none					
593	P	25	35	indeterminate	low	low	southwest	southeast	left side	inhumation w/o burning	fully flexed
594	1	1.5	2	indeterminate	indeterminate	none					
594	2	12	15	indeterminate	indeterminate	none					
594	P	30	45	female	medium	medium	south	east	left side	inhumation w/o burning	fully flexed
596	1	25	35	indeterminate	indeterminate	none					
596	2			indeterminate	indeterminate	none					
597	1	1	4	indeterminate	indeterminate	none					
597	2	7	10	indeterminate	indeterminate	none					
597	3	10	12	indeterminate	indeterminate	none					
597	4	17	25	indeterminate	indeterminate	none					
597	5	8	11	indeterminate	not recorded	none					
597	6	4	6	indeterminate	indeterminate	none					
598	1	18	25	indeterminate	indeterminate	none					
598	2			indeterminate	indeterminate	none					
600	1	18	99	indeterminate	indeterminate	none					
600	2	20	30	cf. female	indeterminate	indeterminate					
600	3	18	99	indeterminate	indeterminate	none					
600	4	2	4	indeterminate	indeterminate	none					
600	P	35	45	indeterminate	low	medium	west	southeast	left side	inhumation w/o burning	fully flexed
601	1	12	20	indeterminate	indeterminate	none					

Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
601	2	6	9	indeterminate	indeterminate	none					
601	3	17	25	indeterminate	indeterminate	none					
601	P	17	25	indeterminate	medium	high	southwest	northeast	right side	inhumation w/o burning	fully flexed
605	1	18	99	cf. male	none	none	indeterminate	indeterminate	indeterminate	indeterminate	indeterminate
606	1	0	0.5	indeterminate	indeterminate	none					
606	2			indeterminate	indeterminate	none					
606	3	2	12	indeterminate	indeterminate	indeterminate					
606	P	30	40	male	high	high	down	northeast	left side	inhumation w/o burning	semiflexed
609	1	18	99	cf. male	indeterminate	none					
610	1	18	99	indeterminate	indeterminate	none					
610	2	2	12	indeterminate	indeterminate	indeterminate					
610	3			indeterminate	indeterminate	indeterminate					
611	P	18	99	indeterminate	low	low	indeterminate	northeast	left side	inhumation w/o burning	fully flexed
613	1	18	99	indeterminate	none	none					
613	2	1	5	indeterminate	indeterminate	none					
613	3	18	99	indeterminate	indeterminate	none					
613	4	11	17	indeterminate	indeterminate	none					
613	P	17	25	indeterminate	high	high	southwest	east	left side	inhumation w/o burning	fully flexed
615	P	2	5	indeterminate	none	low	indeterminate	southwest	indeterminate	inhumation w/o burning	indeterminate
616	1	17	25	indeterminate	indeterminate	none					
616	2	2	4	indeterminate	indeterminate	none					
616	3	17	25	indeterminate	indeterminate	none					

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Burial Feature No.	Individual ID[a, b]	Minimum Age (years)[c]	Maximum Age (years)[c]	Sex[d]	Burial Integrity	Articulatory Integrity	Burial Direction of Head Facing	Burial Orientation	Burial Position	Burial Type	Burial Treatment
616	4	12	18	indeterminate	indeterminate	indeterminate					
631	1	15	25	indeterminate	indeterminate	none					
631	P	30	40	female	medium	medium	south	northeast	right side	inhumation w/o burning	fully flexed
653	P	40	50	cf. male	medium	high	southeast	southwest	right side	inhumation w/o burning	fully flexed
661	1			indeterminate	indeterminate	low					
667	P	35	45	cf. male	low	low	south	east	left side	inhumation w/o burning	fully flexed

Note: For definitions of mortuary attributes, see Chapter 6, this volume.

Key: Inhumation w/ burning = inhumation with incidental burning; inhumation w/o burning = inhumation without incidental burning. For explanations of burial types, see Chapter 6, this volume.

[a] P = primary individual; P1 = primary individual 1; P2 = primary individual 2; 1–9 = additional individual 1–9.

[b] "Additional individuals" are nonprimary individuals found during the recovery of a burial. During analysis, some of these individuals were found to be components of an individual from a nearby burial feature. Although the reassigned individuals are not listed in Appendix 6.3, thus giving the appearance of individuals missing from the numbering sequence in that appendix, the number of additional individuals found during recovery is preserved in Appendixes 6.1 and 6.2 to provide a more accurate representation of minimum number of individuals (MNI) of a given burial feature at the time of discovery. The reader is directed to Volume 4, Appendix M of this series for detailed information regarding individual burial features.

[c] Minimum Age and Maximum Age are given in years except for fetal individuals, for whom ages are given as weeks in utero (WIU), months in utero (MIU), or birth.

[d] Individuals listed as "cf. female" or "cf. male" here are listed in Appendix 6.2 as "female" and "male," respectively. "cf. female" individuals were counted as female and "cf. male" individuals as male throughout the mortuary analysis.

APPENDIX 9.1

Master List of Bead Shipments from San Blas, Mexico, to Presidios and Missions in Alta California, 1769–1816

Year	Destination	Quantity	Unit	Description/Notes	Reference
1769	San Diego and Monterey	3	*libra*		Chapman 1324
1769	San Diego and Monterey	1	*gruesa*	Guastecas	Chapman 1324
1769	San Diego and Monterey	2	*libra*	*azul*	Chapman 1324
1769	San Diego and Monterey	1	*libra*	*pita de niña, coral, esmalto*	Chapman 1324
1769	San Diego and Monterey	165	*hilos de Abalorios*		Chapman 1324
1769	San Diego and Monterey	3	*mazo*		Chapman 1324
1769	San Diego and Monterey	300	*mazo*		Chapman 1324
1769	San Diego and Monterey	300	*mazo*	*color de leche*	Chapman 1324
1769	San Diego and Monterey	16	*mazo*		Chapman 1324
1769	San Diego and Monterey	12	*docena*		Chapman 1324
1769	San Diego and Monterey	4	*docena*		Chapman 1351
1769	San Diego and Monterey	15	*docenas de medallas*		Chapman 1351
1769	San Diego and Monterey	7	*grano*		Chapman 1351
1769	San Diego and Monterey	47	*mazo*		Chapman 1351
1769	San Diego and Monterey	3	*mazo*		Chapman 1351
1769	San Diego and Monterey	60	*mazo*	*color de leche*	Chapman 1351
1769	San Diego and Monterey	16	*libra*		Chapman 1351
1769	San Diego Mission and Escolta, *resumen* made in La Paz	2	l *de hilo*	*azul*	Chapman 1189
1770	MSD	1	*mazo*		AGN DPHM 22 2a:16:02b
1770	MSD	1	*tumba*	*azul*	AGN DPHM 22 2a:16:02b
1770	SDP	1	*libra*	*azul*	Chapman 1440
1770	SDP	1	*libra*	*blanca de niña*	Chapman 1440
1772	MSD	12	*libra*		AGN DPHM 22 2a:16:06b
1772	MSD	20	*mazo*		AGN DPHM 22 2a:16:06b
1772	MSD	2	*libra*	*azul*	AGN DPHM 22 2a:16:06b
1772	MSD	2	*libra*	*blanco*	AGN DPHM 22 2a:16:06b
1772	MSD	2	*grano*		AGN DPHM 22 2a:16:06b
1773	SG	20	*mazo*		AGN DPHM 23 1a:18:8a
1773	SG	10	*libra*		AGN DPHM 23 1a:18:8a
1774	MSD	12	*libra*		AGN DPHM 22 2a:16:10a
1774	MSD	25	*mazo*		AGN DPHM 22 2a:16:10a
1774	MSD	6	*libra*	*azul*	AGN DPHM 22 2a:16:10a
1774	MSD	2	*libra*	*blanco*	AGN DPHM 22 2a:16:10a
1774	MSD	2	*grano*		AGN DPHM 22 2a:16:10a
1775	SG	4	*grano*		AGN DPHM 23 1a:18:14b
1776	MSD	2	*grano*		AGN DPHM 22 2a:16:15a
1776	MSD	12	*libra*		AGN DPHM 22 2a:16:15a

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Year	Destination	Quantity	Unit	Description/Notes	Reference
1776	MSD	6	*libra*	*azul*	AGN DPHM 22 2a:16:15b
1776	SJC	6	*libra*	*azul*	AGN DPHM 22 2a:16:17a
1776	SJC	34	*mazo*		AGN DPHM 23 1a:19:02a
1776	SJC	12	*libra*		AGN DPHM 23 1a:19:02a
1776	SJC	4	*libra*	*blanco*	AGN DPHM 23 1a:19:02a
1777	SG	6	*mazo*		AGN DPHM 23 1a:18:18b
1777	SJC	15	*mazo*		AGN DPHM 23 1a:19:04a
1777	SJC	3	*libra*	*blanco*	AGN DPHM 23 1a:19:05a
1777	SJC	5	*libra*		AGN DPHM 23 1a:19:05a
1777	SJC	8	*libra*	*azul*	AGN DPHM 23 1a:19:06a
1777	SJC	3	*libra*	*blanco*	AGN DPHM 23 1a:19:06a
1777	SJC	4	*mazo*		AGN DPHM 23 1a:19:07a
1777	SJC	1	*grano*		AGN DPHM 23 1a:19:07a
1777	SJC	2	*libra*	*azul*	AGN DPHM 23 1a:19:07a
1777	SJC	3	*libra*		AGN DPHM 23 1a:19:07b
1778	MSD	2	*grano*		AGN DPHM 22 2a:16:18b
1778	MSD	4	*mazo*		AGN DPHM 22 2a:16:18b
1778	MSD	2	*libra*	*azul*	AGN DPHM 22 2a:16:19a
1778	MSD	3	*libra*		AGN DPHM 22 2a:16:19a
1778	MSD	2	*libra*	*blanco*	AGN DPHM 22 2a:16:19b
1778	SJC	3	*libra*		AGN DPHM 23 1a:19:09a
1778	SJC	1	*grano*		AGN DPHM 23 1a:19:09a
1778	SJC	6	*mazo*		AGN DPHM 23 1a:19:09a
1779	MSD	4	*mazo*		AGN DPHM 22 2a:16:21a
1779	MSD	1	*grano*		AGN DPHM 22 2a:16:21a
1779	MSD	2	*libra*		AGN DPHM 22 2a:16:21a
1779	MSD	3	*libra*	*azul*	AGN DPHM 22 2a:16:21a
1779	MSD	2	*grano*		AGN DPHM 22 2a:16:22b
1779	MSD	8	*mazo*		AGN DPHM 22 2a:16:22b
1780	MSD	2	*libra*	*azul*	AGN DPHM 22 2a:16:23b
1780	MSD	2	*libra*	*blanco*	AGN DPHM 22 2a:16:23b
1780	MSD	4	*mazo*		AGN DPHM 22 2a:16:24b
1782	MSD	8	*libra*	*azul*	AGN DPHM 22 2a:16:26a
1782	MSD	2	*libra*	*blanco*	AGN DPHM 22 2a:16:26a
1782	MSD	4	*libra*		AGN DPHM 22 2a:16:26a
1782	MSD	2	*grano*		AGN DPHM 22 2a:16:26b
1782	MSD	6	*mazo*		AGN DPHM 22 2a:16:26b
1782	SG	12	*libra*	*azul*	AGN DPHM 23 1a:18:25b
1782	SG	6	*libra*	*blanco*	AGN DPHM 23 1a:18:25b
1782	SG	6	*libra*		AGN DPHM 23 1a:18:25b
1782	SG	12	*mazo*		AGN DPHM 23 1a:18:25b

Year	Destination	Quantity	Unit	Description/Notes	Reference
1782	SJC	4	*libra*	*azul*	AGN DPHM 23 1a:19:12b
1782	SJC	2	*libra*	*blanco*	AGN DPHM 23 1a:19:12b
1782	SJC	4	*libra*		AGN DPHM 23 1a:19:12b
1782	SJC	6	*mazo*		AGN DPHM 23 1a:19:12b
1782	SJC	2	*grano*		AGN DPHM 23 1a:19:12b
1783	MSD	8	*mazo*	4 *blancos*, 2 *negros*, *y* 2 *encarmados en* 9 p	AGN DPHM 22 2a:16:27b
1783	MSD	—	1/2 *libra*		AGN DPHM 22 2a:16:28a
1783	MSD	1	*grano*		AGN DPHM 22 2a:16:28b
1783	MSD	4	*libra*		AGN DPHM 22 2a:16:28b
1783	MSD	2	*libra*		AGN DPHM 22 2a:16:28b
1784	MSD	3	*libra*	*azul*	AGN DPHM 22 2a:16:30a
1784	MSD	3	*libra*	*blanco*	AGN DPHM 22 2a:16:30a
1784	MSD	3	*libra*		AGN DPHM 22 2a:16:30b
1784	MSD	1	*grano*		AGN DPHM 22 2a:16:31a
1784	SG	6	*libra*	*azul*	AGN DPHM 23 1a:18:29b
1784	SG	4	*libra*	*blanco*	AGN DPHM 23 1a:18:29b
1784	SG	4	*libra*		AGN DPHM 23 1a:18:29b
1784	SJC	6	*mazo*		AGN DPHM 23 1a:19:16b
1784	SJC	1	*grano*		AGN DPHM 23 1a:19:16b
1784	SJC	3	*libra*	*azul*	AGN DPHM 23 1a:19:16b
1784	SJC	3	*libra*	*blanco*	AGN DPHM 23 1a:19:16b
1784	SJC	3	*libra*		AGN DPHM 23 1a:19:16b
1785	MSD	3	*libra*	*azul*	AGN DPHM 22 2a:16:32b
1785	MSD	3	*libra*	*blanco*	AGN DPHM 22 2a:16:32b
1785	MSD	3	*libra*		AGN DPHM 22 2a:16:32b
1785	MSD	1	*grano*		AGN DPHM 22 2a:16:33a
1785	MSD	7	*mazo*		AGN DPHM 22 2a:16:33a
1785	SG	6	*libra*	*azul*	AGN DPHM 23 1a:18:31b
1785	SG	4	*libra*	*blanco*	AGN DPHM 23 1a:18:32a
1785	SG	1	*grano*		AGN DPHM 23 1a:18:32b
1785	SJC	6	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:18b
1785	SBP	—			SBTHP; Doc. 8; PI 122
1786	SG	6	*libra*	*azul*	AGN DPHM 23 1a:18:34a
1786	SG	4	*libra*	*blanco*	AGN DPHM 23 1a:18:34a
1786	SG	4	*mazo*		AGN DPHM 23 1a:18:34b
1787	MSD	7	*mazo*		AGN DPHM 22 2a:16:34b
1787	MSD	6	*libra*	*azul*	AGN DPHM 22 2a:16:34b
1787	MSD	3	*libra*	*blanco*	AGN DPHM 22 2a:16:34b

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Year	Destination	Quantity	Unit	Description/Notes	Reference
1787	MSD	1	*grano*		AGN DPHM 22 2a:16:35a
1787	SG	5	*libra*	*azul*	AGN DPHM 23 1a:18:36a
1787	SG	5	*libra*	*blanco*	AGN DPHM 23 1a:18:36a
1787	SJC	6	*mazo*		AGN DPHM 23 1a:19:21a
1788	MSD	6	*libra*	*azul*	AGN DPHM 22 2a:16:36b
1788	MSD	1	*mantas*		AGN DPHM 22 2a:16:36b
1788	MSD	1	*grano*		AGN DPHM 22 2a:16:36b
1788	SG	1	*grano*		AGN DPHM 23 1a:18:38a
1788	SJC	1	*libra*		AGN DPHM 23 1a:19:21b
1788	SJC	3	*libra*	*azul*	AGN DPHM 23 1a:19:22a
1788	SJC	3	*libra*	*blanco*	AGN DPHM 23 1a:19:22a
1788	SJC	8	*mazo*	*verde*	AGN DPHM 23 1a:19:22b
1788	SJC	6	*mazo*	*azul*	AGN DPHM 23 1a:19:22b
1788	SJC	2	*mazo*	*granates*	AGN DPHM 23 1a:19:22b
1788	SJC	1	*grano*		AGN DPHM 23 1a:19:22b
1788	MSD	11	*mazo*	*azul*	AGN DPHM 22 1a
1788	MSD	1	*mazo*	*blanco*	AGN DPHM 22 1a
1788	MSD	1	*grano*		AGN DPHM 22 1a
1788	MSD	13	*mazo*	*azul*	AGN DPHM 22 1a
1788	MSD	23	*mazo*		AGN DPHM 22 1a
1788	MSD	5	*libra*		AGN DPHM 22 1a
1788	SG	9	*mazo*	*azul*	AGN DPHM 22 1a
1788	SG	8	*mazo*	*blanco*	AGN DPHM 22 1a
1788	SBP	—			SBTHP; Doc. 13; AGN CA 27
1788	SBP	6 dozen	*mazo*	*azul*	AGN CA 27:9
1788	SBP	6	*mazo*		AGN CA 27:9
1788	SBP	1	*arroba*		AGN CA 27:9
1788	SBP	4	*libra*	*azul*	AGN CA 27:9
1788	SBP	4	*libra*	*blanco*	AGN CA 27:9
1789	MSD	1	*grano*		AGN DPHM 22 2a:16:38b
1789	MSD	7	*mazo*		AGN DPHM 22 2a:16:38b
1789	SJC	2	*grano*		AGN DPHM 23 1a:19:24b
1789	SJC	8	*mazo*	*blanco*	AGN DPHM 23 1a:19:25a
1789	SJC	8	*mazo*	*azul*	AGN DPHM 23 1a:19:25a
1789	MSD	6	*libra*	*azul*	AGN DPHM 22 1a
1789	MSD	3	*libra*		AGN DPHM 22 1a
1789	MSD	7	*mazo*		AGN DPHM 22 1a
1789	MSD	1	*grano*		AGN DPHM 22 1a
1789	SG	6	*libra*		AGN DPHM 22 1a
1789	SG	4	*libra*	*blanco*	AGN DPHM 22 1a

Year	Destination	Quantity	Unit	Description/Notes	Reference
1789	SG	8	*mazo*		AGN DPHM 22 1a
1789	SJC	3	*libra*	*azul*	AGN DPHM 22 1a
1789	SJC	13	*mazo*		AGN DPHM 22 1a
1789	SG	11	*mazo*	*azul/blanco*	AGN DPHM 22 1a
1789	SG	4	*mazo*		AGN DPHM 22 1a
1789	SJC	8	*mazo*	*azul/blanco*	AGN DPHM 22 1a
1789	SJC	1	*libra*	*azul de niña*	AGN DPHM 22 1a
1789	SJC	8	*mazo*	*candelina*	AGN DPHM 22 1a
1789	SJC	16	*mazo*		AGN DPHM 22 1a
1789	MSD	6	*arroba*	*azul*	AGN DPHM 22 1a
1789	MSD	7	*mazo*		AGN DPHM 22 1a
1789	SJC	3	*libra*	*azul*	AGN DPHM 22 1a
1789	SJC	13	*mazo*		AGN DPHM 22 1a
1789	SBP	—			SBTHP Doc. 14; AGN CA 27
1789	SBP	1	*arroba*		AGN CA 27:12
1789	SBP	12	*mazo*	*por mitad azul y granate*	AGN CA 27:12
1789	SDP	12	*libra*	*azul/blanco*	AGN CA 27:12
1790	MSD	12	*mazo*		AGN DPHM 22 2a:16:39b
1790	SG	4	*libra*	*azul/blanco*	AGN DPHM 23 1a:18:40b
1790	SG	3	*libra*		AGN DPHM 23 1a:18:41a
1790	SG	1	*grano*		AGN DPHM 23 1a:18:41b
1790	SJC	12	*mazo*		AGN DPHM 23 1a:19:26a
1790	SJC	3	*mazo*	*granates*	AGN DPHM 23 1a:19:26a
1790	SG	4	*madejas*		AGN DPHM 22 1a
1790	SG	3	*arroba*		AGN DPHM 22 1a
1790	SJC	12	*mazo*		AGN DPHM 22 1a
1790	SJC	3	*mazo*		AGN DPHM 22 1a
1790	MSD	12	*mazo*		AGN DPHM 22 1a
1790	SBP	—			SBTHP; Doc. 15; AGN CA 70
1790	SBP	—			SBTHP; Doc. 16; AGN CA 27
1790	SDP	2	*grano*		AGN CA 70:1:1–12
1790	SDP	30	*mazo*	*azul/verde*	AGN CA 70:1:1–12
1790	SBP	1	*arroba*		AGN CA 70:1:1–12
1790	SBP	1	*libra*	*azul/blanco*	AGN CA 70:1:1–12
1790	SBP	6	*mazo*	*azul*	AGN CA 70:1:1–12
1790	SBP	6	*mazo*		AGN CA 70:1:1–12
1790	SDP	2	*arroba*	*de zapateros*	AGN CA 27

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Year	Destination	Quantity	Unit	Description/Notes	Reference
1790	SBP	6	*mazo*		AGN CA 27
1790	SBP	6	*mazo*	*azul*	AGN CA 27
1790	SBP	8	*libra*	*azul/blanco*	AGN CA 27
1791	MSD	8	*libra*	*azul/blanco*	AGN DPHM 22 2a:16:41a
1791	MSD	8	*mazo*		AGN DPHM 22 2a:16:41a
1791	MSD	3	*libra*		AGN DPHM 22 2a:16:42b
1791	MSD	3	*libra*		AGN DPHM 22 2a:16:47a
1791	MSD	16	*mazo*		AGN DPHM 22 2a:16:47a
1791	MSD	3	*grano*		AGN DPHM 22 2a:16:47a
1791	MSD	3	*libra*		AGN DPHM 22 2a:16:47b
1791	SG	10	*libra*	*azul/blanco*	AGN DPHM 23 1a:18:43a
1791	SG	3	*libra*		AGN DPHM 23 1a:18:43a
1791	SJC	6	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:28a
1791	SJC	3	*libra*		AGN DPHM 23 1a:19:28a
1791	SJC	12	*mazo*		AGN DPHM 23 1a:19:29b
1791	SJC	8	*libra*		AGN DPHM 23 1a:19:33b
1791	SJC	4	*grano*		AGN DPHM 23 1a:19:33b
1791	SJC	16	*mazo*		AGN DPHM 23 1a:19:34a
1791	SJC	3	*madejas*		AGN DPHM 22 1a
1791	SJC	6	*clavos*	*azul/blanco*	AGN DPHM 22 1a
1791	SJC	12	*mazo*		AGN DPHM 22 1a
1791	SJC	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1791	SJC	3	*libra*		AGN DPHM 22 1a
1791	SJC	8	*mazo*		AGN DPHM 22 1a
1791	SG	5	*libra*	*blanco*	AGN DPHM 22 1a
1791	SG	3	*libra*		AGN DPHM 22 1a
1791	SG	5	*libra*	*azul*	AGN DPHM 22 1a
1791	MSD	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1791	MSD	3	*libra*		AGN DPHM 22 1a
1791	MSD	8	*mazo*		AGN DPHM 22 1a
1791	MSD	3	*libra*		AGN DPHM 22 1a
1791	MSD	14	*mazo*		AGN DPHM 22 1a
1791	MSD	3	*grano*		AGN DPHM 22 1a
1791	MSD	3	*libra*		AGN DPHM 22 1a
1791	SG	8	*libra*		AGN DPHM 22 1a
1791	SG	2	*bultos*		AGN DPHM 22 1a
1791	SG	22	*mazo*		AGN DPHM 22 1a
1791	SG	6	*grano*		AGN DPHM 22 1a
1791	SJC	8	*libra*		AGN DPHM 22 1a
1791	SJC	4	*grano*		AGN DPHM 22 1a
1791	SJC	16	*mazo*		AGN DPHM 22 1a

Year	Destination	Quantity	Unit	Description/Notes	Reference
1791	SBP	2	*arroba*		AGN CA 46:3:47a
1791	SBP	—			SBTHP; Doc. 20; AGN CA 46
1791	SDP	2	*arroba*		AGN CA 46:3:63–68
1791	SDP	10	*mazo*	*menos amarillo*	AGN CA 46:3:63–68
1792	MSD	6	*libra*	*azul/blanco*	AGN DPHM 22 2a:16:50a
1792	MSD	2	*libra*		AGN DPHM 22 2a:16:50b
1792	SG	8	*libra*		AGN DPHM 23 1a:18:48a
1792	SG	2	*bultos*		AGN DPHM 23 1a:18:48b
1792	SG	22	*mazo*		AGN DPHM 23 1a:18:48b
1792	SJC	12	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:37a
1792	SJC	6	*libra*		AGN DPHM 23 1a:19:37b
1792	SJC	20	*mazo*	*azul/verde*	AGN DPHM 23 1a:19:39a
1792	SJC	12	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:39b
1792	SJC	8	*libra*		AGN DPHM 23 1a:19:39b
1792	MSD	6	*libra*	*azul/blanco*	AGN DPHM 22 1a
1792	MSD	2	*libra*		AGN DPHM 22 1a
1792	SG	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1792	SBP	—			SBTHP; Doc. 24; AGN CA 7
1793	MSD	7	*libra*		AGN DPHM 22 2a:16:52a
1793	SG	18	*libra*	*azul/blanco*	AGN DPHM 23 1a:18:52a
1793	SG	8	*libra*	*azul/blanco*	AGN DPHM 23 1a:18:53b
1793	SG	8	*libra*		AGN DPHM 23 1a:18:53b
1793	SJC	6	*libra*		AGN DPHM 22 1a
1793	SJC	4	*libra*		AGN DPHM 22 1a
1793	SJC	6	*libra*	*azul*	AGN DPHM 22 1a
1793	SJC	4	*libra*		AGN DPHM 22 1a
1793	SJC	20	*mazo*		AGN DPHM 22 1a
1793	SG	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1793	SG	8	*libra*		AGN DPHM 22 1a
1793	MSD	179			AGN DPHM 22 1a
1794	MSD	2	*libra*		AGN DPHM 22 2a:16:55a
1794	SG	12	*libra*		AGN DPHM 23 1a:18:61b
1794	SJC	6	*libra*	*blanco*	AGN DPHM 23 1a:19:42b
1794	SJC	6	*libra*	*azul*	AGN DPHM 23 1a:19:42b
1794	SJC	12	*libra*		AGN DPHM 23 1a:19:42b
1794	SJC	20	*mazo*		AGN DPHM 23 1a:19:43a
1794	SJC	6	*libra*	*blanco*	AGN DPHM 22 1a
1794	SJC	6	*libra*	*azul*	AGN DPHM 22 1a

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Year	Destination	Quantity	Unit	Description/Notes	Reference
1794	SJC	12	*libra*		AGN DPHM 22 1a
1794	SJC	20	*mazo*	*azules y en carnad*	AGN DPHM 22 1a
1794	SG	7	*libra*		AGN DPHM 22 1a
1794	SG	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1794	SG	—		just says "*Abalorios*"	AGN DPHM 22 1a
1794	MSD	2	*libra*		AGN DPHM 22 1a
1794	SDP	10	*mazo*	*verde*/a	AGN CA 69
1795	MSD	12	*mazo*		AGN DPHM 22 2a:16:57a
1795	MSD	4	*libra*	*azul/blanco*	AGN DPHM 22 2a:16:57b
1795	MSD	2	*libra*		AGN DPHM 22 2a:16:57b
1795	SJC	20	*mazo*		AGN DPHM 23 1a:19:45a
1795	SJC	12	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:45b
1795	SJC	12	*libra*		AGN DPHM 23 1a:19:45b
1795	SJC	8	*libra*	*blanco*	AGN DPHM 23 1a:19:47b
1795	SJC	6	*libra*	*azul*	AGN DPHM 23 1a:19:47b
1795	SJC	6	*libra*		AGN DPHM 23 1a:19:47b
1795	SBP	—			SBTHP; Doc. 28; AGN CA 69
1795	SBP	—			SBTHP; Doc. 30; AGN CA 69
1795	SBP	100	*libra*		AGN CA 69
1795	SDP	30	*mazo*	*azul/verde*	AGN CA 69
1795	SBP	2			AGN CA 69
1795	SBP	80	*mazo*	*azul/verde*	AGN CA 69
1796	SJC	12	*libra*		AGN DPHM 22 1a
1796	SJC	12	*libra*		AGN DPHM 22 1a
1796	SJC	20	*mazo*		AGN DPHM 22 1a
1796	SG	12	*libra*		AGN DPHM 22 1a
1796	SG	12	*mazo*		AGN DPHM 22 1a
1796	MSD	6	*libra*		AGN DPHM 22 1a
1796	MSD	2	*libra*		AGN DPHM 22 1a
1796	MSD	12	*mazo*		AGN DPHM 22 1a
1796	SBP	—			SBTHP; Doc. 32; AGN CA 74
1796	SDP	4			AGN CA 69
1796	SDP	2	*grano*		AGN CA 69
1796	SBP	30	*mazo*	*azul*	AGN CA 69
1796	SBP	1			AGN CA 69
1796	SDP	40	*libra*	*buena para zapateros*	AGN CA 74
1796	SDP	30	*mazo*	*azul/verde*	AGN CA 74

Year	Destination	Quantity	Unit	Description/Notes	Reference
1796	SBP	37	*libra*	*buena para zapateros*	AGN CA 74
1796	SBP	80	*mazo*	*enteros azul, de ellas* 30 *verde*	AGN CA 74
1796	MTP	100	*mazo*	*azul y verde, de ellos* 50 *blancos*	AGN CA 74
1797	SG	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1797	SG	$^1/_2$			AGN DPHM 22 1a
1797	SJC	12	*libra*	*azul/blanco*	AGN DPHM 22 1a
1797	MSD	12	*mazo*		AGN DPHM 22 1a
1797	SLR	10	*mazo*		AGN DPHM 22 1a
1797	MSF	10	*mazo*		AGN DPHM 22 1a
1797	MSF	3	*libra*		AGN DPHM 22 1a
1798	SJC	4	*libra*	*blanco*	AGN DPHM 22 1a
1798	SJC	10	*mazo*		AGN DPHM 22 1a
1798	MSF	—		no beads	AGN DPHM 22 1a
1798	SG	8	*libra*		AGN DPHM 22 1a
1798	SJC	6	*libra*		AGN DPHM 22 1a
1798	SJC	12	*libra*		AGN DPHM 22 1a
1798	SJC	20	*mazo*		AGN DPHM 22 1a
1798	MSD	2	*libra*		AGN DPHM 22 1a
1798	MSD	4	*libra*	*azul/blanco*	AGN DPHM 22 1a
1798	MSD	12	*mazo*		AGN DPHM 22 1a
1799	MSF	4	*libra*		AGN DPHM 22 1a
1799	MSF	4	*libra*		AGN DPHM 22 1a
1799	SG	21	*libra*		AGN DPHM 22 1a
1799	SG	8	*libra*		AGN DPHM 22 1a
1799	SJC	6	*libra*		AGN DPHM 22 1a
1799	SJC	12	*libra*		AGN DPHM 22 1a
1799	SJC	20	*mazo*		AGN DPHM 22 1a
1799	SLR	4	*libra*		AGN DPHM 22 1a
1799	SLR	4	*grano*		AGN DPHM 22 1a
1799	MSD	12	*mazo*		AGN DPHM 22 1a
1800	MSF	4	*libra*		AGN DPHM 22 1a
1800	MSF	4	*libra*	*blanco*	AGN DPHM 22 1a
1800	MSF	4	*libra*		AGN DPHM 22 1a
1800	SG	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1800	SJC	6			AGN DPHM 22 1a
1800	SJC	6	*libra*	*azul*	AGN DPHM 22 1a
1800	SJC	6	*libra*	*blanco*	AGN DPHM 22 1a
1800	SJC	6	*libra*		AGN DPHM 22 1a

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Year	Destination	Quantity	Unit	Description/Notes	Reference
1800	SJC	3	*libra*		AGN DPHM 22 1a
1800	MSD	—		no beads for the mission in this factura	AGN DPHM 22 1a
1801	MSD	6	*libra*	*blanco*	AGN DPHM 22 2a:16:59b
1801	MSD	7	*libra*	*azul*	AGN DPHM 22 2a:16:59b
1801	SG	4	*libra*	*blanco*	AGN DPHM 23 1a:18:63b
1801	MSF	—			AGN DPHM 22 1a
1801	SG	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1801	SG	1	*cajon*		AGN DPHM 22 1a
1801	SJC	8	*dchas*	t	AGN DPHM 22 1a
1801	SLR	—			AGN DPHM 22 1a
1801	MSD	7	p	*azul*	AGN DPHM 22 1a
1801	MSD	6	*libra*	*blanco*	AGN DPHM 22 1a
1802	MSD	10	*libra*		AGN DPHM 22 2a:16:61b
1802	MSD	10	*libra*		AGN DPHM 22 2a:16:61b
1802	SG	8	*libra*	*blanco*	AGN DPHM 23 1a:18:67a
1802	SJC	12	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:50b
1802	SLR	4	*libra*	*azul*	AGN DPHM 22 2a
1802	SLR	4	*libra*	*blanco*	AGN DPHM 22 2a
1803	MSD	6	*libra*		AGN DPHM 22 2a:16:63a
1803	MSD	9	*libra*	*azul/blanco*	AGN DPHM 22 2a:16:63a
1803	MSD	24	*mazo*		AGN DPHM 22 2a:16:64a
1803	SG	3	*libra*	*azul*	AGN DPHM 23 1a:18:64b
1803	SG	3	*libra*	*azul*	AGN DPHM 23 1a:18:65b
1803	SG	3	*libra*	*blanco*	AGN DPHM 23 1a:18:65b
1803	SG	18	*mazo*	6 *blancos*, 6 *azules*, and 6 *negros*	AGN DPHM 23 1a:18:65b
1803	SJC	5	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:53a
1803	SJC	20	*mazo*	*azul/verde*	AGN DPHM 23 1a:19:55a
1803	MSF	6	*libra*	*blanco*	AGN DPHM 22 1a
1803	MSF	8	*madejas*		AGN DPHM 22 1a
1803	MSF	4	*libra*	illegible	AGN DPHM 22 1a
1803	MSF	24	*mazo*		AGN DPHM 22 1a
1803	SG	quantity not legible	*libra*	*blanco*	AGN DPHM 22 1a
1803	SG	4	*libra*		AGN DPHM 22 1a
1803	SG	—		says "4 *lls de ylo canamo en lugar de pita azul*"	AGN DPHM 22 1a
1803	SG	12	*mazo*		AGN DPHM 22 1a
1803	SJC	3	*libra*		AGN DPHM 22 1a
1803	SLR	3	*libra*	*blanco*	AGN DPHM 22 1a

Year	Destination	Quantity	Unit	Description/Notes	Reference
1803	SLR	2	*libra*		AGN DPHM 22 1a
1803	SLR	6	*madejas*		AGN DPHM 22 1a
1803	SLR	12	*mazo*		AGN DPHM 22 1a
1803	MSD	6	*libra*		AGN DPHM 22 1a
1803	MSD	4	*libra*	*azul*	AGN DPHM 22 1a
1803	MSD	4	*libra*		AGN DPHM 22 1a
1803	MSD	12	*mazo*		AGN DPHM 22 1a
1803	MSD	12	*mazo*		AGN DPHM 22 1a
1803	SLR	12	*mazo*		AGN DPHM 22 2a
1804	MSD	6		*azul/blanco*	AGN DPHM 22 2a:16:65b
1804	MSD	3		*blanco*	AGN DPHM 22 2a:16:65b
1804	MSD	18	*mazo*	6 *blancos*, 6 *azules*, and 6 *negros*	AGN DPHM 22 2a:16:65b
1804	SJC	6	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:57b
1804	SJC	6	*libra*		AGN DPHM 23 1a:19:57b
1804	MSF	4	*libra*		AGN DPHM 22 1a
1804	MSF	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1804	MSF	8	*libra*	*azul/blanco*	AGN DPHM 22 1a
1804	SJC	6	*libra*		AGN DPHM 22 1a
1804	SJC	6	*libra*	*azul/blanco*	AGN DPHM 22 1a
1804	SJC	20	*mazo*		AGN DPHM 22 1a
1804	SLR	6	*libra*		AGN DPHM 22 1a
1804	SLR	12	*libra*	*azul/blanco*	AGN DPHM 22 1a
1804	MSD	3	*libra*		AGN DPHM 22 1a
1804	MSD	6	*libra*	*azul/blanco*	AGN DPHM 22 1a
1804	MSD	18	*mazo*		AGN DPHM 22 1a
1804	SLR	6	*libra*		AGN DPHM 22 2a
1804	SLR	6	*manolos*	*blanco*	AGN DPHM 22 2a
1804	SLR	6	*manolos*	*azul*	AGN DPHM 22 2a
1805	MSD	18	*mazo*	*blanco, azul, y negro*	AGN DPHM 22 2a:16:67b
1805	SG	18	*mazo*	*blanco, azul, y negro*	AGN DPHM 23 1a:18:67b
1805	SJC	12	*libra*		AGN DPHM 23 1a:19:61b
1805	SJC	18	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:61b
1805	SJC	20	*mazo*	*verde y norquin*	AGN DPHM 23 1a:19:61b
1805	MSF	5	*madejas*		AGN DPHM 22 1a
1805	MSF	1	*tompete*		AGN DPHM 22 1a
1805	SG	6	*libra*		AGN DPHM 22 1a
1805	SG	1	*tompete*		AGN DPHM 22 1a
1805	SJC	12	*libra*	*blanco*	AGN DPHM 22 1a

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Year	Destination	Quantity	Unit	Description/Notes	Reference
1805	SJC	6	*libra*	*azul*	AGN DPHM 22 1a
1805	SJC	12	*libra*		AGN DPHM 22 1a
1805	SJC	1	*tompiate*		AGN DPHM 22 1a
1805	SLR	4	*libra*		AGN DPHM 22 1a
1805	SLR	2	*libra*		AGN DPHM 22 1a
1805	SLR	6	*libra*		AGN DPHM 22 1a
1805	MSD	6	*madejas*		AGN DPHM 22 1a
1805	MSD	18	*mazo*		AGN DPHM 22 1a
1805	SLR	6	*libra*	*azul/blanco*	AGN DPHM 22 2a
1805	SLR	6	*libra*		AGN DPHM 22 2a
1807	MSD	6	*libra*		AGN DPHM 22 2a:16:72a
1807	MSD	12	*libra*	*azul/blanco*	AGN DPHM 22 2a:16:72a
1807	MSD	11	*mazo*		AGN DPHM 22 2a:16:72a
1807	SG	6	*libra*		AGN DPHM 23 1a:18:72a
1807	SG	12	*libra*	*azul/blanco*	AGN DPHM 23 1a:18:72a
1807	SG	11	*mazo*		AGN DPHM 23 1a:18:72a
1807	SG	4	*libra*	*azul*	AGN DPHM 23 1a:18:72b
1807	SG	4	*libra*	*blanco*	AGN DPHM 23 1a:18:72b
1807	SG	28	*mazo*	*contraste*	AGN DPHM 23 1a:18:76a
1807	SG	6	*libra*	*blanco*	AGN DPHM 23 1a:18:76a
1807	SBP *havilitado*	—			AGN CA 50:84–144
1807	SBP *havilitado*	—			AGN CA 50:84–144
1807	SLR	12	*libra*		AGN DPHM 22 2a
1808	MSD	12	*libra*		AGN DPHM 22 2a:16:73b
1808	MSD	3	*libra*		AGN DPHM 22 2a:16:73b
1808	SG	23	*mazo*		AGN DPHM 23 1a:18:82a
1808	SJC	24	*libra*		AGN DPHM 23 1a:19:67a
1808	SJC	30	*mazo*		AGN DPHM 23 1a:19:67b
1809	MSD	8	*libra*		AGN DPHM 22 2a:16:75a
1809	SG	12	*mazo*		AGN DPHM 23 1a:18:84b
1809	SJC	6	*libra*		AGN DPHM 23 1a:19:69b
1809	SJC	20	*mazo*		AGN DPHM 23 1a:19:69b
1809	SJC	12	*libra*		AGN DPHM 23 1a:19:70a
1809	SJC	8	*libra*	*azul/blanco*	AGN DPHM 23 1a:19:72a
1809	SJC	4	*libra*		AGN DPHM 23 1a:19:73a
1809	SLR	12	*mazo*		AGN DPHM 22 2a
1810	MSD	22	*libra*	*azul/blanco*	AGN DPHM 22 2a:16:77a
1811	MSD	6	*libra*		AGN DPHM 22 2a:16:78a
1811	SJC	30	*mazo*		AGN DPHM 23 1a:19:75a
1811	SJC	12	*libra*		AGN DPHM 23 1a:19:76a
1811	SLR	12	*libra*		AGN DPHM 22 2a

Year	Destination	Quantity	Unit	Description/Notes	Reference
1811	SLR	14	*docena*		AGN DPHM 22 2a
1811	SLR	6	*mazo*	*azul/blanco*	AGN DPHM 22 2a
1812	MSD	12	*libra*		AGN DPHM 22 2a:16:80b
1812	SG	6	*mazo*	*esmeraldas*	AGN DPHM 23 1a:18:93a
1813	MSD	4	*libra*		AGN DPHM 22 2a:16:83b
1813	SLR				AGN DPHM 22 2a
1814	SLR	14	*mazo*		AGN DPHM 22 2a
1816	MSF	1	*grano*		AHH:288:40:15
1816	MSF	2	*grano*		AHH:288:40:15
1816	SG	8	*libra*		AHH:288:40:15
1816	SG	6	*mazo*	*esmeralda*	AHH:288:40:15
1816	SG	2	*grano*		AHH:288:40:15
1816	SJC	2	*grano*		AHH:288:40:15
1816	SLR	20	*mazo*		AHH:288:40:15
1816	SLR	12			AHH:288:40:15

Key: AGN = Archivo General de la Nación; AHH = Archivo Historico de Hacienda; CA =Californias; DPHM = Documentos para la Historia de México; MSD = Mission San Diego; MSF = Mission San Fernando; MTP = Monterey presidio; PI = Provincias Internas; SBP = Santa Bárbara presidio; SBTHP = Santa Barbara Trust for Historic Preservation; SDP = San Diego presidio; SG = Mission San Gabriel; SJC = Mission San Juan Capistrano; SLR = Mission San Luis Rey.

APPENDIX 9.2

Memo on Scanned Documents

TO: John Douglass
FROM: Steven Hackel
RE: Scans of Documents
DATE: November 21, 2008

This memo provides a further elaboration on the scanned images that I recently sent to you. Those scanned images are copies of the sources that I am using to get a sense of the quantity and quality of the Spanish beads that were sent north to Alta California during the colonial period. It was these Spanish glass beads that found their way into the hands of California Indians, who used them as items of commerce and considered them to be of intrinsic and enduring cultural value.

To date, I have created a list of all beads sent to Missions San Diego, San Juan Capistrano, San Luis Rey, and San Gabriel. This list includes more than 500 instances of beads being shipped to one of these four missions or to the presidios of San Diego or Santa Barbara. I will send you this list in the form of an Excel spreadsheet as an attachment to my formal write up of my study. These lists of beads sent north come from various sources, and they document the provisions that were sent to the missions from Mexico. The scans that I sent you correspond directly to what is on the Excel spreadsheet. All of these documents are either in Mexico at the National Archives, or in Spain at the Archive of the Indies.

For the most part, I have compiled this material from the *facturas*, the inventories of the shipments sent north. Thus, we can be pretty sure that what appears in the scans actually arrived in California, especially since we know what crate it was sent in and how much freight was paid on it. Note that there is a separate stream of documentation that is commonly confused with the *facturas*. This second source or documents are known as *memorias*, and they are simply requisitions for goods. *Memorias* were prepared at each mission and presidio and then forwarded on to high-ranking officials. These were sent most years from both the missions and presidios, but since they are just wish lists and were not always followed, they can't be considered a record of goods sent to California. So, in the case of the missions I studied, I have skipped over the *memorias* and worked through the *facturas*, guided by the belief that what really matters are the beads sent to California, not the goods that were requested. Thus, in keeping with this decision, the scans that I sent do not include memorias from the missions.

The documentation on the presidios is less thorough, largely because of chaos in the AGN's reorganization of certain parts of their holdings of colonial documentation. For the presidio of San Diego I only was able to locate *facturas* for the years 1789, 1790, 1791, 1794, 1795, and 1796. For the presidio of Santa Barbara I have *facturas* for 8 years. I have no *facturas* for any presidio after the year 1796. For the presidio of Santa Barbara I have a *memoria* for every year that I don't have a *factura*. (Most of the *memorias* for the presidio of Santa Barbara were published in a volume by the Santa Barbara Trust for Historic Preservation.) But I don't think the *memorias* tell us a thing about the actual circulation of Spanish beads in Alta California since many of the *memorias* were never filled as the military increasingly had a hard time sending goods to the presidios, especially after the 1790s. Again, therefore the scans do not include memorias from the missions.

Key to scans:

I. AGNDPHM = AGN, Documentos para la Historia de Mexico, followed by the actual roll number in the AGN collection.

AGNDPHM22.1–18. These 18 scans are of one document. (I was not sure if I could save it as one pdf. so I broke it up into 18 separate files.) These scans are of a record book kept by the College of San Fernando in Mexico City. This was the apostolic college that had jurisdiction over the missions of California. This record book records all of the goods sent north to each of the missions between 1789 and 1805. Essentially, this is a record of the *facturas*—the inventories of goods shipped to each mission each year. *Facturas* were prepared for each mission and they stated what goods were sent north, and they were itemized by trunk. They indicate the value of the goods sent north and their weight, so that shipping fees could be calculated.

AGNDPHM22.2A and AGNDPHM23.1A. These four files are account books kept by the College of San Fernando. For Missions San Luis Rey, San Diego, San Juan Capistrano, and San Gabriel they record all goods purchased by the College for the provisioning of these missions. Technically, these are annual lists of *memorias* or requests for goods. But more accurately they are records of purchases by the College of San Fernando, and these goods should have ended up in the *facturas* that document what actually was sent north. Missing *facturas* made such a comparison of goods impossible.

Note: Each mission each year prepared a *memoria* in which it requested goods to be sent north, but these were just requests. The *memorias* in these books say what the College purchased with the intention that it be sent north. It is worth remembering, though, that these are records of purchases not records of what was sent north even though in my own research I have treated the two as one in the same.

II. AGNCA = AGN, Californias, followed by the *tomo* number in the AGN, followed by the *expediente* and folio numbers if indicated on the original documents. These are *facturas* for separate missions.

III. SBP = Santa Barbara Presidio, *facturas*, from *Documenting Everyday Life in Early Spanish California: The Santa Barbara Presidio Memorias y Facturas, 1779–1810*., ed. Giorgio Perissinotto. (Santa Barbara Trust for Historic Preservation, 1998). These are *facturas* with the year of the document indicated in the file name.

IV. Chapman = These are scans of copies of photostats of documents in the Archivo General de las Indias of Spain. The photostats are in the Huntington Library's Chapman Collection and the Chapman document number is in the scan file number. These documents are for reference purposes only.

APPENDIX 10.1

Henry E. Huntington Library, De la Guerra Collection, FAC 667 (822)

Reyes, Antonio, and others
to [Anastasio Carrillo]

1822, June 21
Los Angeles

822.

Petition re. their claim to their share of the cattle now within the boundaries of a fence put up by the San Fernando Mission, from the Santa Monica mountains to Cahuenga.

Signed by José Palomares at the request of the petitioners, Antonio Reyes, Aniceto Zuñiga, Francisco Ávila, José Polanco + Nicolás Elizalde

Sor. Comicionado

Antonio Reyes, Aniceto Zuñiga, Fran.co Avila, José Solan-
co, y Nicolas Elizalde, todos Vecinos, y Criadores del Pueblo de
N. S.a de los Ang.s con el mas devido respeto, y sumición ante V. se
presentan haciendole ver como sabidores de una cerca q. la Mici-
on de S.n Fernando Rey ~~x~~ arriendado por su Ministro tiene puesta
~~una cerca~~ por la Sierra de Sta. Monica, hasta Caguenga ala
banda de el Pueblo, cogiendo dentro los Aguages de ella con la
Maior parte de Ganados Vacunos, herrados, y señalados, y
orejanos q. en ella existen, y como quiera q. los q. representan
juntam.te con algunos q. despues se han agregado a este
Pueblo, se les han introducido algunos Ganados en dha. Sierra,
como en primer lugar Anton.o Reyes, q. haviendo su difun-
to Padre puesto en S.n Vicente un Rancho de Ganado Ma-
ior, de N.o Conciderable, el año de 99, mas, ó menos, quando
sacó dhos. Ganados p.a el Valle de la Zanja dejó en dho. paraje
algunas Cabezas de Ganado Mayor, por la fuerza del mucho
Monte q. los abriga. En 2.o lugar Aniceto Zuñiga, por
su finado Padre Dio Ynisio de Zuñiga, quien tubo un Rancho
en N.o Concidarable ala Boca del Rio de este Pueblo, cuios
Vicorrecon la muerte de su finado Padre, se tornaron aquel
punto, por el poco cuidado q. dellos tubieron; en tercer
lugar Fran.co Avila, quien tambien puso en el Paraje de
S.n Vicente algun pie de Ganado Suficiente, y por la perdida
q. experimentaba tubo q. retirarlos al Vodeo Comun, dejando
en aquel punto la maior parte de su N.o en donde reside.
José Solanco, abecindado en dho. Pueblo como 20 años con
igual N.o de Vienes mas, o menos; Nicolas Elizalde su Padre
finado Pedro Elizalde avecindado en dho. Pueblo como 14 a.s
con Vienes Vacunos, de los mismos, q. referidos y los mas de este Pueblo
q. residen en aquel punto, como igualm.te si el Sor. Comicionado qui-
siera tomarse el trabajo de informarse de ello, ó servirse de ellos ahora, la
cosa q. son mui pocos los Criadores q. en el referido punto no
tengan algunos Cabezas de Ganado de nueve años a esta parte
con la diferiencia de N.o, y en vista de esto suplicamos al Sor.
Comicionado q. p.a poder logar el junto de estos Vienes
se le sigue acada uno la parte q. le corresponde seg.n se pide. An-
tonio Reyes mil Cabezas, Aniceto Zuñiga trecientas, Fran.co
Abila quinientas, José Solanco ciento, Nicolas Elizalde,

ciento. Amas suplicamos á V. q. cuando la Mision de Sn Fernando Ray fiesse, ó Señale, no lo verifique sinq. sea con conocimto. de los Jueses de este Pueblo pa. q. verificandose Ganados Orejanos de año pa. arriba sean participantes ahambos puntos, por la comunicacion, q. como colindantes, Pueblo, y Mision, deve guardarse esta armonia, asi como el Pueblo la ha guardado con Miciones, y Ranchos circunvecinos.

Tampoco se le priba ala Mision de Sn. Fernando, ni es ntro. intento q. esta pueda verificar su cerca ala cumbre de la Sierra, dejando al Pueblo sus legitimos terrenos, y ala Mision los q. justamte. le convengan, quedando asi mismo los Ganados q. correspondan acada punto, esto es de Orejano, pero interin no lo verifica como se lleba dicho, en la inteligencia de que si la Mision pone esta cerca lo verifique con conocimto. de los Jueses del Pueblo, y sus havitantes, para q. sepan endonde se haze, y evitar todo reclamo. Esto es Sor. Comicionado el intento de ntra. solicitud, suplicandole q. con su informe pase esta ntra. instancia al Sor. Capn. y este al Sor. Govon. si asi fuese nesesario para q. en ningn. tiempo tengamos q. molestar ala atencion de los Jueses. Tambien suplicamos q. los demas Ganados que queden, reparidos los q. se piden, queden afavor de lo demas de esta comunidad. Esta es la gracia q. los representantes en esta instancia hazen al Sor. Comicionado, hasta el Superior Govno. si nesesario fuese, quedando reconocidos á toda gracia, y merced, q. en Justicia seamos acrehedores, ala q. nos reconoceremos eternamte. agradecidos.

Pueblo de N. S. de los Ang. 21 de Junio de 1822.

Por no saber escrivir ninguno de los representantes suplicaron al Sargto. retirado José Palomares lo haga por ellos. Vale.

Arruego de los suplicantes.

José Palomares

APPENDIX 10.2

Transcription of Henry E. Huntington Library, De la Guerra Collection, FAC 667 (822)

Henry E. Huntington Library
De la Guerra Collection
FAC 667 (822)

Petition
June 21, 1822

Rough transcription, not fully proofed

Antonio Reyes, Aniceto Zuniga, Francisco Avila, Jose Polanco, Nicolas Elizalde, todos vecinos y criados del Pueblo de Nuestra Senora de los Angeles con el mas devido respecto y sumicion ante Usted se presentan haciendole ver como savedores de una cerca q.e la Mision de San Fernando rey a mandado por su Ministro tiene punta por la Sierra de Santa Monica, hasta Caguenga ala banda de el Pueblo cogiendo dentro los Aguajes de Mar con la maior parte de Ganados Vacunos, herrados y senalados, y orejanos q.e en ella existen, y como quiera q. los q.e representan juntamente con algunos q.e despues se han agreaado de este Pueblo, se les han introducido algunos Ganados en dicha Sierra como en primer lugar. Antonio Reyes q.e haviendo sufinado padre puesto en San Vicente un Rancho de Ganado Maior de numero conciderable, el ano de '99 mas o menos quando saco dhos ganados por el valle de la Largo dejo en dicho paraje algunas cabezas de ganado maior, por la fuerza del mucho Monte q.e los abriga. En 2.o lugar Aniceto Zuniga, por sufinado padre Pio Quinto de Zuniga, quien tubo un Rancho en numero conciderable a la Boca del Rio de est Pueblo, cuios [???] *la muerte de sufinado padre, se tomaron aquel punto, por el poco cuidado q.e de ellos tubieron; en tercer lugar Francisco Avila, quien tambien puso en el Paraje de San Vicente alguno pie de Ganado suficiente, y por la perdida q.e experimentaba tubo q.e retirarlos al rodeo comun, dejando en aquel punto la maior parte de su numero en donde recide Jose Polanco abecindado en dho Pueblo como 20 anos con igual numero de vienes mas or menos; Nicolas Elizalde su padre finado Pedro Elizalde avecindado en dho Pueblo cmo 14 anos con vienes vacunos de los mismo q.e referidos ya y los mad e este Pueblo q.e reciden en aquel punto, como igualmente si el Sor Comisionado que sita tomase el trabajo de informarse de ello o tuviese de ello razon, la cosa ? q.e on mui pocos los criadores q.e en el referido punto no tengan algunos cabezas de Ganado de nuevoe anos a esta por ? la diferencia de numero, y en vista de esto suplicamos al Sor Comicionado q.e para poder logar al Punto de estos vienes se le sigue a cada uno la part q.e le corresponde segun se pide. Antonio Reyes mil cabezas, Aniceto Zunigo trecientos, Francisco Avila quinientos, Jose Polanco ciento, Nicolas Elizalde Ciento. Amas suplicamos de Usted q.e cuando la Mision de San Fernando Rey fierre o senale no lo verifique sin q.e sea con conocimiento de los Jueces de este Pueblo para q.e verificandose Ganados orejanos de ano p.a arriba sean participantes a hambos puntos, por la cuminicacion q. como colindantes, Pueblo y Mision deve guardarse esta armoria asi como el Pueblo la ha guardado con Miciones, y Ranchos circunocciosos.*

Tampoco se le priba a la Mision de San Fernando Rey, ne es nuestro intento q.e esta pueda verificar su arca a la Cumbre de la Sierra, dejando al Pueblo su legitimo terrenos, y a la Mision los q.le justamente le convengan, apudando? Asi mismo los Ganados q.e corresponden a cada punto, est es de ?? orejano pero interin no lo verifica como se lleba dicho, en la inteligencia de que se la Micion posse esta Cerca lo verifique con conocimiento de lso Jueces del Pueblo y sus havitantes, para q.e se vea endonde se haze y evitar todo reclamo. Este es Sor Comicionado el intento de Nuestra solicitud, suplicandole q.e con su informe posse esta nuestra instancia al Sor Capitan y este al Sor Governaodor si asi fuere necesario para q.e en ninguo tiempo tengamos q.e molestar la atencion de los Jueces. Tambian suplicamos q.e los demas Ganados que queden, repartdios, los que se piden, queden a facor de lo demas de esta comunidad. Esta es la gracia q.e los represantes en esta instancia hacen al Sor. Comicionado, hasta el Superior Governador se nesecario fuere?, quedando reconocidos a toda gracia, y merced q.e en Justicia si amos acredora a los q.e nos reconoceremos sumamente agradecidos.

Pueblo de Nuestra Senora de los Angeles 21 de Junio de 1822

Por no saber escribir ninguno de los represantes suplican al Sargento retirado Jose Palomareas lo haga por ellos, vale

Arruego de los Suplicamos

Jose Palomares

APPENDIX 10.3

Bancroft Library, University of California, Berkeley, MSS C-B 73

Bancroft
MSS C-B-73
correspondence José Carrillo
Dec. 16, 1817 [?]

Sor. Com.te 9

H. H. Bancroft Collection
Bancroft Library

Los Angeles - Instancia de Regidores y Vecinos sobre tierras 1819

Sta. Barbara 30 de Dizre. 1819.

Los interesados en esta instancia pueden hacer su Corral en el Citio q. solicitan, pero deven estar entendidos q. esta concesion es temporal, y cuando el Comisionado del Pueblo sepa q. el Ganado q. quieren reducir á manso los pretendientes en este papel mandará quitarlo estando aquel reducido.

Moraga

El Memorial presentado q. los interesados a el en la solicitud al Establecimto. a un Corral donde ellos lo pretenden fue mi decreto q. ordinariamente sin firma, pero al mismo tpo. advierto q. en la representacion a V. S. Sd. a este año me han dado á entender el q. mira con poco aprecio las solicitudes q. sin razon me piden:
La comandancia a un pueblo se atiende segun sus procedimientos, y en esta inteligencia el Comandte. al [illegible] [illegible] [illegible]

Moraga

Anastacio Avila, y Tomas Ortiga Como Regidores de este Pueblo de Ntra. Sra. de los Angs. con los abajo nombrados: ante V. con el mayor Rendimto. y sumicion, hacemos a V. presente Como el año 17 se Sirvio el Sor. Govr. de la Prova. extenderle a este Pueblo sus terminos, tanto p.a los actuales Moradores, como p.a los q. en lo Sucesibo se puedan avecindar. Y en el presente año al tiempo de Partirse p.a el Reino el Sor. Capn. Dn. José de la Guerra, le presentaron un Memorial p.r los Vesinos, Felipe Talamantes, y Agustin Machado, Solicitando el Paraje q. comunmte. llamamos el Rancho de los Quintos p.a poblarlo Con Ganado, y Caballada. Y siendo este uno de los parajes mas propios de los terrenos q. posee la comunidad de este Pueblo, Centro, y dueños de el, hazemos a V. presente q. si el Sor. Capn. cedio este citio nos Suponemos seria p.r informe q. el Sor. Comicionado, y Alcalde darian, no R.o q. dho. Sor. está hecho Cargo de los terminos de dho. Pueblo, y aunq. dho. Sor. Comicionado dice no tener yá el Pueblo Ganados, hazemos ber a V. lo Contrario, pues con los Ganados q. Sobre este Pueblo Comen con grave perjuicio de la Comunidad, tanto en Labores, como en Huertas, como igualmte. Yeguadas, hai mas de Suficiente p.a poblar este citio, y todos sus Contornos; pues seran mui pocos los Individuos q. no tengan su Bacas, y así como les llegó a tan crecido No. los Ganados no tenga V. duda puedan ceder [illegible] su [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] y [illegible] [illegible] [illegible] [illegible]

9

do. Por lo q. Suplicamos á V. se sirba atender

11 á esta nra. Suplica, y se mantengan los dos Yndividuos de Comunidad, como hasta aqui se han mantenido, si asi fuere de su agrado, y Justificacion, y de no nos permita el ocurso al Sor. Govor. si asi lo consideran Justo, a causa de no ser posible dar ningn. citio en los terrenos de este Pueblo, q. no sea con grave perjuicio de la Comunidad. Yasi vea V. q. si por beneficiar a dos Personas, lo hade padeser una comunidad, no cumos de las verificas excepciones de V. lo permita. Igualmte. hazemos á V. presente, como el Sargto. retirado Franco. Xavier Alvarado, en tiempo del Sor. Govor. Dn. José Joaqn. de Arriaga, pidio el paraje de Sn. Juan en este mismo Rincon, y dho. Gefe decretó q. siempre q. la Comunidad lo permitiera, no tenia embarazo pa. concederlo. En tiempo de este Sor. Govor. se la ha pedido por dos Yndividuos el paraje del Tunal, Camino Rl. pa. el Rancho de Gutierrez, y por la misma razon de ser citio de Comunidad no se pudo conseguir. Tambien hazemos ver á V. q. este citio de q. tratamos, y todo lo q. toca para el Pueblo no estan sino tan despoblados de Ganado, siendo q. ha disminuido de dos años á esta parte por lo q. se ha bendido, y como ademas no se dá un rodeo en su terreno hace dos años tambien se ha perdido, muchos, y salido hasta de sus terminos, pero si esto se arregla como hantes estaba se lograra mayor No. de Ganado q. el q. hantes habia y por tanto.

A V. pedimos, y suplicamos rendidos y obedientes se sirba atender á esta nra. Suplica q. asi lo [illegible] q. en ello recivimos [illegible]
[illegible] de los [illegible]

H. H. Bancroft Collection
Bancroft Library

Abril de 1817 11

Por no saber escribir los dos Regidores hacemos una señal de Cruz.

H. H. Bancroft Collection
Bancroft Library

Anastacio Avila + Tomas Olivera +

Franco. Acevedo, José Palomares, José Solano, Maximo Alanis, Vicente Sanchez, Mariano Verdugo, Juan de Dios Ballesteros, Juan Ballesteros, José Feliz, Calletano Balas, Mateo Rubio, Segundo Balenzuela, Ramon Buelna, Ygno. Rendon, Vicente Vi[illegible] Franco. Villa, José Bermudez, Antonio Higuera, Andres Higuera, Pablo Franco, Juan José Higuera, José Antonio Botiller, José Antonio Romero, Encarnacion Urquides, Ysidorio Olivera, Santiago Rubio, Antonio Reyes, [illegible] Reyes, Bernardo Higuera, Juan Sollorzano.

Transcription of Bancroft Library, University of California, Berkeley, MSS C-B 73

Bancroft MSS C-B 73
Correspondence
José Carrillo
December 16, 1819
Hackel Transcription—August 25, 2009

[Page 1]

[Centered title] *Señor Comandante*

Los Angeles–Instancia de Regidores y Vecinos sobre tierras 1819.

[Left column] *Sta. Barbara 30 de Diciembre de 1819*

Los interesados en esta instancia pueden hacer su corral en el citio que solicitan, pero deven estar entendidos que esta concesion es temporal, y cuando el comisionado del pueblo sepa de que el Ganado que quieren reducir á manso los pretendientes en este papel mandará quitarlo estando aquel reducido.

Gabriel Moraga

El Memorial presentado por los interesados a el en la solicitud al Establecimiento de un corral donde ellos lo pretenden fue mi decreto por olbido natural sin firma, pero al mismo tiempo advierto que en la representacion de[?] *Individuo*[?] *este año me han dado á entender el que miro con poco aprecio las solicitudes que sin razon me piden:*

La comunidad de un pueblo se atiende segun los procedimientos, y en esta inteligencia el Comandante del Presidio tendra cuidado.

Gabriel Moraga

[Right column, main body] *Anastacio Avila, y tomas Urives, como Regidores de este pueblo de Nuestra Señora de Los Angeles con todos los abajo nombrados: ante Usted con el maior Rendimiento y Sumicon, hazemos a Usted precente Como el año [18]17 se cirvio el Señor Governador de la Provincia extenderle a este Pueblo sus terrenos, tanto para los actuales Moradores, como para los que en lo sucesibo se puedan avencindar. Y en el presente año al tiempo de Retirarse para el Reino el Señor Capitan Don Jose de la Guerra, le precentaron un Memorial por los Vecinos Felipe Talamantes, y Agustín Machado, Solicitando el Paraje que comunamente llamamos el Rancho de los Quintos, para poblarlo con Ganado, y Caballada. Y siendo este uno de los parajes mas propios de los terrenos que posé la comunidad de este Pueblo, Centro, y rinon de el, hazemos a Usted precente que si el Señor Capitan cedio este citio nos suponemos seria por informe que el Señor Comicionado, y Alcalde darian,* [no] *por que dicho Señor está hecho cargo de los terrenos de dicho Pueblo, y aunque dicho Señor Comicionado dice no tener yá el Pueblo Ganados, hazemos ber a Usted lo contrario, pues con los Ganados que sobre este Pueblo corren con grave perjuicio de la Comunidad, tanto en Labores, como en Huertas, Como igualmente Yeguada, hai mas suficiente para poblar este citio, y todos sus contornos: pues seran mui pocos los Individuos que no tengan Sus Bacas, y asi como hantes llegó a tan crecido numero los Ganados, no tenga Usted duda puedan ceder a maior en lo susecibo, pues el numero de Yndividuos es bastante, y de en dias en dia se ban aumentan*

[Page 1/Page 2 transition]

do. Por lo que suplicamos a Usted se cirba atender esta Nuestra Suplica, y se mantengan los dos Yndividuos de Comunidad, como hasta aquí[?] *se han mantenido, si asi fuere de su agrado, y facultad, y de no nos permita el ocurso al Señor Governador, si asi lo consideran justo, a causa de no ser posible Señor dar ningun citio en los terrenos de este Pueblo, que no sea con grave perjuicio de la comunidad. Y asi Señor Usted bea que si por beneficiar a dos personas, lo ha de padeser una comunidad; no creemos de las venefícas entenciones de Usted lo permitan. Igualmente hazemos a Usted* [or *el*] *precente, Como el Sargento retirado Francisco Xavier Albarado, en tiempo del Governador Don Jose Joaquin de Arriaga, pidio el paraje de Senor Vicente con este mismo Rincon, y dicho Gefe decretó que siempre que la Comunidad lo permitiera, no tenia embaraso para Concederlo. En tiempo de este Señor Governador se le ha pedido por otros Yndividuos el paraje del* [Avenal], [Camino] *Real para el Rancho de Gutierres, y por la misma razon de ser citio de comunidad no se pudo conseguir. Tambien hazemos ber a Usted que este citio de que tratamos, y todo lo que compone el Pueblo no estan sumamente despoblados de Ganado; si es berdad ha desminuido de dos años a esta parte por lo que se ha bendido, y como a derechas no se dá un rodeo en Sustancia haze dos años tambien se ha perdido, mucho, y salido hasta de sus terrenos, pero si esto* [sean] *reglas Como hantes estaba Sebera logrado maior Numero de Ganado que el que hantes havia, y por* [__________]

A Usted pedimos, y Suplicamos Rendidos, y obedientes se cirba atender a esta Nuestra Suplica si asi lo [hai asi] *de Justicia que en ello Reciviremos merced. Pueblo de Nuestra Señora de Los Angeles 16 de*

[Page 2/Page 3 transition]

Deciembre de 1819.

Por no Saber escribir los dos Regidores hacemos una Senal de Cruz.

Anastacio Avila + Tomas Urives +
Francisco Acevedo, Jose Palomares, Jose Polanco, Maximo Alanís, Vicente Sanches, Mariano Verdugo, Juan de Dios Ballesteros, Juan Ballesteros, Jose Felis, Calletano Barelas, Mateo Rubio, Segungo Balenzuela, Ramón Buelna, Ignacio Rendon, Vicente Villa, Francisco Villa, Jose Bermudes, Antonio Hibarra, Andres Hibarra, Pablo Franco, Juan Jose Higuera, Jose Antonio Botiller, Jose Antonio [Romero], Encarnacio Urquidez, Desiderio Olivera, Santiago Ruvio, Antonio Reyes, Xavier Reyes, Bernardo Higuera, Juan Pollorena

[End]

APPENDIX 10.5

Henry E. Huntington Library, De la Guerra Collection, FAC 667 (878)

Sánchez, Vicente, & others
To Señor Comisionado:
petition...

878.

1821, Jan. 10
Los Angeles

Petition for the communal use of the pasture land of the Rancho Rincón (or Rancho de los Quintos), belonging to Felipe Talamantes & Agustín Machado.

Signed by: Vicente Sánchez, José Palomares, Juan Nepomuceno Alvarado & Vicente Villa. José Palomares signed again for the petitioners Juan Ballesteros, Cayetano Varela, Ignacio Rendón, Tomás Oribes Juan Pollorena & Segundo Valenzuela.

Sor. Comisionado.

Vicente Sanchez, Juan Nepomuceno Alvarado, Juan Ballesteros, Calixtano Bautas, Ygn.o Mendoza, Tomas Olivera, Juan Solorzano, José Salomani, Vicente Villa, y Segundo Balenzuela con el mayor respeto y sumision ante V. hazen presente, q. hallandose con alg.s considerable n.o de Vienes de Campo, Bacunos, y Caballares p.a el sosiego, y sustento de sus familias, carecen del citio, q. actualm.te poseen Ale.o pe Salamanca, y Agustin Machado, q. la mantienen cion de dhos. Vienes, de Comunidad, llamado comunm.te Vertera Rancho de los Juntos, por lo q. suplicamos a V. se ziba mandar no se goviernen por si solo sin comunidad, como previene el Reglam.to p.a todo vesino. Reconocidos de q. ya los Vienes q. alli pusieron estan suficientem.te aquerenciados, p.a cuio fin se concedio dho. Paraje, seg.n decreto del Sor. Com.te Ynterino D.n D.n Gabriel Moraga q. con fecha 30 de Dbre. de 1819 se dió p.r reclamo, q. el Alcalde Anastacio Avila con su Regidor hizo anombre de esta Comunidad Ryu ante a dho. Sor. como se berá p.r Memorial, y Decretos, y atendiendo al 2.o aunq. sin fecha enq. expone en la ultima clausula, q. una Comunidad se atiende seguir sus prosedim.tos Sor. Ygnoramos esta Reprension o clausula, pues nos parece, q. hasta la fecha no habra tenido el referido Sor, ni otros Señores Com.tes q. notar puntos de inobediencia, Conturmacion, y demas, solo de defectos humanos, q. parece no faltaran en ninguna parte del Mundo. Donos parece ser defecto este p.r una solicitud, q. si bien se mira es justa, fundada en el primer Decreto de 30 de

1821
Enº 10

Ybre. del año citado, y Memorial. Sor. Dn. Cosme
inpuso q. los Vecindos Palamares, y Machado se
extraian de dho. punto, solo si como Iebamos dho
se Ponen de Comunidad, y q. los Ganados q. alli
seagregaren, se dejen contiguados con los suios p. q.
de ese modo, no padescan extracion p. ser Paraje apro
posito p. dhos. Ganados en todo tiempo, y como
quiera q. la Mayor parte de esta Comunidad se
halla empeñada en Grave Cantidad p. el pago de
su Yglecia, y esto lo ha de verificar con Ganado, se ha
ce preciso sostenerlos, y buscar el mejor modo p.
su manutencion. Agregando q. en otros tiempos
han hecho Reclamos contra el Rancho del finado Ju
an Jose Dominguez y han contestado los señores Com.tes
y el Sor. Gov. q. para q. se permitio p. la Comuni-
dad, y en vista de esto Suplicamos a V. como Juez de esta
9 Partido q. si no fuere de su autoridad esta Justicia, se
sirba pasarla... amenos de Ntro. Comte. p. q. en su
vista haga el uso de Justicia q. fuere p. con..te

Tambien Suplicamos a V. se sirba pedir al
Alcalde Anastacio Avila, cerciandose le manifieste el Me
morial q. se cita, y si V. tubiere abien insertarlo con
el q. se le presenta quedaremos eternamte. agradecidos, su
plicandole al mismo tiempo, se sirba acompañar esta
ntra. Suplica, o solicitud, en la forma q. segun la
Crecimto. hayare p. conte.

Pueblo de Ntra. Sra. de los Ang. 10 de Enero de 1821

Vicente Sanchez

Jose Palomares

Vicente Villa

Pomuceno Alvarado

Arruego de los cinco q. acompañan por no sa
ber firmar.

Jose Palomares

APPENDIX 10.6

Transcription of Henry E. Huntington Library, De la Guerra Collection, FAC 667 (878)

Henry E. Huntington Library
De la Guerra Collection
FAC 667 (878)

January 10, 1821
Los Angeles
Petition for use of land

Senor Comicianado

Vicente Sanchez, Juan Nepomuceno Albarado, Juan Ballesteros, Calletano Barelas, Ignacio Rendon, Tomas Urives, Juan Pollorena, Jose Palomares, Vicente Villa, y Segundo Balenzuela. Con el mas desido respecto, y sumicion ante Usted hazen precente, que hallandose con algunos conciderable numero de vienes de Campo, Bacunos, y Caballares para el socorro, y sustento de sus familias. [____] *del citio, q.e actualmente Posecion Felipe Talamontes y Agustic Machado, para la mantencion de dhos vienes de Comunidad, llamado comunamente Rincon, o Rancho de los Quintos, por lo que suplicamos a Usted se sirba mandar no se Goviernen por si. Solo se en Comunidad Como previene el Reglamento para todo vecino Reconocidos de que ya los vienes que alli pusieron estan Suficientamente aquirinciados, por cuio fin se concedio dho paraje, Según Decreto del Senor Comandante Intereno Theniente Don Gabriel Moraga que con fecha 30 de Diciembre d e1819. Se be, por Reclamo, que el Alcalde Anastacio Avila con su Regidor hico a nombrar de esta Comunidad Represento a dho Senor Como Se vera por Memorial y Decretos y atendiendo al 2.0 aunque Sin fecha en que expone en la ultima clausilla que una Comunidad se atiende según sus prosedimientos. Senor Ygnoramos esta representacion o clausula, pues nos parece, que hasta la fecha no habra tenido el referido Senor, ni otros Senores Comandantes que* [*notar*] *puntos de Enobediencia, Ensumision, y de mas, solo si defectos humanos, que parece no faltaran en ninguna parte del Mundo.* [???] *nos* [parecer] *ser defecto este para una solicitud, q.e si bien sem*[???] *es justa; Y anulada en el primer dicreto de 30 de*

//

Diciembre del ano citado y Memorial San [?????] *en tanto que los Referidos Talamantes, y Machado se extraian de dho punto, Solo si como Ybamos di dicho se Rodean de Comunidad, y que los Ganados q.e alli se agregan, se dejen contiguidos con los suios por que de este modo no padescan extracion para ser paraje aproposito para dhos Ganados en todo tiempo, y como quiera que la Mayor parte de esta Comunidad se haia Empenada en Grave Cantidad para el pago de su Yglesia, y esto lo ha de verificar con ganado se hace preciso sostenerles, y buscar el mejor modo su manutencion. Agregando que en otros tiempos se han hecho reclamos contra el Rancho del finado Juan Jose Dominguez y han contestado los Senores Comandantes y el Senor Governador que para que se permitio por la Comunidad, y en vista de esto Suplicamos a Usted Como Jues de esta partido que si no puse de su autoridad esta Justicia, se cirba pasarla a manos de Nuesto Comandante para que en su bista haga el uso de Justicia que Jusga por* [*como.te.*]

Tambien suplicamos de Usted se sirba pedir al Alcalde Anastacio Avila, o mandar le manifieste al Memorial que se cita, y si Usted [?????] *abian* [*encontrarlo*??] *con el que se le precenta guidaremos Sumamente agradecidos, suplicandole al mismo tiempo si sirba acompanar estsa nuestra suplica o solicitud en la forma que según su conocimiento ha* [?????????????]

Pueblo de Nuestra Senora de los Angeles, 10 de Enero de 1821

Vicente Sanchez
Jose Palomares
Pomuceno Albarado
Vicente Villa

Arr[?]*ego de los cinco q.e acompanar por no saber firmar Jose Palomares*

Sir Commander

Los Angeles–At the Request of Regents and Neighbors of the land 1819.

[Left column, upper paragraph] Those interested in this ranch may build a farmyard at the site requested but they must keep in mind that this is a temporary consession, that the town's commissioner may revoque once the holders of this document have subdued (domesticated) the livestock.

[Illegible signature]

[Left column, lower paragraph] In regards to the memorandum presented by the parties requesting the construction of a farmyard where they want, it is my decree unsigned by natural forgetness, at the same time I advise that representing His Majesty (H.S.) this year I have been suggested that I do not see with good eyes unreasonable applications presented to me:

According to procedures the community of this town grants permission and under this circumstances the Presidio commander will take care.

[Illegible signature]

[Right column, main body] Anastacio Ávila and Tomás [Urive], regents of this town of Our Lady of Los Angeles, [those] cited below, humbly and subdued we occur before you this year of 17__ to inform you that the Sir Governor of the Province has granted this town the land for current and incoming inhabitants. This year, at the time of [_______] for the Crown, the Honorable Sir Felipe Talamantes and Agustin Machado presented a memorandum to Sir Captain Don Jose de la [Guerra] requesting the place commonly known as Rancho de los Quintos to introduce cattle and horses. This place is one of the best owned by this town, [center, and union]. We assume that if Sir Captain granted this site was under advice of Sir Commissioner and Mayor, who assigned a number to the Honorable Sir in charge of the land of this town. Despite Sir Commissioner states that there is no cattle in the town, we assure the contrary, because livestock runs through town with great damage to the community, both to labor and orchards, the same is true of horses [_______] enough to populate the site and surroundings. Very few people lack cows and as earlier the number of cattle grew large, Sir please do not doubt this number may increase in the future given that people and indians increase significantly. Based on this argument we beg you Sir to attend our plea, and keep the two individuals in community, as of today, if this pleases you and your authority, and if not, please allow us to access Sir Governor, if you consider it just or if this is not possible Sir to concede a piece of land in this Town that does not affect the community. And so Sir, if to benefit two people greatly damaging the community, we do not believe these were beneficial condtions You should allow. Similarly, we present before you Sargent [_______] Francisco Xavier Albarado in times of Governor Jose Joaquin de Arriaga, requested the place property of Sir [Viann______] and [Honorable Chief] decreed that as long as the Community agrees, he has no objection to concede it at the time Sir Governor has been requested by the two individuals the place of El Arenal, Camino Real para el Rancho Gutiérrez, and for the same reason of being community property was not granted. We also want you to know that the site we talk about, and everything conforming the Town are not totally deserted of cattle, even if it has decreased for reason of sales and because for the last two years nobody has go round his ranchs it is much what has been lost or what have abandoned the land, but such Sir [rules], as stated earlier the number of cattle is greater than that of the past and [________].

We request from You, and humbly and obediently beg you to attend our plea if it justice, we will [live _______] at the Town of Our Lady of Los Angeles 16 . . . .

APPENDIX 10.7

Hackel Notes from the Los Angeles County (Prefecture) Records

These notes are from the Los Angeles County (Prefecture) Records. I have used the English translation, which is on microfilm at the Henry E. Huntington Library, MSS 382, Volume A.

[Page 133]

I, Tomas Talamantes, resident of this City, before your Honor, in the manner most in conformity with law, state: that having agreed last year with the court of this City, to deliver one hundred and fifty fanegas of lime, the court granted me four Indians for six months. I had delivered more than half of the aforementioned amount when the peons left. I called upon the court for them, in order to finish and to receive the pay for my work, and up to this date I have been unable to get any results. In order to make said deliveries, I have had to sacrifice my personal duties, materials, and to supply the greater part of the wages of the peons, believing that I would be compensated in the manner in which I have complied.

Therefore, Your Honor, I ask that, in view of my just allegations you order them to comply with the referred contract, or be reimbursed for my work. I will thereby receive a favor. I swear etc. Please excuse the use of common paper for the lack of sealed. Between the lines—in the last year.

Los Angeles, July 20, 1842.

I do not know how to sign.

[Marginal note]

Los Angeles, 20, 1842.

Forward this petition to the judge hearing the case so that he make a report of the contents and factors involved as to the reason why the contract made with the interested party has been impeded; said party to produce the contract made with the judges and when this has been complied with, return the proceedings to this Prefecture for any further necessary purposes.

Arguello (R)

[Page 134]

Honorable Prefect, of the Second District.

In compliance with the superior marginal decree, placed on this petition, I inform Your Honor that the judges of last year did not give this court any information regarding the contract of Senor Tomas Talamantes; the only thing recorded, is that the lime was lent to Orduno, the amount consisting of about one hundred fanegas, therefore, I do not believe it is our duty to comply with an agreement we did not make.

[Page 136]

According to the attached agreement, Senor Talamantes claims the Indians have left. We have rendered all possible aid, and of the three Indians that were given him none remain; in addition to this, if the aforementioned Talamantes is in need of new orders to recover these fugitives, they will be granted.

This being all the information I can give Your Honor.

Los Angeles, July 21, 1842.

Manuel Domingues (R)

APPENDIX 10.8

Henry E. Huntington Library, HM 35259, Cattle Brands

Cattle brand
Petronila (Olivas) Talamantes
Tomás Talamantes
John W. Shore

Angeles

ornia. Los Angeles County.
Recorder

Certificate of cattle brand and mark
granted to Petronila (Olivas) Talama

A.D.S. 1p. fol.

Certified by John W. Shore. 1854, .
With seal

Containing drawings of brand and m

from Kenneth Greenberg

58

M 35259

Cattle brand
Petronila (Olivas) Talamantes
Tomás Talamantes
John W Shore

Angeles

ornia. Los Angeles County.
Recorder

Certificate of cattle brand and mark
granted to Petronila (Olivas) Talama

A.D.S. 1p. fol.

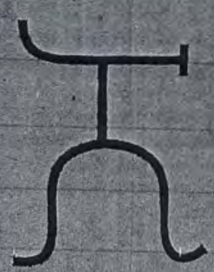
Certified by John W Shore. 1854,
With seal

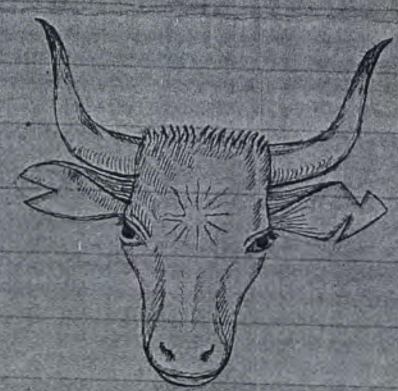
Containing drawings of brand and m

from Kenneth Greenberg

58

H 35259





Now on this day comes Tomas Talamantes and tenders the Mark and Brand in the Margin, as the Mark and Brand assumed by his wife Petronila Oliva, and having examined the record of Brands, Marks and Counterbrands, and feeling satisfied that they are unlike any other in the County, and as far as my knowledge extends are different from any in the State, I therefore record them as the lawful Mark and brand of the said Petronila Oliva, this 5th day of September A.D. 1854.

John W. Shore
Co. Recorder

State of California }
County of Los Angeles } Ss.

I, John W. Shore, recorder of the County of Los Angeles, hereby certify that the above is a full, true and correct copy of the Mark and Brand of Petronila Oliva, as recorded by me in Book No. 2. of Marks, Brands & Counterbrands, page 110.

Witness my hand and Official Seal this 1st of November A.D. 1854.

John W. Shore
Co. Recorder

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