The Desert Serrano of the Mojave River

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Abstract

The Desert Serrano of the Mojave River, little documented by twentieth century ethnographers, are investigated here to help understand their relationship with the larger and better known Mountain Serrano sociopolitical entity and to illuminate their unique adaptation to the Mojave River and surrounding areas. In this effort new interpretations of recent and older data sets are employed. Kroeber proposed linguistic and cultural relationships between the inhabitants of the Mojave River, whom he called the Vanyumé, and the Mountain Serrano living along the southern edge of the Mojave Desert, but the nature of those relationships was unclear. New evidence on the political geography and social organization of this riverine group clarifies that they and the Mountain Serrano belonged to the same ethnic group, although the adaptation of the Desert Serrano was focused on riverine and desert resources. Unlike the Mountain Serrano, the Desert Serrano participated in the exchange system between California and the Southwest that passed through the territory of the Mojave on the Colorado River and cooperated with the Mojave in this exchange.

Introduction

A desert division of the Serrano occupied portions of the central and western Mojave Desert, including the length of the Mojave River, a travel corridor and intermittent linear oasis extending approximately 190 km (120 mi) into the central Mojave Desert. Kroeber (1925:615) described this group as a linguistically differentiated division or branch of the Serrano and called them the "Serrano of the Mojave River," or Vanyumé. He also stated that the people comprising this group had a small population and were "poor" and that their territory was only "vaguely known," although a territory was assigned by Kroeber (1925:Plate 1). Kroeber (1925:614) considered this Desert Serrano population to be virtually extinct as a cultural group by the time formal ethnographic inquiries were undertaken at the end of the nineteenth century, although he noted the possible survival of "perhaps a few individuals merged among other groups" (Kroeber 1925:614). In fact, while occupation of the Mojave River region by territorially based clan communities of the Desert Serrano had ceased before 1850, there were survivors of this group who had been born in the desert still living at the close of the nineteenth century, as was later reported by Kroeber (1959:299; also see Earle 2005:24–26).

For these reasons we attempt an "ethnography" of the Desert Serrano living along the Mojave River so that their place in the cultural milieu of southern California can be better understood and appreciated. We will also refer to other Desert Serrano populations living to the west of the Mojave River, but our focus is on the Serrano of the Mojave River region. We combine existing data and recent research (Earle 1990, 2004a, 2004b, 2005, 2009, 2010a, 2015) bearing on culture and political geography. The recent research explored particularly Franciscan mission register data (Huntington Library 2006), the field notes of ethnographer J. P. Harrington (1986),[1] unpublished colonial era documents (Palomares 1808), and the once lost diary of trapper and explorer Jedediah Smith (Brooks 1977). This paper presents our current interpretations of these sources and reinterpretations of other published ethnohistorical accounts of the Native people of the Mojave River region (Coues 1900; Cook 1960; Galvin 1965; Earle 2005, 2010a). This work has involved a reconstruction of salient features of political geography of the Desert Serrano, including various interactions among villages in the area, as well as identification of their distinctive cultural, political, and economic

characteristics. Their role in long-distance exchange and the support of their desert villages through the transport of foodstuffs down the Mojave River are especially significant elements of Desert Serrano economic and political life. Because direct ethnographic research with survivors of this group was limited to a Kroeber interview with one very elderly person, significant gaps remain in our ethnographic knowledge of the Desert Serrano.

The Serrano and Their Divisions

The Serrano were initially defined as a three or four member linguistic grouping living in the mountains and deserts of interior southern California and speaking one of several closely related languages of a "Shoshonean" (Northern Uto-Aztecan) language sub-family (Kroeber 1925:611). Kroeber surmised that like most California Native groups the Serrano were a cultural-linguistic entity, but they were not a tribe or nation in the sense of possessing a central political authority at a level above the local clan or village (Kroeber 1925:617–618). William Duncan Strong (1929), a Kroeber student, confirmed this view. Kroeber (1925) included the Kitanemuk, the Serrano, and what he called the Vanyumé as linguistic divisions of "Serrano" and suggested that the Tataviam (Alliklik) might also be of Serrano linguistic affiliation. However, the Tataviam and Serrano were later recognized as linguistically distinct, and ethnographic research on the Kitanemuk by J. P. Harrington indicated that they were a separate cultural entity (Harrington 1986:III:Rl. 98). Thus, it was generally proposed (e.g., Bean and Smith 1978:570; also see Johnston 1980) that the Serrano, as a cultural-linguistic entity, consisted of two divisions, a mountain division (henceforth called the Mountain Serrano) and a desert division, that included the population that Kroeber had called the Vanyumé. We will refer to this division as the Desert Serrano.

The early twentieth century brought an era of collaboration between ethnographers and Mountain Serrano elders and others, including people from the Yuhaaviatam (Yohaviatam/Johaviatam) and Mareŋajam clans. The ethnographic research of Kroeber (n.d., 1907, 1925, 1959), Gifford (1918), Benedict (1924), Strong (1929), and Harrington (1986) involved interaction with these and other Native people who provided information on the Mountain Serrano. Harrington also collected some ethnographic information about the Mojave River region.

This work with Mountain Serrano consultants did leave unresolved some questions about the original boundaries of this group, especially to the west and south, and its original clan composition at Spanish contact. This was on account of the degree of impact of Franciscan missionization on some clan groups. In addition, the important field research of John Harrington with Santos Manuel[2] and other Serrano consultants was never published. However, in 1986 the corpus of published ethnographic information was supplemented by the microfilm availability of Harrington's unpublished field notes. Franciscan mission sacramental register data and other ethnohistorical sources had also become accessible to provide a more complete picture of Mountain Serrano political geography and their relation to the Desert Serrano.

The Mountain Serrano and the Desert Serrano have typically been considered to be closely related, and it has been assumed that various features of Serrano culture were shared by local groups within the two divisions. However, the Mojave River communities were poorly documented ethnographically, and data collected by Strong, Harrington, and others on villages and clan territories in the Mojave River area did not agree completely with Spanish-era information. The villages along the Mojave River mentioned in Spanish-era sources had apparently been abandoned by the 1830s, long before the development of systematic ethnographic fieldwork at the beginning of the twentieth century. The information on Desert Serrano socio-political geography and culture

derived from Mountain Serrano ethnographic sources was limited and sometimes contradictory, and the possible distinctive features of the culture and their local environmental adaptation had thus been difficult to reconstruct.

Recent research (Earle 2004a and 2004b) has revealed that a careful reading of ethnographic testimony collected by Kelly (1934, 1953), Harrington (1986), Kroeber (n.d.), and Van Valkenburgh (1986) on other desert groups also provides limited clues about the Desert Serrano, including the fate of surviving members of this group after the 1830s. Research and publications from recent decades relating to the Mountain Serrano and Desert Serrano include Bright (1975), King and Casebier (1976), Bean and Smith (1978), Knack (1980), Bean et al. (1981), Earle (1990, 2004a, 2004b, 2005, 2009, 2010a, 2015), Northwest Economic Associates and Cultural Systems Research, Inc. (2004), Northwest Economic Associates and King (2004), and Fortier (2008).

As with the desert division of the Cahuilla (Bean 1978) and that proposed for the Kawaiisu (see Earle 2004b; Underwood 2006; Garfinkel and Williams 2011), the way of life of the Desert Serrano on the Mojave River was based on a distinctive desert subsistence adaptation. This adaptation was based in part on the resources available along the Mojave River as a linear oasis. In addition, however, it also appears to have been based partly on the economic benefits that accrued to local communities by occupying territories within the Mojave River long-distance trade corridor. This corridor was a key link in a long-distance exchange of goods between the Southwest and the Pacific coast and the San Joaquin Valley.

As was the case elsewhere in desert interior southern California, the Desert Serrano also depended to some degree on the export of food resources downriver from upland areas near the headwaters of the Mojave River. The characteristics of this multifaceted Mojave River desert adaptation that involved the exploitation of mesquite and other riparian resources, downriver food importation, and hosting others conducting long-distance trade, clearly distinguished the Desert Serrano from the Mountain Serrano.

The Desert Serrano and Mountain Serrano had strikingly different positions in the network of military, political, ritual, and long-distance exchange alliances that linked Native peoples of Arizona and the Colorado River with those of the southern California interior and coast. For example, the Desert Serrano (along with the Chemehuevi) were reported by the Mojave of the Colorado River as allies in this network, while at least some Mountain Serrano communities were reportedly allies and trade partners with the Halchidhoma, who were enemies of the Mojave and Chemehuevi (Coues:II:423, 450–451: Kroeber 1925:614–615).

Prehistory

Many late prehistoric archaeological sites are known along the Mojave River, recent components of which are presumed to be associated with the protohistoric Desert Serrano. These sites include: Cronese Lakes (Drover 1979; Schneider 1994); Afton Canyon (Schneider 1989); near Camp Cady (McKenna 2005); at Turner Springs (Gust et al. 2015); and Oro Grande (Rector et al. 1983), near Victorville; at Deep Creek (Altschul et al. 1989); and in the Summit Valley (Sutton and Schneider 1996). The primary occupations at each of these sites date to the late prehistoric, although due to prior destruction some possibly older components of Mojave River village sites, such as at Turner Springs or at Atongaibit, have not been properly excavated. Sutton (2009) proposed that the year-round occupation of the Mojave River corridor dated to late in time, perhaps after about 1,000 BP. Sutton (2017) later argued that prior to about 1,000 BP, the entire Mojave Desert was a common pool resource zone utilized by each of the groups located along the edges of

the desert. After that time, the Mojave River appears to have seen episodes of increased flow with riparian zones (e.g., Ohmart and Anderson 1982) being formed and productivity increasing. According to the model presented by Sutton (2017:25), this new productive linear ecozone would then have been occupied by the Desert Serrano who established a series of major villages along the Mojave River and who lived there through ethnographic times.

Environmental Setting

The Mojave Desert is classified as a warm temperature desert (Jaeger 1965; Rowlands et al. 1982), and the Joshua tree (*Yucca brevifolia*) is the standard vegetative marker. Elevations are generally between 610 and 1,520 m (2,000 and 5,000 ft) with the highest point being Charleston Peak (3,633 m [11,918 ft]) and the lowest point being in Death Valley at 86 m (282 ft) below sea level. Temperatures range from below freezing in the winter to more than 130 degrees F (54 degrees C) in the summer.

Desert Serrano territory (Figure 1) is located in the central Mojave Desert and contains at least five major biotic communities: (1) Alkali Sink; (2) Creosote Bush Scrub; (3) Shadscale Scrub; (4) Joshua Tree Woodland intergrading into Juniper Woodland; and (5) Desert Riparian (Turner 1994:165–167; Keeler-Wolf 2007). The Alkali Sink community is generally found along the margins of the numerous playas in Desert Serrano territory. The major plant species of this community include saltbush (*Atriplex* spp.) and saltgrass (*Distichlis spicata*), although mesquite (*Prosopis* spp.) is sometimes present. During those times when water was present in the lakes, other resources (such as waterfowl and brine shrimp) may have been present.

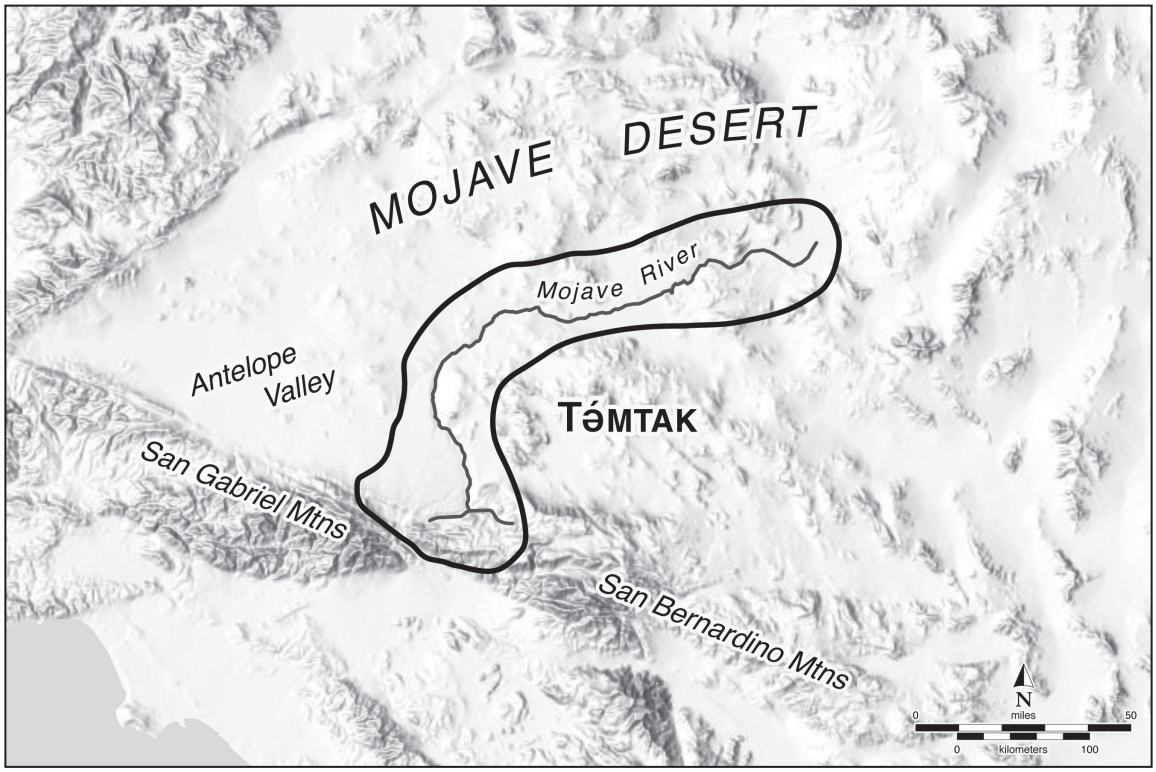

Figure 1. Estimated extent of Desert Serrano territory and the general location of Təˈmtak.

A Creosote Bush Scrub community encompassed the majority of Desert Serrano territory. The primary plant species was the creosote bush (*Larrea tridentata*), along with burrobush (*Ambrosia dumosa*), rabbitbrush (*Chrysothamnus* spp.), sagebrush (*Artemisia* spp.), greasewood (*Sarcobatus vermiculatus*), cholla (*Cylindropuntia* spp.), and Mormon tea (*Ephedra nevadensis*). Important animal species include coyotes (*Canis latrans*), cottontail rabbits (*Sylvilagus audubonii*), black-tailed jackrabbits (*Lepus californicus*), desert bighorn sheep (*Ovis canadensis*), desert tortoise (*Gopherus agassizii*), chuckwalla (*Sauromalus ater*), and various rodents.

The Shadscale Scrub community is generally located at higher elevations along the margins of the creosote scrub zones and has characteristics similar to the Creosote Bush Scrub community. The primary plant species consist of buckwheat (*Eriogonum* spp.), rabbitbrush (*Chrysothamnus* spp.), and saltbush (*Atriplex* spp.). Other plants include yucca (*Yucca schidigera* and *Y. baccata*) and various cacti. Animals found in this community would be the same as those in the creosote community. At higher altitudes in the mesa and foothill areas adjacent to the upper Mojave River is found a Joshua Tree Woodland community containing both the Joshua tree (*Yucca brevifolia*) and California juniper (*Juniperus californica*). Joshua tree woodland intergrades into a more pure juniper woodland in the Baldy Mesa area north of Cajon Pass and on the mesa north of Summit Valley. Along with the Joshua tree and California juniper, other plants, such as sages (*Salvia* spp.), bitterbrush (*Purshia glandulosa*), Great Basin sagebrush (*Artemisia tridentata*), buckwheat (*Eriogonum* spp.), rabbitbrush (*Chrysothamnus nauseosus*), *Ephedra*, cacti, and grasses are found. A variety of rodents, cottontail rabbits (*Sylvilagus audubonii*), black-tailed jackrabbits (*Lepus californicus*), and coyotes (*Canis latrans*) are the principal fauna. Pronghorn (*Antilocapra americana*) could have ranged in this community as well.

Desert Riparian Plant communities are present in both tributary washes and the Mojave River itself. Washes supporting riparian vegetation would carry surface water only during rainstorms. Some sections of the Mojave River carried surface water year round, although its flow varied by season, and in many places it was not available on the surface. In those places where geological conditions forced the flow of the river to the surface, extensive areas of riparian vegetation were often present.

At a number of locations on both the upper and lower portions of the river, geological conditions created extensive areas of riparian habitat. The riverine riparian environment contained salt grass (*Distichlis spicata*), cattail (*Typha* spp.), bulrush (*Scirpus acutus*), and rush (*Juncus* spp.). Along sections of the Mojave River, especially above Barstow, extensive areas of riparian woodland featured Frémont cottonwood (*Populus fremontii*). Also found in these areas were willow species, including narrow-leafed willow (*Salix exigua*), black willow (*S. goodingii*), sandbar willow (*S. hindsiana*), and arroyo willow (*S. lasiolepis*) (Thompson 1929:375; Rector et al. 1983:11; Lines and Bilhorn 1996:3–4; Lines 1999:3–9). Cottonwood and the other species depended on water at shallow depths, for cottonwoods less than about 3 m (10 ft) (Lines 1999:7). In and on the margins of the riparian zone were found giant reed (*Arundo donax*), arrowweed (*Pluchea servicea*), and wild grape (*Vitis* sp.). Carrizo grass (*Phragmites australis*) was associated with alkali seeps on the lower river terraces (Rector et al. 1983:8). Downstream from Helendale and especially on the lower Mojave River below Barstow, the margins of riparian environment honey mesquite (*Prosopis gladulosa*), and, less abundantly, screwbean (*P. pubescens*) (Lines and Bilhorn 1996:4). This woodland occurred in areas of more xeric surface conditions where available water was found at depths beyond 3 m (10 ft). Riparian woodland included mammals such as Audubon cottontail (*Sylvilagus audubonii*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*),

and black-tailed (mule) deer (*Odocoileus hemionus*) (Rector et al. 1983:12).

In the Afton Canyon area, far down the lower river, the existing riparian zone was documented and found to contain a variety of plants (see Schneider 1989:8, Appendix 1), including cottonwood (*Populus fremontii*), willow (*Salix* spp.), cattail (*Typha* spp.), bulrush (*Scirpus acutus*), rush (*Juncus* spp.), reed (*Phragmites australis*), giant reed (*Arundo donax*), arrowweed (*Pluchea sericea*), wild grape (*Vitis* spp.), honey mesquite (*Prosopis gladulosa*), screwbean (*P. pubescens*), saltbush (*Atriplex* spp.), and creosote (*Larrea tridentata*). Also of interest is the presence in that same riparian zone of American coot (*Fulica americana*), heron (*Botaurus* spp.), frogs (*Rana catesbeiana*, *Bufo punctatus*, and *Hyla regilla*), Pacific pond turtle (*Actinemys marmorata*), and chuckwalla (*Sauromalus ater*) (Schneider 1989:Appendix 2), all potential food resources.

The Mojave River as a Linear Oasis

The Mojave River was a major Native travel corridor across the central Mojave Desert, and the occupation of the upper and lower river by the Desert Serrano was linked to the control of this travel and exchange route. In addition, the Mojave River formed a linear oasis that provided resources to support village life. Like a number of other watercourses carrying winter storm runoff from the desert side of interior mountain ranges in south central and southern California, it had no outlet to the sea and terminated within the desert. Like these other desert streams, such as Big and Little Rock Creeks in the Antelope Valley to the west or the Whitewater River in the Coachella Valley, seasonal surface runoff was accompanied by subsurface flow, part of a wider phenomenon of downslope subsurface movement of mountain waters of pluvial origin into the low-lying centers of enclosed desert basins. Desert floor springs were found where geological conditions forced this water to the surface.

The headwaters of the Mojave River originate in the northern San Bernardino Mountains, and the course of the river runs to the north and northeast approximately 190 km (120 mi) to the "sinks of the Mojave," the Soda and Silver Lake playas (see Figure 1). The Mojave River differs from other desert stream courses in the region in the volume of water transported and the consequent downcutting of the river floodplain. The average rainfall of the San Bernardino Mountains exceeds 889 mm (35 in), and the drainage areas of the West Fork and Deep Creek tributaries of the Mojave River cover some 534 km^2 (202 mi^2) (Courtois 1984:689). This relatively large watershed is located at a relatively high altitude.

The upper section of the river extends northward some 88 km (55 mi) from Summit Valley to Barstow. The lower river runs from Barstow 72 km (65 mi) to the east and northeast to Afton Canyon and Soda Lake. The course of the river passes through several geological formations that create barriers to river flow and downcutting, including at Victorville, Barstow, and Afton Canyon, thus narrowing the floodplain of the river. The upper and lower courses of the river proceed along the floodplain that is entrenched to varying depths in relation to surrounding landforms.

Entrenchment terraces can be seen in some places along the course of the river. In the Hesperia area the depth of entrenchment below the adjoining mesas is approximately 30 to 45 m (100 to 150 ft). North of the Lower Narrows at Victorville, this entrenchment depth is about 80 m (262 ft) (Rector et al. 1983:5). From Daggett northeastward along the north side of the Mojave Valley, the depth of the river channel below the valley plain on the south increases from about 4.5 m to 30 m (15 ft to 75 ft) in the vicinity of Camp Cady, just west of the Cady Mountains (Thompson 1929:443).

As the lower river approaches the Cady Mountains and Afton Canyon, about 64 km (40 mi) east

of Barstow, the river narrows to follow a channel cut through the mountains for a distance of 8 km (5 mi). At the east end of the canyon, the river passes an overflow channel to the Cronese Lake playa to the north, and it then continues northeastward across a broad alluvial delta formerly containing extensive stands of mesquite to reach Soda Lake, a seasonally dry playa lake bed. Soda Lake and Silver Lake to the northeast are connected by an overflow channel.

As of the earliest decades of the twentieth century, Thompson (1929:446–448) reported that in average winter rainfall seasons surface water would reach as far down the river as Barstow. However, heavy winter storms would create surface flow all the way down the river, sufficient to fill Soda and Silver Lakes. In the mid-nineteenth century government land surveyors reported surface water flow in the Summit Valley area, but not further north to the east of the Hesperia Mesa area (General Land Office 1855–1856). However, just to the north of modern Hesperia, the section of the river extending some 6.4 km (4 mi) to the south of the Upper Narrows at Victorville contained both an extensive slough and areas of swamp further to the south. The transverse ridge at Victorville creating the Upper and Lower Narrows constricted subsurface flow and brought water to the surface. Just below the Lower Narrows, this surface water was also noted in March 1854 by a Pacific Railroad Survey party; the river flow was recorded as 45 m (150 ft) wide and 0.76 m (2.5 ft) deep (Whipple 1856a:125–130). From this point some 21 km (13 mi) downstream to Helendale (Point of Rocks) were areas of riparian habitat, indicating water at or near the surface.

Downstream from Barstow, an area on the river just east of Daggett was known in the nineteenth century as the Fish Ponds. This riparian zone was later destroyed by flooding. Twenty-one km (13 mi) further downriver an area of extensive riparian woodland and surface water is found in the vicinity of Camp Cady. Approximately 26 km (16 mi) further downstream to the northeast, Afton Canyon is another area where water occurs on the surface throughout the year (Courtois 1984:690).

Ethnohistorical Information and Ethnographic Research on the Desert Serrano and the Mojave River Region

Ethnohistorical Accounts

The Desert Serrano were first mentioned by Father Francisco Garcés in 1776. Although Captain Pedro Fages had passed through their territory west of the upper Mojave River in 1772, Garcés's diary account was the first to mention a named desert group in the area. Garcés called them "Beñemé," a term based on a Mojave rather than Serrano ethnic designation for the group (Coues 1900:I:238–246; Bolton 1931:6). Garcés's visit to the Mojave River region provides the earliest account of the location of Desert Serrano settlements there (Coues 1900:I:238–246, 268–269; Galvin 1965:36–38; Walker 1986:238–244, 253–257). Garcés participated in portions of several De Anza expeditions from Sonora to Alta California between 1774 and 1776, but he also explored on his own from the Hopi pueblos and the Grand Canyon to the east to the San Joaquin Valley to the west. Seeking an interior route from the Colorado River to Monterey, Garcés traveled westward across the Mojave Desert and up the Mojave River to Summit Valley in March 1776 (see Van Dyke 1927; Earle 2004b, 2005). After traveling on to Mission San Gabriel, the Santa Clara River Valley, the western Antelope Valley, and the San Joaquin Valley, he returned eastward from the Barstow area to the south shore of Soda Lake in May of the same year. He was a perceptive and careful observer of Native life wherever he traveled.

The Mojave River lay beyond the frontier of Spanish colonial occupation and settlement, and there are no known records of any official Spanish visits to the area between 1776 and 1806. In 1806 Father José María de Zalvidea of Mission San Fernando, later stationed

at Mission San Gabriel, accompanied an expedition of exploration to the San Joaquin Valley, the Antelope Valley, and the upper Mojave River (Cook 1960:247–248). Zalvidea described a few Native places on the upper Mojave River in August 1806, including the villages of Atongai (Atongaibit) and, further upstream, Guapiabit in Summit Valley (Beattie 1955a; Cook 1960:247). From there Zalvidea traveled southwest to Amutskupiabit in the Cajon Pass and then on to Mission San Gabriel.

Sergeant José Palomares, a Spanish soldier, made several trips into the southern San Joaquin Valley foothills and the western Mojave Desert in the fall of 1808 in pursuit of mission neophyte runaways. One of his expeditions crossed the Antelope Valley in an easterly direction before reaching the village of Atongaibit on the upper Mojave River and then the Native settlement of Guapiabit in Summit Valley. Palomares (1808) described Atongaibit as being "virtually deserted" since most of its inhabitants were attending an acorn-gathering fiesta at Guapiabit (Earle 2005:19). When Palomares later visited Guapiabit, he encountered "Native chiefs" with whom he attempted to negotiate the return of runaway refugees (Earle 2005:19). The inhabitants of other Mojave River villages and of a village located as far west as the Palmdale region were also present at this fiesta.

Following a failed revolt by Gabrielino/Tongva, Serrano, and other neophytes residing at Mission San Gabriel in November 1810, Spanish Ensign Gabriel Moraga sent Sergeant José María Pico to the Cajon Pass and upper Mojave River region to "pacify" non-Christian Native communities alleged to have supported the revolt (Earle 2005:20). Unfortunately, no detailed accounts of this incursion or other military expeditions to the Mojave River area between 1811 and 1819 are available (Earle 2005:19–21).

In 1819 Father Joaquín Pascual Nuez of Mission San Gabriel served as diarist of another military expedition led by Moraga that traveled down the Mojave River with the objective of reaching the Colorado River to punish the Mojave of the Colorado River for frontier attacks (Walker 1986; Earle 2010a). Nuez mentioned villages that were visited by the expedition on both the upper and lower Mojave River. Regrettably, Nuez did not clearly indicate whether community inhabitants were present when the expedition passed through. In addition, his information on travel distances between villages has been difficult to interpret and has generated confusion regarding the locations of Native villages (Earle 2004b:31, 2010a:185).

Jedediah Smith traveled along the Mojave River in 1826 and 1827, encountering Desert Serrano in the upper Mojave River region on both trips (Brooks 1977:91–92). He apparently passed through the village of Atongaibit in early 1827 (Earle 2005:24). Smith was guided on his 1826 trip by two Desert Serrano mission runaways born at Mojave River settlements who had made their way to the Mojave villages on the Colorado River from Mission San Gabriel.

In 1844 John C. Frémont traveled down a portion of the Mojave River (along the "Spanish Trail") on his way to Utah (Jackson and Spence 1970:674–678). He saw no evidence of any resident Natives until he met a party of five Mojaves near Daggett traveling to the Pacific coast. With the Mojaves was a man who was apparently Desert Serrano and had lived at one of the missions, but he had fled to live with the Mojave on the Colorado River.

These expedition and travel accounts have provided important information about Native life in an area infrequently visited by non–Native people during Spanish and Mexican times. The data related to political geography and the location of settlements have been especially important because of the possibility of using those data to locate villages mentioned in Franciscan mission sacramental registers.

Other Ethnohistorical Sources

The Franciscan mission sacramental registers recording Native baptisms, marriages, and burials at Missions San Gabriel and San Fernando are a key source of information about Desert Serrano and Mojave River villages and their inhabitants (Earle 2004a:178–183; Huntington Library 2006). For villages from the upper and lower Mojave River areas, data on places of origin of Native converts recorded during baptism and on Native marriage ties, spanning the decades from the 1790s through the 1820s, provides evidence regarding population characteristics, village exogamy, intervillage marriage alliances, and moieties. Comparison of these mission register data on Desert Serrano populations with those for the Mountain Serrano communities provides insight into the political relations of the two divisions of the Serrano.

Ethnographic Research

Direct ethnographic research with Desert Serrano consultants was limited to Kroeber's circa 1903–1905 interview with Moha, an elderly female Desert Serrano survivor (Kroeber 1907, 1925, 1959). He also collected information from the Mojave and others about the Serrano living on the Mojave River in the earlier nineteenth century. Harrington carried out substantial fieldwork among the Mojave in 1910–1911, the Kitanemuk in 1916, and the Mountain Serrano in 1918, and in doing so he obtained ethnographic data on Serrano speakers of the Mojave River and southern Antelope Valley regions (Harrington 1986:III:Rl. 98, 101, 148–156). Harrington's Serrano research also provided much information on Serrano culture, kinship, and political institutions that is relevant to the Desert Serrano. Gifford (1918), Benedict (1924), and Strong (1929) also conducted fieldwork among the Mountain Serrano of the San Bernardino and Banning regions that yielded valuable information about Serrano culture, political and religious institutions, and clan territories. As previously noted, research on Chemehuevi ethnographic materials collected by Harrington, Kelly, Van Valkenberg, and others has generated additional information about the Desert Serrano and their occupation of the Mojave River (Earle 2004a, 2004b).

Use of the Terms Beñemé and Vanyumé as a Group Identifier for the Desert Serrano

In 1776 Garcés used the term "Beñemé" in reference to several villages encountered on the Mojave River downriver from Victorville (Coues 1900:I:238–246, 268–269; Galvin 1965:36–38, 44; Walker 1986:235–259). This identifying term was provided to Garcés by his Mojave guides who also indicated to him when the party first entered "Beñemé" territory near Soda Lake. Garcés's guides also provided him with Mojave glosses for the names of other ethnic groups at a number of the locations he visited in southern California, as well as information about group boundaries and group alliances. As Garcés's diary makes clear, Mojave travelers and traders were hosted in villages along their travel routes to the southern California coast and the southern San Joaquin Valley. In the early nineteenth century, Jedediah Smith adopted an Anglicized version of the Mojave-derived term "Beñemé" (Brooks 1977:90–92). The ethnic designation "Vanyumé" later came into being through Kroeber's adoption of that Mojave term for the Desert Serrano. However, this was a foreign designation for Serrano speakers of this desert area. It is not clear that this Mojave use of a separate designation for desert or Desert Serrano had any correspondence in Serrano usage, since it was based on Mojave political distinctions, and not Serrano ones.

Kroeber interviewed Moha, the Desert Serrano woman who was then living among the Mojave (Kroeber 1907:139–140, 1959:129–130). Moha was known by the Mojave as a "Vanyumé," which Kroeber discussed as follows:

> In summary situations the Mohave tended to English Vanyumé as "Tejón" or sometimes as "Tehachapi Indians," … trying to use familiar white man's terms. But when they became specific, and knew enough American geographical terms, the Mohave regularly put the Vanyumé on Mojave River below and above Barstow, and had other terms for the Tejón and Tehachapi Natives [Kroeber 1959:299].

The Tejón attribution apparently came about because at least a few Desert Serrano survivors had ended up in the Tejón Ranchería region southwest of Tehachapi and were living there in the late nineteenth century, apparently sometimes after prior residence with the Mojave. Kroeber (1907:139) noted that Moha had described what he called the Vanyumé as occupying the Mojave River only downriver from Daggett, which he doubted because it was too far downriver. He had also made reference in 1907 to her use of the term "Möhineyam" to designate her group in the Daggett area, as if it were a self-designation similar in application to the Mojave term Vanyumé. The name "Möhineyam" appeared to Kroeber to refer to a Serrano clan that Strong (1929:7, 11) called the Mohiatniyum, located in the northeast portion of the San Bernardino Mountains. This was one of the Mountain Serrano clans that was also described by a Mountain Serrano elder, Santos Manuel, to J. P. Harrington in 1918 (Harrington 1986:III:Rl. 101:Fr. 52). Kroeber (1925:614) suggested that the name used by Moha referred to her clan ("Möhineyam"?) and not to the "Vanyumé" (Desert Serrano) as a whole. However, the fact that the birth placenames of her parents were both known and given by her in the Mojave language, and her statement that she had had, when young, older relatives already married to the Mojave, hint that she did not belong to a more recent refugee element of the Muhjá'nijam clan of the San Bernardino Mountains, but rather to a desert group of long standing (Kroeber 1959:300).

Kroeber (1925:614) claimed that Garcés applied the term Beñemé to a number of groups, including the Desert Serrano, the Mountain Serrano, the Gabrielino, and the Tataviam. However, Earle (1990:94–96, 2004a:173) argued that this common interpretation of Garcés's use of the term Beñemé is incorrect. Earle (1990:91; also see Johnson and Earle 1990:195) noted that Garcés did not apply the term to the Mountain Serrano, who he clearly designated as the Jeniguechе, his rendering of the Mojave term Hanyuveche (Kroeber 1907:133) or Hanguwecha (Harrington 1986:III:Rl. 131:Fr. 149, 152–153). The latter, the Mountain Serrano, were allies of the Halchidhoma, who were enemies of the Mojave.

The Chemehuevi also used different group designations to distinguish the Desert Serrano from the Mountain Serrano. The Chemehuevi called the Desert Serrano "Pitanta" or "Pitanti," while they referred to the Mountain Serrano as the "Maringints" (Kroeber 1907:134–135, 140, 1925:614; Kelly 1953:17-4; Earle 2004b:76). Other apparent variant labels mistakenly applied to the Desert Serrano have included "Panumints" (Kroeber 1907:135) and "Amakhavit" (Gifford 1918:179). "Panumints" referred to the desert division of the Kawaiisu, and "Amakhavit" referred to the Mojave (Earle 2004b: 73–77). It is possible, however, that the reason Gifford had been told about the "Amakhavit" as a Serrano group linked to the Tejón area was because Desert Serrano survivors who ended up there had, for some reason, been given this Mojave designation.

Although Garcés remarked while traveling up the Mojave River that the Beñemé "nation" was the same as that of San Gabriel (the Gabrielino/Tongva) and Santa Clara (the Tataviam), there are clues that he did not mean to include the Gabrielino/Tongva and Tataviam within Beñemé territory. First, in his "Reflections on the Diary," a separate post-expedition report (Coues 1900:II), Garcés listed the Chemehuevi, the Mojave, San Gabriel, and Santa Clara as bounding

(surrounding) the territory of the Beñemé. In this and other descriptions of ethnic territories in that same document, "bounding" could be interpreted to denote bordering (Coues 1900:II:444–445). Kroeber (1907:135) similarly interpreted this diary reference, excluding San Gabriel and Santa Clara from the territory of the Beñemé. In addition, Beñemé inhabitants are only specifically mentioned by Garcés on the Mojave River and on the southern edge of the Antelope Valley.

When Garcés reached the Antelope Valley foothills from the direction of the Santa Clara River (Santa Clarita Valley) in April 1776, he reported visiting a village whose inhabitants were of neater appearance "than I had seen before of this same Beñemé nation" (Coues 1900:I:269). The context of this account suggests that Garcés was returning to Beñemé territory and nation from the direction of the coast. If the San Gabriel and Santa Clara areas were also part of the Beñemé nation that he was referring to here, his statement would not make sense. In addition, later Mojave ethnographic testimony makes it clear that the Mojave used the term Beñemé/Vanyumé to apply to groups within the Desert Serrano, and not to groups closer to the coast. It was presumably this usage that Garcés was exposed to (Kroeber 1907:139, 1925:614; Harrington 1986:III:Rl. 131:Fr. 26, 27).

We have previously noted a later use of a variant of the term Vanyumé by Jedediah Smith. In 1826 Smith referred to a surviving group of Native people he encountered in the upper Mojave River area as "Wanyumah," an English language phoneticization of the same Mojave designation recorded by Garcés. It appears Smith learned the term from the Mojave with whom he camped on the Colorado River (Brooks 1977:85, 90–92). Whipple et al. (1856:124) of the Pacific Railroad Survey also applied the term Beñemé to the Native people to the west of Mojave territory, but their description broadly mimics that of Garcés for the land and people (see Coues 1900:I:238–241) and may have been taken from sources based on Garcés.

Thus, the Desert Serrano had a foreign name bestowed upon them by the Mojave, a term that was later employed by Kroeber and other researchers. Garcés's information about the Desert Serrano (Beñemé) is particularly valuable because his "Reflections on the Diary" included names and locations for political-ethnic groups across southern California, Arizona, and southern Nevada, thereby providing a broader political and cultural context for his observations of the location of Desert Serrano communities (Coues 1900:II:441–457). Garcés discussed alliances and enmities between these ethnic entities and provided population estimates for Colorado and Gila River peoples. This information is partly attributable to his Mojave guides and hosts, since several of the ethnic names he recorded, like Beñemé and Jenigueche (Mountain Serrano), are derived from the Mojave language.

However, Garcés's testimony makes clear that the Mojave also distinguished the villagers in the southern Antelope Valley that he called Beñemé from the nearby Cobaji (Kitanemuk) of the Tehachapi Mountains and Tejón region. Garcés used the Mojave designation Cobaji for the Kitanemuk. Further, the villagers of the southern Antelope Valley visited by Garcés were described by Kitanemuk elders as definitely speaking a dialect of Serrano (Earle 1990:101–102, 104).

The Mojave practice of labeling groups in California and the Southwest has considerable significance because of the frequent adoption of their nomenclature by early explorers like Garcés, with subsequent entry into common usage. In 1911 Harrington worked with a Mojave man, Ohue (William Osler), who provided a wealth of information on Mojave practices of naming other peoples (Harrington 1986:III:Rl. 147:Fr.09). Harrington's observations help to clarify the criteria used by the Mojave to assign these ethnic labels. One of the key points here is that the Mojave "tribal" terms could define regional polities as well as entire language-cultural groupings (Earle 2004b:14). Harrington (1986:III:Rl. 147:Fr.09) reported that

the Mojave "had an almost uncanny knowledge of tribes," but stated that rather than language alone, they let "general characteristics" of Native populations, including political ties, determine the application of their designations. He noted, for example, a case where a language division with both a desert and non-desert division—the Kamia/Kumeyaay of San Diego County—was named and treated separately because of their different political relations with Colorado River tribes. The desert division Kamia that were allied with Cocopa, enemies of the Mojave, were called *Kamia 'áhwe*, "enemy Diegueño" (Harrington 1986:III:Rl. 167:Fr. 4–5).

Language and Linguistic History

Kroeber (1907:139, 1909:256, 1925:614) reported that what he called the "Vanyumé" language was a dialect of Serrano, one of the Takic languages, and provided a short vocabulary of it (Kroeber 1907:71–89, 93–96). The Takic branch of Northern Uto-Aztecan (NUA) consists of two sub-branches: (1) Tubatulabal/Gabrielino/Cupan and (2) Serran (following Hill 2007; also see Sutton 2010). The Serran sub-branch has been stated as consisting of Kitanemuk, Desert Serrano, Mountain Serrano, and probably Tataviam (Munro and Johnson 2001; Hill 2007; Golla 2011:183–184).

Kroeber (1907:140) reported that the Kitanemuk, Desert Serrano, and Mountain Serrano were "very closely related dialectically," so close that Gifford (1918:215) referred to the Kitanemuk as the "northwest Serrano." Kroeber (1925:614) further observed that Kitanemuk, Desert Serrano, and Mountain Serrano were largely mutually intelligible but, based on limited data, surmised that the Desert Serrano dialect was "nearer to the Kitanemuk than to the [Mountain] Serrano proper," suggesting a linguistic gradation of Kitanemuk to Desert Serrano to Mountain Serrano (also see Earle 1990:101–102). This surmise may not have been correct, however, given the greater interaction of the Desert Serrano with Mountain Serrano clans further south than with the Kitanemuk region. Kitanemuk people told Harrington that they could understand most of the speech of the (Mountain) Serrano of the San Bernardino region (Harrington 1986:III:Rl. 98:Fr. 152, 374). However, Santos Manuel mentioned that there was internal differentiation within Mountain Serrano speech itself. In recent times, the differentiation of other clans from the speech of the Mareŋajam clan had lessened. He implied that the speech of the Mareŋajam would have traditionally been the most distant from nonlocal forms, that of the Kitanemuk and Desert Serrano, of the various more southerly (Mountain Serrano) clans of the San Bernardino region (Harrington 1986:III: Rl. 101:Fr. 165).

Population, Territory, and Political Geography of the Desert Serrano

Population

Kroeber (1925:614) reported that the Desert Serrano population was "very small" at historic contact. However, in discussing his population estimates for different California groups in 1925, he lamented that potential Native population insights promised by the Franciscan mission sacramental registers had not yet been realized. More than 75 years later, these registers, considered along with other sources, provide a better basis for understanding regional populations. Earle (2004b:94) estimated that in about 1776 the population on the Mojave River from the Victorville region downriver was between 300 and 400 people. According to Garcés, at least two additional villages further upstream had a combined population of some 150 people (Coues 1900:I:244–246). Several other villages apparently located near the headwaters of the Mojave River formed part of the upriver social and political network and would have contained an additional 100 to 150 people. Thus, the Desert Serrano population could have totaled as many as 700 people.

Territory

On the basis of Garcés's information, it has been generally accepted that the Desert Serrano occupied at least portions of the Mojave River (e.g., Kroeber 1925:614; Bean and Smith 1978:570, Figure 1). To what extent they occupied adjoining territory on each side of the river has been less clear. As stated above, the Mojave acknowledged that the Desert Serrano occupied the entire river. Kroeber (1907:139) was told by Moha that the Mountain Serrano lived as far downriver as Daggett, with the Desert Serrano further downriver. However, Kroeber's most valued Mojave source on the political geography of desert tribes, Jo Nelson, stated that Desert Serrano territory extended " … upriver past Barstow, Victor[ville], and to [the] divide, where [the] Vanyumé end, and Hanyuvetc^{e} begin" (Kroeber n.d.:R106:Fr.51, 1948:50). The divide mentioned here appears to refer to the Cajon Pass region. Kroeber (1925:614) reiterated that geographic assessment.

Bean and Smith (1978:570, Figure 1) assigned the Mojave River from south of Victorville to its terminus at Soda Lake, along with considerable territory on either side of the river, to the Desert Serrano. King and Casebier (1976) allocated the entire central Mojave Desert to the Chemehuevi, placing the Desert Serrano to the west of Barstow. However, both Kelly (1934:Map 1) and Knack (1980:139, 144–145) had the Desert Serrano using a major portion of the central Mojave Desert south and west of the Soda Mountains.

Garcés apparently was told by his Mojave guides that the eastern limit of "Beñemé" (Desert Serrano) territory along the trail leading to the Colorado River was located at some desert wells he called San Juan de Díos. Coues (1900:I:238) put this place as far east as Marl Spring, but in fact it had to have been situated close to Soda Lake. Garcés located it 5.25 leagues east-northeast of the east end of Afton Canyon. This would put the wells several km south of the southwest or southeast margin of Soda Lake (Garcés's visit to this area is further discussed below). The Soda Mountains (Xáŋiŋav) were also said to have been located within Desert Serrano territory, as well as an area north of the Soda Mountains (Kelly 1953:17-27). One of Isabel Kelly's Chemehuevi sources noted that Daggett and the Calico Mountains belonged to the Pitanti (Desert Serrano) and that the boundary between the Pitanti and the Panum*i*nt (Desert Kawaiisu) to the north was located at the north end of the Calico Mountains (Kelly 1953:17-5; Earle 2004b:76). Kroeber's Mojave consultant Jo Nelson placed the southern boundary around "the divide," or Cajon Pass, as previously noted (Kroeber n.d.:R106:Fr.51, 1948:50). Santos Manuel repeatedly stated that the Tə′mtak region (discussed below), north of the San Bernardino Mountains and south of the lower Mojave River, was shared among various Mountain and Desert Serrano clans, although he had also attributed the area to the Mountain Serrano Paəveatam clan (Earle 1990:97).

Linguistically and culturally related populations that were also referred to as Beñemé by Garcés occupied the southern Antelope Valley west of the Mojave River. One Serrano clan in an intermediate location between the mountain and desert divisions, the Amutskayam (from the village of Amutskupiabit in Cajon Canyon), was said to have also occupied an extensive desert margin territory northwest of Cajon Pass in the northern foothills of the San Gabriel Mountains extending to Big Rock Creek. This would place it at least partially in the area of the Desert Serrano. Further northwest of this area along the south side of the Antelope Valley were other villages and territories with political and marriage links to the Desert Serrano villages along the Mojave River (Earle 1990, 2004a, 2004b, 2015). These western villages can also be considered Desert Serrano. They occupied the southern margin of the Antelope Valley from Little Rock Creek northwest to the Elizabeth Lake-Lake Hughes area. Since the focus of this paper is on the Desert Serrano of the Mojave River, the reader is referred to Earle

(1990, 1996, 2004a, 2004b, 2005) and Johnson and Earle (1990) for further ethnohistorical information on Native occupation of the southern Antelope Valley.

Clan Territories Along the Mojave River

As noted above, the ethnographic testimony of Santos Manuel and other Mountain Serrano people about former clan territories in the Mojave River region is not entirely consistent with information from mission registers and other Spanish era documents. Earle (1990:97–98, 2004b:34) reported that Manuel mentioned several Serrano clan territories located along the northern flank of the San Gabriel Mountains and the upper Mojave River drainage as of the mid-nineteenth century, including the Amutskayam, Kai'uyam, and Maviatam (Maveatam) territories extending north of the Cajon Pass area. Earle (1990:97) also noted that Harrington's Serrano sources considered these clans to form part of a single ethnic domain, in the sense that the Amutskayam of Cajon Pass and the Paəveatam (Pervetum) of the northern San Bernardino Mountains, usually considered to be affiliated with the Mountain Serrano, were not treated as a separate ethnic category with respect to the Desert Serrano Maviatam, who were placed north of Victorville. In other words, these northern or desertward clans were not treated by Santos Manuel as belonging to a separate ethnic/cultural entity. In addition, as discussed further below, Manuel treated the clan territory of the Kai'uyam of the northwest San Bernardino Mountains as extending, at least in some symbolic sense, to the north past Barstow and to the northwest across the Antelope Valley. The Maviatam on the river north of Victorville were treated as a subsidiary of or as encompassed within the clan territory of the Kai'uyam in some of Manuel's statements (Harrington 1986:III: Rl. 101:Fr. 12, 52, 83).

Harrington's Serrano sources (Earle 1990:97–98, 2004b:34) reported that the Amutskayam were located on the north slope of the San Gabriel Mountains in Cajon Pass and to the northwest in the Antelope Valley. They associated a village located on Big Rock Creek, named Amutskupeat, with this clan territory as well (Earle 2004a:177). This village at Big Rock Creek, east of Palmdale, was located some 48 km (30 mi) west of the course of the Mojave River in the Hesperia region. Earle (2004a:177) argued that the Amutskupiabit clan area was linked to and part of the Desert Serrano network of intermarrying villages. Johnson (2006:Table 5) listed 10 inhabitants of Amutskupeat baptized at Mission San Fernando.

Although Santos Manuel had referred to the uppermost Mojave River and Summit Valley as located within the territory of the Kai'uyam clan/sib in post-mission times, he was also familiar with the Wá'peat (Guapiabit) region in and around Summit Valley (Harrington 1986:III:Rl. 101:Fr. 355). This was clearly a clan territory separate from that of the Kai'uyam in the eighteenth century. Between 1776 and 1819 Garcés (in 1776), Zalvidea (in 1806), Palomares (in 1808), and Nuez (in 1819) each visited Guapiabit, which maintained marriage and fiesta links with other upper Mojave River villages and with the southern Antelope Valley (Coues 1900:I:246). Excavations at Guapiabit (CA-SBR-93/H and CA-SBR-1913) revealed a very late component, including relatively intact house floors with Hispanic trade goods, attributed to the Serrano (Sutton and Schneider 1996).

As noted, the Kai'uyam were mentioned by Manuel as a clan in the Mojave River area on the north side of the San Bernardino Mountains. Gifford (1918:179) listed a clan group called the Kaiyuwat as living north of the San Bernardino Mountains. Strong (1929:Table 1) listed a group he called the Kaīwīem as being located a bit further southeast, in and north of the Lake Arrowhead area in the San Bernardino Mountains. He reported them as being members of the Coyote moiety.

Harrington recorded information from Manuel and other Mountain Serrano consultants about the Kai'uyam (Kaī'ujam) clan, the same group as

mentioned above by other researchers. The clan was described as not only having territory on the Mojave River but as also occupying the Deep Creek area and the northwest San Bernardino Mountains (Harrington 1986:III:Rl. 101:Fr. 142, 200). He collected a great deal of information from Manuel about places in the northwest quarter of the San Bernardino Mountains said to have been located within the territory of this clan or "tribe" (Bean et al. 1981:13, 29, 102, 210, 222). Harrington also described how this and other surviving Mountain Serrano clans in the nineteenth century occupied the San Bernardino Mountains with bounded clan territories that abutted one another. The Kai'uyam (to the northwest), Paəveatam (to the northeast), Yohaviatam (to the southwest), and Atə'aveatam (to the southeast) had high mountain portions of their territories located in the Big Bear region (Earle 2004b:34). Native testimony identified the boundary lines separating these clan territories. In Harrington's notes these clan groups are sometimes identified by Santos Manuel as "tribes," along the lines of the Native concept of clans being politically independent groups (Bean et al. 1981:27).

It seems reasonable to conclude that the Kai'uyam clan designations associated with the northwest portion of the San Bernardino Mountains and the adjacent Mojave River were in some way associated with the mission register village of Kaiuvit, tentatively located at Deep Creek. The registers describe Kaiuvit as a principal Mountain Serrano clan village, and marriage ties recorded for it suggest that it was located on the desert side of Mountain Serrano territory, somewhere near Guapiabit and Atongaibit. This is consistent with its placement within the known territory of the Kai'uyam in the northwestern San Bernardino Mountains and Deep Creek drainage. The tentative location of the Kaiuvit village on lower Deep Creek is supported by ethnographic hints from Harrington's notes that fit with mission register data. This geographical association is important because it has been suggested that Kaiuvit was located north of Barstow (NEA and King 2004). However, the fact that Kaiuvit had seven marriage ties with Manuel's Yohaviatam clan of the southwestern San Bernardino Mountains, ties identified in a sample of Native marriages (recorded mostly from 1811 to 1815), also makes clear its association with Deep Creek and the northwestern mountain area, not Barstow (Earle 2004a:182).

Santos Manuel also noted that a chief of the Kai'uyam clan, whose Native name was Kaiuvit, lived in the Deep Creek drainage (Harrington 1986:III:Rl. 101:Fr. 200). However, Manuel's testimony treats the territory of Guapiabit and Atongaibit, two well-attested eighteenth and early nineteenth century clan villages, as if they were part of a distinct and larger clan territory of Kaiuvit. This appears to have been a change from the situation in Spanish times because prior to 1810 Guapiabit and Atongaibit were clearly independent clan villages that interacted with each other as equal and independent political units and whose inhabitants intermarried. They also appear in mission documents as the political equals of Kaiuvit and not as subdivisions of it. It appears more likely that with the abandonment of Guapiabit and Atongaibit by the time of Mexican use of the Old Spanish Trail in the 1830s, these clan territories were not clearly recalled by Manuel.

Nevertheless, the neighboring clan territory of the village of Amutskupeat was remembered by Serrano consultants, and the Guapiabit locality was also remembered, although not explicitly listed as a clan territory. Atongaibit, further down the Mojave River, was not recalled at all. Village names further downriver were also not recalled by Santos Manuel or other consultants in the forms that were known to the Spanish. By contrast, the layout of territories in the San Bernardino Mountains that adjoined at Big Bear were remembered, having been occupied by clan members as late as the 1830s to 1860s.

Thus, twentieth century anthropological data about Desert Serrano clan names and locations do not tally

in a number of respects with reliable Spanish era information. It is assumed that this important discrepancy is due to changed conditions between 1800–1810 and 1840–1850, with the abandonment of clan villages on the Mojave River by the time of the use of the Old Spanish Trail around 1830. It is also likely that by the mid-1820s the surviving Mojave River populations were moving from place to place to a greater degree. This is suggested by Jedediah Smith's comment in 1826 that his Desert Serrano guides did not find their kinfolk where they expected to find them on the Mojave River, somewhere around or to the east of Daggett (Brooks 1977:90). Such movement was clearly the case with the group that Moha, the Desert Serrano survivor, belonged to in the 1830s.

Santos Manuel made some statements where he extended the domain of the Kai'uyam downriver to Victorville and even as far as Barstow. He also stated that the Maviatam clan and a local group called the Tutupeatam, both on the Mojave River, formed part of the domain of the Kai'uyam (Harrington 1986:III:Rl. 101:Fr. 13). Manuel also associated people called the Kai'uyam with a black-colored mountain called Kaiuvat, within sight north of Barstow (Harrington 1986:III:Rl. 101:Fr. 249, 331). A Chemehuevi source mentioned a mountain that he called Kaiwat that was located just north of the northern boundary of the Pitanti (Desert Serrano) in the direction of the Panamint Mountains region (Kelly 1953:17-5). The similarity of these terms appears to be due to each referring to mountain ("kai, kait") contexts, with the Native term for the Kai'uyam of the northwest San Bernardino mountains being glossed as "mountain people." This has led to confusion of the Mountain Serrano Kai'uyam with Kaiuvat Mountain, north of Barstow.

We have referred above to the Maviatam and Tutupeatam, Desert Serrano local populations that were mentioned to ethnographers as located on the Mojave River. Several Mountain Serrano consultants mentioned the Maviatam as a desert region "clan." Harrington's notes indicate that the Maviatam were placed by Manuel on the Mojave River between Victorville and Barstow (Earle 2004b:34). Other researchers (Gifford 1918:179; Strong 1929:11, Table 1) listed the Maviatam (or Mavīatem) as a Serrano clan located in the Mojave River area and belonging to the Coyote moiety. The name Maviatam may be a derivation of the term Mavea, referring to a riparian woodland (Anderton 1988:393). The designation means "people of Maviat," the name by which a heavily wooded stretch of the Mojave River between Barstow and Victorville was known (Earle 2004b:34). Santos Manuel knew of a man living in the Tejón region, apparently when he was young, named PahwátS, who was married to a woman from Maviat (Harrington 1986:III:Rl. 101:Fr. 165).

Harrington was told that another group, called the Tutupeatam, lived in the Barstow area and were a distinct community, but they were not indicated as forming a distinct localized clan (Earle 2004b:34). Manuel described the place called Tutupeat as a flat plain with small hills bordering it, near Barstow, possibly to the west or northwest (Harrington 1986:III:Rl. 101:Fr. 73). He also mentioned being told by his father that "the people of Tutupiat and Pa't kaits" carried gifts of eagles to present to the Atə'aveatam clan of the mountain division of Serrano (Harrington 1986:III:Rl. 101:Fr. 199). Manuel further stated that Tutupeat was in the territory of the Kai'uyam, but that his own Yohaviatum clan also roamed around in that region (Harrington 1986:III:Rl. 101:Fr. 75). Information about these groupings in Harrington's notes again underlines the different picture of clan territories yielded by Spanish-era sources and twentieth century ethnographic testimony. The latter testimony appears to refer to a much smaller number of groupings in the upper river region than had existed at Spanish contact.

Finally, the Paəveatam (or Pervetum) clan was mentioned by Manuel as having controlled the Mojave River region east of Barstow and even east of

Victorville (Bean 1981:270–271; Earle 2004b:34). At one point Manuel claimed that along with Tə′mtak, the mountain region beyond the east side of the upper river, the mountains along the east side of the river opposite Victorville, called Pat' kaits, also belonged to the Paəveatam. He had elsewhere assigned Pat' kaits to the Kai'uyam. Manuel stated on several occasions that the Mojave River from above Victorville to Barstow was a dividing line between the Kai'uyam to the west and the Paəveatam to the east (Harrington 1986:III:Rl. 101:Fr. 13, 75, 142, 410).

However, Manuel also repeatedly stated that Tə′mtak, the extensive desert and mountain region north of the San Bernardino Mountains and east of the upper Mojave River, was an area used by various Serrano clans. Harrington noted the contradiction (Bean et al. 1981:271; Harrington 1986:III:Rl. 101:Fr. 15, 75):

> The region was waterless and belonged to all of us Serrano tribes (informant has stated this three or four times …) … when passing through the Tə′mtak region on the way from Bear Valley to Victorville he assigned that region to the Paə[veatam] although he later cast some doubt on his own statement by again stating that it belonged to any tribe that went there. He also added, "No ves, que los At[ə'aveatam] daban todo eso para cuidar, para vivir" ["Don't you see, that the Atə'aveatam gave all of this to be cared for, to live"; translated by D. Earle] [Harrington 1986:III:Rl. 101:Fr. 350].

When they were traveling near Big Bear Lake in the San Bernardino Mountains, Santos Manuel also told Harrington that a straight line-of-sight boundary could be laid out from the lake northward across the mountains and desert to Barstow, dividing the territory of the Kai'uyam on the west from that of the Paəveatam on the east (Harrington 1986:III:Rl. 101:Fr.142). The territory of the Kai'uyam was said to extend far to the northwest across the Antelope Valley. Manuel had also stressed the idea that the Atə'aveatam represented the senior and founding clan among the Serrano, providing direction and wisdom to other clans. This clan had passed out territory to other clans for them to "take care of," almost as a kind of sacred obligation.

These accounts suggest that this division and assignment of distant desert territory had an almost spiritual or religious aspect, the supernatural charter to the Kai'uyam and the Paəveatam to "care for" these regions, rather than exclusive "on the ground" political and economic control. The particular clue about what the concept of Kai'uyam "domain" along the river and to the west of it may have involved was the recognition that the Maviatam, a distinct clan, as well as the Tutupeatam, also lived on the Mojave River. In addition, Manuel stated that his own clan, the Yohaviatam, also used that area. Thus, the Maviatam and the Tutupeatam were said to be subsumed under the Kai'uyam, perhaps in a way similar to Manuel's idea that other Mountain Serrano clans were under the influence of the founding clan of the Atə'aveatam (Harrington 1986:III:Rl. 101:Fr. 5, 127).

All this seems to be a reflection of conditions after the 1820s. It seems likely that at least prior to the 1820s, the Angayaba area on the lower river would not have formed part of the Paəveatam clan territory and that any territorial claim by the latter group so far north, if true, would have been a later development. Angayaba was recognized by the Spanish in 1810 as a troublesome political center on the lower Mojave River (see below).

Desert Serrano Settlement Systems

The Desert Serrano clearly shared key elements of subsistence adaptation and community social and economic institutions with the Mountain Serrano. They can be seen as having transplanted elements of Serrano culture to the linear oasis that was the Mojave River, while

Numic groups deeper in the Mojave Desert to the north and east of them developed a different subsistence and settlement adaptation. Thus, the Desert Serrano along the Mojave River, like other groups of Takic language affiliation in southern California, were more sedentary in their settlement systems and material culture than Numic groups in desert areas to the north and east. Thus, the principal or headquarter settlements of Desert Serrano were probably at least partially occupied most of the year and had a highly developed infrastructure with relatively large populations.

Based on archaeological documentation of settlement patterns along Deep Creek, a mountain slope headwaters tributary of the Mojave River, Altschul et al. (1989) proposed a wider model possibly applicable to Desert Serrano settlement. This was a pattern of scattered linear settlements with "pockets of habitation" in favorable areas (Altschul et al. 1989:18). On the other hand, both archaeological and ethnohistorical data have provided many examples in southern California of more densely aggregated layouts of principal villages, which contained a chief's house, a dance house, a cemetery, and other facilities (McCawley 1996:27–33; Crespí 2001:354–355, 374–375). Dwellings were reported as located close enough together to aid in defense, but not so close that fire could easily jump from one dwelling to another given the fact that dwellings were typically burned as a mourning observance (McCawley 1996:28). The protohistoric ranchería site of Guapiabit provides an archaeological example of this relative aggregation or clustering of dwellings (Smith 1963:28–45; Sutton and Schneider 1996). Its layout bears similarity to those of many late eighteenth century villages described for areas closer to the southern California coast. However, the local movement of village sites around water sources over the decades and the short-term or long-term abandonment of villages clearly occurred.

For the Mountain Serrano, like the Mountain and Desert Cahuilla, the decades after the 1830s appear to be marked by an instability and mobility of populations and changed village locations that may reflect both smaller surviving post-mission populations and shifting subsistence and sociopolitical conditions. The occupation of principal village localities by non-Native ranchers, as happened at Yucaipa, for example, appears to have contributed to this instability (Harrington 1986:III:Rl. 101:Fr. 234). The question is whether in the eighteenth century the Mountain and Desert Serrano had a greater stability of village location over time. Of the Mojave River villages, Atongaibit and Guapiabit were the most frequently visited during this time, and both appear to have been marked by such long-term stability of location.

Spanish exploration and travel accounts for the southern California region describe principal villages occupied over periods of many years that correspond to named places in Franciscan mission sacramental registers (McCawley 1996:38, 60). Twentieth century ethnographic data have confirmed this picture. The principal villages were occupied in the winter and perhaps throughout the year, while seasonal camps were occupied in spring, summer, and fall by smaller foraging groups from those villages. Large coastal villages dependent on marine resources tended to have a clearly aggregated village layout as attested by the accounts of explorers. For the Mountain Serrano of the San Bernardino region, despite the changes in settlement by surviving clan communities after the era of Franciscan missionization (1795–1827), it is possible to reconstruct pre-mission settlement patterns. Both Spanish-era records and ethnographic testimony indicate that clan groups like the Yohaviatam or Mareŋajam were based at named principal villages listed in Franciscan mission registers. These villages were located in valley or lower altitude settings, while summer hunting camps (with deer being a major prey species) were located high in the San Bernardino Mountains, in locations that were sometimes snowbound in winter. Camps to exploit pinyon and acorns were located at intermediate altitudes.

Not all Mountain Serrano clans held territory in the San Bernardino Mountains, but there is a frequent pattern of principal villages being located at canyon mouths or in foothill-valley transition zones (Kroeber 1925:617). Each clan appears to have had a principal (or "headquarters") winter village and a defined and bounded territory. On the desert side of the San Bernardino Mountains, expedition accounts and mission records also indicate the occupation of named villages along the Mojave River that were principal villages for clan territories. These villages had chiefs, some of whom practiced polygyny as a privilege of office.

The information about the locations of Mojave River villages presented by both Garcés and Nuez and attested to in mission records allows inference about the spacing of principal villages along the river and thus the size of clan territories associated with these villages. It appears that Desert Serrano principal villages along the Mojave River were situated approximately 13 to 19 km (8 to 12 mi) apart. This estimate takes into account village sites on the Mojave River not seen or occupied when either Garcés or Nuez passed through the area. Observed village population numbers ranged between 25 and 80 people, although total community populations may have been higher (Earle 2004a:178). Ethnohistorical and archaeological evidence suggests that while Desert Serrano clan territories on the Mojave River featured a principal village, they also included smaller subsidiary settlements occupied on a seasonal basis.

The important facts here are these: (1) the approximate or exact location and spacing of at least six principal villages on or near the upper Mojave River are known, and (2) these named communities are indicated in mission records as constituting or representing exogamous patrilineal kin groups. The male inhabitants of these villages and their territories are thus members of territorial patrilineal kin units that we label clans or sibs (discussed below). This model would appear to apply to villages such as Guapiabit, Atongaibit, and Topipabit which, according to ethnohistorical information (Earle 2004b:31, 93, 103), were occupied over a considerable number of years. Archaeological data suggest even longer spans of occupation.

It is therefore suggested that Desert Serrano principal villages along the Mojave River were located within adjoining territorial blocks along the Mojave River made up of individual patrilineal clans. We do not have direct ethnographic testimony about the location of specific boundary points between territories along the river as we do for Mountain Serrano clan territories. This is the case because the villages had been abandoned decades before the lifetimes of the Serrano consultants who provided information on clan territories. These territorial blocks are assumed to have extended into the desert on either side of the river (Earle 2004b:104). It is also assumed that both desert portions of territory and the river areas were not permanent exclusive use areas since their resources could be lent out to allied groups from time to time, as was the case with the acorn gathering fiesta at Guapiabit (Earle 2004b:105).

Village Layouts and Features

Principal, or headquarters, clan villages, always occupied during the winter, were the centers of religious and related social life, expressed in ceremony. In such a clan village the chief, his sacred house, and the sacred bundle, which was the spiritual embodiment of both the village and its clan, were essential features. The sacred enclosure or dance house and an associated ramada (sunshade) were located at the chief's house. The cemetery was another clan village feature related directly to the performance of funerals and mourning ceremonies. The clan village can be thought of as a ritual space. Winter ritual activities involved not only the presence of the members of the village, but also the visits of members of allied clans. While twentieth century Serrano ethnographic testimony provides the clearest picture of the characteristics of

the clan headquarters village among Mountain Serrano clans, ethnohistoric accounts also provide information about chiefs, ceremony, and fiestas at Desert Serrano villages along the Mojave River (Palomares 1808:240–242; Coues 1900:243–246; Benedict 1924:373–382; Strong 1929:17–20, 30–35).

Villages consisted of clusters of circular, dome-shaped, one-room houses. Along with dwellings, the domestic areas of winter villages included outside activity areas with ramadas, or sunshades, and possibly vertical windbreaks, commonly used when women were carrying out food processing out-of-doors. Woven rush matting provided material for both sunshades and windbreaks. There were also outdoor storage bins, raised above ground level and tightly sealed against animal intrusion. These were often made of interwoven willow withes or similar materials. It appears that in the Mojave River area mesquite pods, acorns, pinyon pine nuts, and juniper berries were all stored in such outdoor receptacles. In addition, food storage pits had stone linings that discouraged digging rodents. Fuelwood for cooking, winter warmth, and winter fiestas required stockpiling.

As noted, the chief's sacred house, a ceremonial and dance enclosure, and a cemetery were important facilities for a clan village. An additional feature possibly present in Desert Serrano villages was the sweat house, a structure commonly found in Mountain Serrano villages. Among other uses it served as a clubhouse for men. However, a Chemehuevi named Matavium told Kelly (1953:17-61) that the Chemehuevi and Pitanti (Desert Serrano) did not use sweatlodges.

The house of a "captain" (chief) was visited by Garcés at a village located between Barstow and Victorville where he received offerings of shell beads and acorns (Coues 1900:I:244). Garcés later visited a place at the headwaters of the Mojave River where he saw a settlement of five "*xacales"* (jacales), or houses, approximately one league downriver from the large village of Guapiabit (Coues 1900:I:245). He did not indicate whether the jacales were occupied. On one or perhaps two occasions on the lower Mojave River, he also reported that his party camped at an abandoned village. These references suggest that settlements along the Mojave River were nucleated.

Native-style circular dwellings in coastal and interior southern California, often referred to in Mexican Spanish as jacales, were described by Spanish explorers, recalled by Native elders to anthropologists, and occasionally continued to be used into the late nineteenth century and even later (Hudson and Blackburn 1982:322–337; McCawley 1996:29–30; Crespí 2001:346–349, 374–375, 384–385; Santamaría 2005:624).

Such dwellings were described as having roughly circular floor plans and often had a dome or elongated dome shape. They were constructed of bundled grass or sedge from species such as tule reed (*Typha latifolia*) lashed to a framework of bent saplings anchored in the ground and tied at the apex, with horizontal saplings bent around the uprights to tie them together. The walls were covered on the inside by tule matting. The house floors were excavated to as much as 0.6 m (2 ft) deep and packed smooth. Fire hearths were placed in the middle of the floor, and a smoke hole was used at the center of the roof. A single low doorway was provided, facing away from the prevailing wind, west and southwest in the upper Mojave River region. Smaller structures were built at temporary or seasonal camps. In the summer temporary camps, shade and wind protection were important considerations.

The sizes of these dwellings reported for various areas of southern California appear to have varied considerably, depending in part on their use as temporary camp structures or as semipermanent dwellings. Smaller houses had floor diameters between 12 ft and 18 ft while larger structures could have floor diameters of 35 ft or even 50 ft (McCawley 1996:29).

Dwellings with larger floors were reported to have held several family units, sometimes with partitioned living areas. Winter village dwellings were carefully thatched to keep out winter rains and incorporated vertical poles that were charred at the base to prevent rotting. Their matting-covered floors were often sunken below grade, making them warmer in winter (McCawley 1996:29).

The site of Guapiabit (CA-SBR-93/H and CA-SBR-1913) provides interesting information about dwelling sizes in the upper Mojave River area. One hundred forty-two circular depressions were located and mapped (Smith and Moseley 1962:17; Moseley 1963), and several were test excavated. The mapped house wall and depression diameters ranged from around 4.2 m (14 ft) to as much as 7.3 m (24 ft), with Moseley (1963:45) illustrating an excavated house floor about 5.2 m (17 ft) across. Smith (1939, 1963:28–30) described the house depressions at the site as averaging 4.2 to 5.5 m (14 to 18 ft) in circumference and covering an area of about 2.83 hec (7 ac). Moseley (1963) stated that of the 142 mapped circular depressions, 80 were well enough defined to be certain that they were house foundations. This array suggests that the site was used over a long period of time. The village appears to have drifted from northwest to southeast because it seems that older structures are present in the northwestern area. This could perhaps be accounted for by the cultural practice of abandoning a house site upon the death of an occupant. Additional work at the site (Sutton and Schneider 1996:14–17) recorded eight structures, with diameters ranging between 5.5 m (18 ft) and 13.7 m (45 ft).

In 1854 the foundations of Native houses were also observed at the village site of Amutskupiabit (CA-SBR-425/H) in Cajon Pass (Whipple 1856a:131–132; also see Grenda 1988; Gardner and Sutton 2008). In 1938 the site was visited before the house floors were apparently graded away, and diameters of 3.0 m (10 ft) to 4.2 m (14 ft) were recorded (Smith 1963:12–13). Garcés estimated minimum populations of 70 and 80 people at places that correspond to the villages of Atongaibit and Guapiabit. Supposing dwelling occupancy at an average of six people would yield a minimum of 12 or 13 jacales.

As noted above, temporary dwellings were smaller in size, and temporary camp sites would possess more rudimentary structures aimed mostly at providing shade. Mountain Serrano summer camping sites in the San Bernardino Mountains in the mid-1800s, for example, featured tipi-shaped small structures made by leaning poles together and covering them with pine needles (Harrington 1986:III:Rl. 101:Fr. 14).

Named Villages and Other Known Places

A number of Desert Serrano settlements, places, and clan territories located on the Mojave River or near its headwaters on the Mojave Desert margin are described below. Many of these were linked by ties of marriage and political alliance with other desert-side clans. These settlements have been included within the Desert Serrano (Figure 2, Table 1). These communities and territories include two, Amutskupiabit and Tameobit, that were located on the edge of the desert but not on the Mojave River itself. This discussion does not include several possible Desert Serrano localities in the Antelope Valley west of the Mojave River. Reconstructing locations of Desert Serrano villages and clan territories in the Mojave River region has involved the use of archaeological data, Franciscan mission register records, expedition accounts, and ethnographic information. Garcés's 1776 expedition account offers important information about village locations, but he did not record their Native names. By the first decade of the nineteenth century, missionaries were familiar with Native names for villages in the Mojave River region, and by that time residents of some villages had been baptized at Missions San Gabriel and San Fernando. Early nineteenth century expedition accounts, previously discussed, also mentioned Mojave River

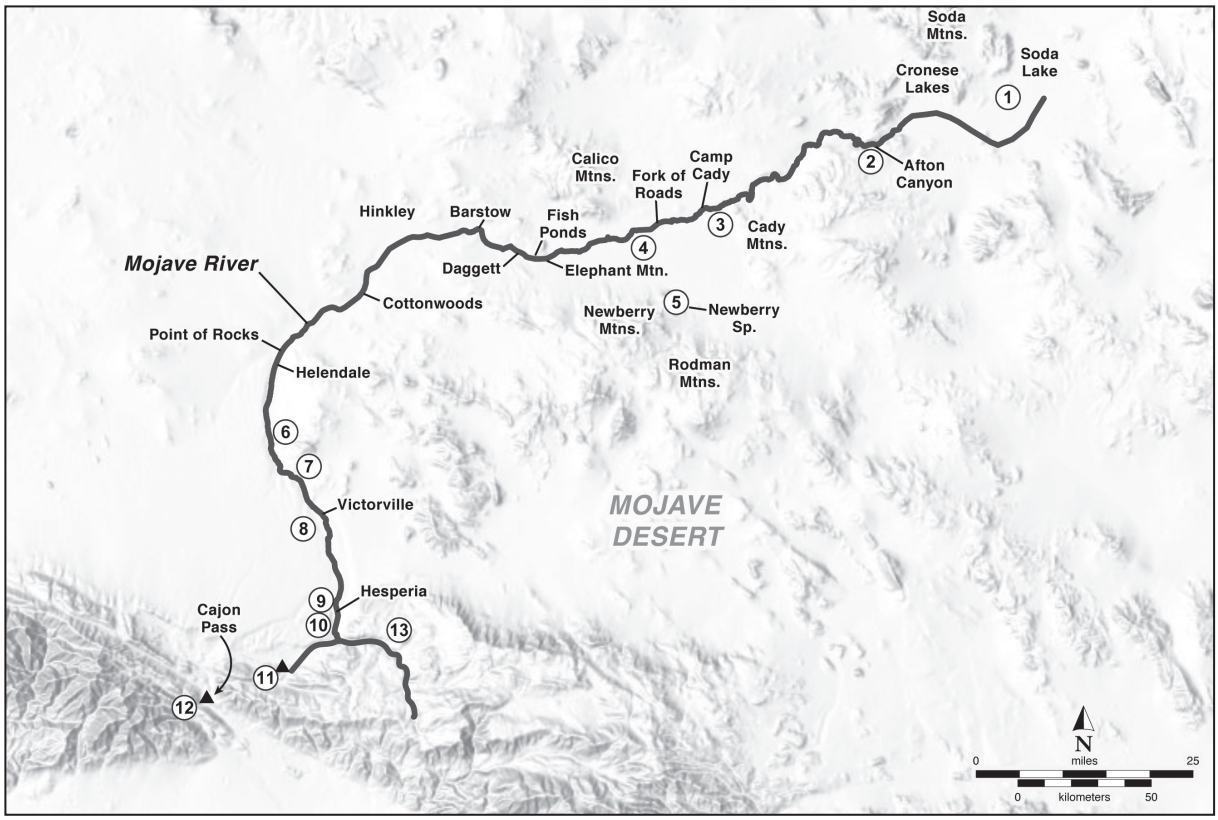

Figure 2. Map showing the approximate locations of known Desert Serrano places (numbered circles) and other places noted in the text: 1) Guanachiqui; 2) Asambeat; 3) Angayaba; 4) unidentified; 5) Tɨmɨŋa; 6) Sisugenat; 7) Cacaumeat; 8) Topipabit; 9) Atongaibit; 10) unidentified; 11) Guapiabit; 12) Amutskupiabit; 13) Tameobit.

villages. The expeditions of Zalvidea in 1806 and Palomares in 1808 supplied details about the location and characteristics of Guapiabit and Atongaibit, which they named, along with other useful information. Nuez's 1819 account of travel down the Mojave River provides data on named villages and their approximate relative locations. Franciscan mission sacramental registers also identify individuals and families from Mojave River villages, including Topipabit. They also record marriage ties established between residents of the various river and desert villages.

Known settlements commence in the vicinity of the sinks of the Mojave River, and they generally follow the river west and south to the upper Mojave River. There are some named settlements located away from the river. Because of the infrequency of Spanish visits to the Mojave River region, the completeness of this listing, especially for the lower portions of the river, cannot be assured. Due to the availability of more comprehensive information about marriage links between principal clan villages on the upper Mojave River, the listing of villages in that area is likely to be more complete. Nuez referred to Mojave River settlements using the village name variants found in the sacramental registers at Mission San Gabriel. This means that a locative ending (-bit) was usually added and Spanish orthography used, features that were not always found when the same places were mentioned in ethnographic field notes. Thus, for example, the name Guapiabit was used by Nuez but was recorded as W'a'peat by Harrington from

Table 1. Location and Description of Known and Possible Desert Serrano Settlements.

Village	General Location	Map Location (Figure 2)	Visited By (No. of People Seen)	Comments
Guanachiqui	Soda Lake area (?)	1	Nuez	
Asambeat	along the lower Mojave River, possibly Afton Canyon	2	Nuez	
Angayaba	on the Mojave River near Camp Cady	3	Garcés (25), Nuez	
unidentified	on the Mojave River between Camp Cady and Forks in the Road	4	Garcés	Not occupied at the time, possibly the village of Angayaba
Timiṇa	at Newberry Springs	5	–	
unidentified	possibly in the Helendale area		Garcés (40)	Possibly the village of Sisugenat or Cacaumeat
unidentified	possibly in the Bryman area		Garcés	Possibly the village of Sisugenat or Cacaumeat; Garcés noted the residence of a "chief" at this village
Sisugenat	on the Mojave River in the Helendale area	6	Garcés (?), Nuez	
Cacaumeat	on the Mojave River north of Oro Grande	7	Moraga, Nuez	
Topipabit	on the Mojave River in the vicinity of Victorville	8	Nuez, Smith	
Atongaibit	on the Mojave River near the Upper Narrows, south of Victorville near Hesperia	9	Garcés (70), Zalvidea (83), Palomares, Nuez, Smith	Several "chiefs" present
unidentified	on the Mojave River northeast of Guapiabit	10	Garcés	Five houses observed
Guapiabit	in Summit Valley	11	Garcés (80), Zalvidea (46), Palomares, Nuez, Smith	
Amutskupiabit	in the Cajon Pass	12	Zalvidea (ca. 17–20)	At least 25 inhabitants of Amutskupiabi had already been baptized by the time of Zalvidea's visit in 1806
Tameobit	at Rock Springs on northwest margin of the San Bernardino Mountains	13	–	
Najayabit	Somewhere near the headwaters of the Mojave River		"Spanish soldiers" in about 1811	

Santos Manuel (Earle 2010a; Harrington 1986:III:Rl. 101:Fr. 85, 355).

In the following descriptions we make reference to the expedition diaries of Garcés (1776) and Nuez (1819). These diaries provided distances of travel expressed in the legua, or league, a colonial Spanish unit of distance. As has been noted previously, uncritical acceptance of a semi-standard distance for the Spanish league of ca. 2.6–3.5 mi led Kroeber (and others) to

misinterpret Nuez's locations for Native villages on the Mojave River (see Haggard 1941:68 –70, 78 –79 on the Spanish league). Nuez's league is sometimes closer to 1.3–1.5 mi rather than 2.6–3.5 miles, and it is not consistent (Earle 2010a:73). Garcés use of league appears to approximate the standard distance of 2.6–3.5 mi in parts of his journey on the upper Mojave River. The variability of this measure must be kept in mind.

Guanachiqui

The easternmost, apparently Desert Serrano place mentioned by Nuez was Guanachiqui, a spring site likely in the general vicinity of Soda Lake (Figure 2, No. 1) (Walker 1986:308; Earle 2010a:187). This place and Asambeat, further west, were visited by an advance party of the 1819 Nuez expedition, but not by Nuez himself (Earle 2010a:187). It is not clear whether this place was a village site as opposed to a spring campsite. Nuez provided few details, but he did state that the water hole had to be dug in pure sand and that with some effort, sufficient water could be obtained (Earle 2010a:187–188). The fact of this water source being an important named place suggests that it was an established spring and not an unimproved water source developed by the Spanish expedition. The best known spring site in this area was Soda Springs on the west margin of Soda Lake about 6.5 km (4 mi) northwest of the south end of the lakebed. It was an important water stop later in the nineteenth century (Walker 1986:294). It is possible that this settlement was related to the procurement and trade of salt from Soda Lake.

Garcés described the territory of the Beñemé as commencing at some wells of abundant water that he called the Pozos de San Juan de Díos (Coues 1900:I:238). Garcés did not report an inhabited village at this location, but the fact of its recognition by the Mojave as the place where Desert Serrano occupation or settlement began hints at it having been occupied at some point. The location of the wells is uncertain, although Garcés's description of his route before reaching the wells appears to place them near the southwestern or southeastern margin of Soda Lake.

Asambeat

The next reported settlement upriver was Asambeat (Figure 2, No. 2). Garcés did not record this location, but it was reported by Nuez in 1819 (Coues 1900; Walker 1986:308; Earle 2010a:187). Nuez noted that it offered abundant water and even animal feed. Earle (2005:8) thought this place might be located at the western end of Afton Canyon, where a riparian woodland and a habitation site (CA-SBR-85) (Schneider 1989) are known. Excavations at that site revealed a late prehistoric component, and Schneider (1989:116) suggested that it had been occupied intermittently into "historic times." No European trade items (e.g., glass beads) were found, and the ethnic identity of the occupants was unclear. Joan Schneider (personal communication 2015) thought that Asambeat was a bit further east, where the Mojave River makes a large "U" curve and where water and grass is always present. In any case, Nuez's mention of abundant animal grazing feed suggests a placement in or near Afton Canyon.

Angayaba

The next village upriver, reported by Garcés, was inhabited by some 25 people at the time of his visit in 1776 and may be the village of Angayaba (Figure 2, No. 3). It featured grass, water, mesquite and screwbean trees, wild grapes, and tule reeds, the latter observed being eaten by the inhabitants. Winter weather at the time prevented the Native people from hunting. This place was probably located near Camp Cady, where a riparian woodland stretched along the river.

Nuez visited the village of Angayaba in 1819 (Beattie 1955b:55–56; Walker 1986:308; Earle 2005:8). His account suggests a location about a half-day journey east of Elephant Mountain, located across the river from modern Daggett, and is consistent with a Camp

Cady location. Angayaba had a marriage tie to Topipabit and to clan villages further upriver and was the origin of 14 converts and six additional listed unbaptized relatives at Mission San Gabriel (Huntington Library 2006). Angayaba was mentioned in an 1811 report about the failed revolt of converts at Mission San Gabriel the year before. Angayaba was specifically identified, along with the Mojave, Chemehuevi/Southern Paiute, and Serrano "of the mountains," as supporting the revolt (Earle 2005:10).

Kroeber (1959:302) speculated that Angayaba (translates as "red rock") was a Paiute/Chemehuevi placename and settlement, in part because he thought the village was located east of Soda Lake. While descending the upper Mojave River, the Nuez expedition recruited a guide from Angayaba, a young non-Christian man who had recently visited the Mojave villages (Earle 2010a:187). The circumstances of his recruitment as a guide for the expedition indicates that he and his village were Desert Serrano and not Chemehuevi/Southern Paiute. The fact that the place also provided converts to Mission San Gabriel suggests that it was not Chemehuevi/Southern Paiute because virtually the only baptisms from the latter group at the southern California missions were captive children taken to the Pueblo of Los Angeles in the 1830s and 1840s (Huntington Library 2006). Nuez proposed that Angayaba be used as a temporary supply base and grazing area for several months prior to any future expeditions directed at the Mojave (Earle 2010a). This indicates that the village was well supplied with water and ample pasture.

A large site (CA-SBR-11787) (McKenna 2005) containing a late component was investigated in the general vicinity of a village (presumably Angayaba) reported by Garcés. This site, located on the Mojave River just south of Harvard Hill, a few kilometers west of Camp Cady, contained a midden deposit, "late" artifacts, a number of hearth features, two inhumations, and two cremations.

The CA-SBR-11787 site might correspond with the village of Angayaba, although Angayaba may have been located further east and closer to Camp Cady. Garcés had reported a second abandoned village, possibly in the Daggett area (Walker 1986:240), and it is possible that the CA-SBR-11781 site corresponds to this second village.

Unidentified Abandoned Village

An abandoned village was encountered by Garcés in 1776 east of modern Daggett (Figure 2, No. 4). This village was probably located somewhere between Camp Cady and Forks in the Road (Coues 1900:I:241). It is possible that Garcés also visited a second abandoned village in the same general area (Walker 1986:240).[3]

Hamuha or Tahamuha

Moha, the Desert Serrano woman interviewed by Kroeber (1907:140), indicated that she had been born at Hamuha, or Tahamuha (Ahamoha in Mojave), said to have been located close to and west of Daggett (see Figure 2). A Mojave source placed Ahamoha north of Daggett (Kroeber 1959:299–300) and related that Moha's real name was Tahamuha; apparently she was named after her birthplace. However, Harrington was later given conflicting information that Hamuha was located either between 3.2 km and 4.8 km (2 or 3 mi) west of Barstow or a few kilometers north of Victorville (Harrington 1986:III:Rl. 151: Fr. 515).

Possible Camp

A place where river water was available in the vicinity of Daggett (see Figure 2) was used as a campsite by the Nuez expedition, but was not associated with a Native village site. However, a decade or more later, Desert Serrano survivors were reported to have been camping somewhere in this area (Earle 2015:34). Interestingly, a metate quarry was mentioned by Nuez as

being in this same general area, at Elephant Mountain, across the river from Daggett (Earle 2010a:188).

Tɨmɨŋa

Evidence suggests the presence of a Desert Serrano village, Tɨmɨŋa, at Newberry Springs (Figure 2, No. 5), located at the foot of the Newberry Mountains about 9.6 km (6 mi) south of the Mojave River (Harrington 1986:III:Rl. 151:Fr. 519; also see Earle 2005:10). The spring there supported abundant stands of carrizo grass from which carrizo-grass sugar, an insect secretion, was gathered. Kroeber (1959:300) mentioned one Chemehuevi version of the story of a Mojave attack on Moha's Desert Serrano group that placed it at Newberry Springs.

There are no firsthand accounts of Hispanic visits to this location during the Spanish or Mexican eras. The place was reported to have been occupied by Chemehuevi/Southern Paiute around 1860 (Casebier 1972:22–23; Earle 2009:162). There is an archaeological site (CA-SBR-317) in that location (see Smith 1963), and excavations at a nearby site, Newberry Cave (CA-SBR-199), demonstrated that the cave was used several thousand years ago. Some materials found there demonstrate late aboriginal use of the cave, presumably by the Desert Serrano (Davis and Smith 1981:102).

Unidentified Inhabited Villages

Between Barstow and Victorville, Garcés visited two inhabited settlements that he did not name. At the first place, he observed a population of some 40 people, and because he was short of provisions, he was given hares and rabbits and fed acorn porridge. He then traveled one league upriver, reaching a second place where there was a "house" of the captain or chief "of these villages" (Coues 1900:I:243–244; Walker 1986:242–243). There he received an elaborate ritual greeting and was given shell beads and acorns by the chief and other participants.

The villages of Sisugenat and/or Cacaumeat may correspond to these places. The section of the river extending north from the Lower Narrows to the Helendale area featured large patches of riparian habitat in the river floodplain. Garcés's account indicates that the two villages he visited were located close together, perhaps 4 km or 5 km apart. Nuez's diary places Cacaumeat and Sisuguina four leagues distant from each other. As previously noted, Nuez's leagues were relatively short, so the distance between these places may have been much less than 10 miles. These villages appear to have had smaller populations than communities farther upriver, as has been noted, although the territories of these rancherías may not have been smaller.

Sisugenat

In 1819 Nuez passed through the village of Sisugenat, apparently located in the Helendale area (Figure 2, No. 6) (Earle 2010a:187). Mission records indicate that at least one person from Sisugenat was baptized at Mission San Gabriel (Earle 2004b:33). Nuez noted that the name of Sisugenat referred to "the appearance of the devil" (Earle 2015:34). The Native name refers to the appearance of a malevolent supernatural being called Sisu (e.g., McCawley 1996:248, 271). This settlement may have been one of the unidentified villages visited by Garcés (Coues 1900:I:243–244) (see above).

Cacaumeat

Further south along the river was the village of Cacaumeat (Figure 2, No. 7). This place was visited by Ensign Gabriel Moraga in 1816 while leading an expedition down the Mojave River (Earle 2005:21). Cacaumeat was also visited by Nuez in 1819 (Walker 1986:263–267; Earle 2010a:187). Nuez's itinerary appears to place it north of Oro Grande, possibly in the Bryman area. It is possible that this settlement was one of the unidentified villages visited by Garcés (Coues 1900:I:243–244) (see above). Seven people

from Cacaumeat were baptized at Mission San Gabriel (Huntington Library 2006).

Topipabit

The village of Topipabit was situated in the vicinity of Victorville (Figure 2, No. 8). It was apparently not on Garcés's travel route but was visited by Nuez (Walker 1986:263–267; Earle 2004a:176, 2010a:187, 189 n6) and possibly by Jedediah Smith (Earle 2005:24). Although Nuez did not mention the population sizes of the villages he visited, he specifically noted that Topipabit was uninhabited (Earle 2010a:187, 2015).

Mission records indicate that at least 10 people from Topopabit were baptized at Mission San Fernando and nine at Mission San Gabriel, although the San Gabriel figure may be an undercount due to missing baptismal register entries for 1816 through 1818 (Earle 2004b:33; Johnson 2006:Table 5). An additional three non-Christian relatives of the baptized were listed for this community. Baptisms indicate an underrepresentation of children under 15, suggesting elevated mortality associated with known epidemics during 1800–1802 and 1806. Application of preindustrial population life table modeling to the baptismal data suggests a minimum population of 38 people (Earle 2015:39).

The Turner Springs Ranch site (CA-SBR-66/182) is a proposed location for the village of Topipabit (Simpson 1977; Thompson and Thompson 1995:33–34; also see Earle 2010a:190 n10, 2015:1; Gust et al. 2015) because it appears to contain late prehistoric house depressions, inhumations and cremations, and a variety of late artifacts (Smith 1963:87). In addition, the site is located to the west of Garcés's route of travel through the Lower Narrows. The Oro Grande site (CA-SBR-72) is located a little downriver from Turner Springs, and while it contained a late prehistoric component, the absence of pottery suggests it was not occupied in ethnohistoric times (Rector et al. 1983:142). However, more recent work in the area suggests at least some ethnohistoric presence (Joan Schneider, personal communication 2015).

The Topipabit clan territory appears to have included an area extending at least from the Upper Narrows to the Lower Narrows and Turner Springs to the west. This territory may have extended farther upstream or downstream, but this is not clear. The clan territory of Topipabit also appears to have encompassed the mountains just across the river to the east of Victorville. These were Pat'kaits, the "mountain sheep mountains." Santos Manuel recalled the hunting of desert bighorn sheep there.

Atongaibit

The village of Atongaibit (also called Atongai) lay further south along the river, upstream from the Upper Narrows on the Mojave River south of Victorville (Figure 2, No. 9). Earle (2010a) suggested it was located on the west side of the river east of Hesperia and north of where the river trail to Guapiabit turned inland to the southwest. Both Zalvidea and Nuez described Atongaibit as located within 1.5 leagues to the south of the upstream end of the extensive cienaga formerly located above the Upper Narrows near Victorville (Cook 1960:248; Earle 2010a:186). Zalvidea also wrote that he could see "pine trees" on a hill "two leagues" away, perhaps a reference to the Ord Mountains just southeast across the river. Atongaibit was also at the eastern terminus of a major trail that led west-northwest toward Antelope Valley and the Tehachapi and Tejón regions (Earle 2010a).

Earle (2015:33) suggested that the territories of Guapiabit and Antongaibit would have adjoined. Nuez gave the distance from Guapaibit to Atongaibit as nearly the same as that between Amutskupiabit and Guapiabit. It appears that he followed some kind of "short cut" running northeast across the mesa north of Summit Valley, as Garcés had done in the reverse direction decades earlier. Nuez noted that the expedition

did not reach the north-south "arroyo" of the Mojave River (running north from the Deep Creek-Mojave River Forks intersection) until the party was at least as far north as Atongaibit, meaning they had followed a trail on the mesa lands west of the river to travel from Guapiabit to Atongaibit. This would suggest that the site of Atongaibit was located at least as far north as the Antelope Valley drainage located just south of modern Rock Springs Road, east of Hesperia. The distance between Guapiabit and Atongaibit is similar to that of the distance between Amutskupiabit and Guapiabit, about 17.7 to 18.5 km (11 to 11.5 mi).

Earle (2005:9) placed the site of Atongaibit to the east of Hesperia, possibly in the vicinity of the Rock Springs Road crossing of the Mojave River. Gerald Smith (1963:58) noted a site component (SBCM-48) on the Hedrick Ranch just to the south of the junction of the Antelope Valley drainage and the Mojave River. The 1856 General Land Office survey also noted piles of rocks at the mouth of this drainage that may have been associated with site occupation (General Land Office 1855–1856).

Garcés (Coues 1900:I:245) passed through this village when 70 people were present. He was again greeted with a ritual offering of shell beads and acorns. Several chiefs had previously greeted him in this way. Zalvidea, who also visited this village in August 1806, reported 83 people (32 men, 36 women, and 15 children) and baptized two older men and three older women (Cook 1960:247). Palomares visited Atongaibit in 1808, at which time its inhabitants were absent because they were attending a fiesta at Guapiabit (Palomares 1808). Nuez also visited this village in November of 1819 (Walker 1986; Earle 2010a:186–187). Earle (2005:24) thought that Jedediah Smith also passed through Atongaibit in early 1827 when leaving southern California.

Twenty-eight individuals from Atongaibit were baptized at Mission San Gabriel between 1795 and 1819, and Johnson (2006:Table 5) listed 17 individuals from this village as having been baptized at Mission San Fernando. An additional nine non-Christian relatives from Atongaibit were also documented (Merriam 1968:103; Huntington Library 2006). Because this village was encountered by each expedition through the region for many years, it is clear that it was a permanently occupied locality.

Unidentified Locality: "Animas Benditas de Atongaibit"

When the Nuez expedition left Atongaibit (see above), they camped about 1.5 leagues to the south, where the burned bodies of seven neophytes from Missions San Gabriel and San Fernando were found along with the remains of some other non-baptized local Natives, all presumably killed by Mojave raiders. The bodies were buried by Nuez, and the place was thus named the Animas Benditas de Atongaibit (Blessed Souls of Atongaibit) by Nuez. This event occurred in the clan territory of Atongaibit, close to the slough area south of the Upper Narrows where feed for saddle stock was abundant. It is not known if the area where the bodies were found was a Native campsite or possibly a cemetery.

The Native people who were killed had apparently encountered Mojave heading upriver with the intent of attacking the Spanish. Franciscan Fr. Sánchez in an 1821 diary report stated that the Mojave had killed them out of fear that they were going to raise the alarm on the Spanish side of the frontier. During this episode, Desert Serrano communities in the desert were caught between the Mojave and their local allies on the one side and the Spanish priests and soldiers on the other.

Unidentified Camp

About one league northeast of Guapiabit, Garcés passed by a small settlement of five houses (Figure 2, No. 10). He said nothing further about this place. This

spot is located between Guapiabit and the Deep Creek site (CA-SBR-176), known to contain an ethnohistoric component (Smith 1955; Altschul et al. 1989).

Guapiabit

The southernmost firmly identified ethnohistoric village on the Mojave River was Guapiabit (Figure 2, No. 11), visited by Garcés in 1776 (Coues 1900:I:246), Zalvidea in 1806 (Beattie 1955a; Cook 1960:247), Palomares in 1808, Nuez in 1819 (Beattie 1955b; Earle 2010a:186), and possibly Jedediah Smith in 1826 (Brooks 1977:92–93). Garcés counted about 80 people at the village in March 1776 (Coues 1900:I:246), while Zalvidea noted the presence of 46 people in August, 1806 (Cook 1960:I:247). By the latter date, many people at this village were already missionized. Mission records indicate that at least 86 people from the village were baptized at Missions San Fernando and San Gabriel, with at least nine more relatives listed for whom there is no baptismal record (Earle 2004a:178, 2004b:33).

Guapiabit had extensive marriage ties with both Atongaibit (n = 7) and Amutskupiabit (n = 17), as indicated in a sample of Native marriages recorded at Mission San Gabriel from around 1811 to 1815 (Earle 2004a:182). Kroeber (1959:302) listed Guapiabit as a "Vanyumé" (Desert Serrano) village, but he incorrectly placed it north of Victorville, a misinterpretation of Nuez's information on distances between villages. Excavations at Guapiabit (CA-SBR-93/H and CA-SBR-1913) were undertaken in the early 1990s, during which an ethnohistoric component was revealed (Sutton and Schneider 1996; also see Smith and Moseley 1962:17; Moseley 1963; Smith 1963). Guapiabit is especially important because an abundance of both ethnohistorical and archaeological data make clear that it was a long-occupied, nucleated settlement.

The name Guapiabit was derived from the Serrano term for juniper and juniper berries (*wa'at*). Juniper is abundant in the vicinity of this village, especially on Baldy Mesa to the northwest. Excavations at the site yielded juniper berries, although it was unclear whether they were cultural in origin (Sutton and Schneider 1996:28). To the south of the village, on the slopes of the San Bernardino Mountains south of Summit Valley, were stands of black oaks. In November 1808 Palomares was an eyewitness to a multi-village acorn gathering fiesta held at Guapiabit. At that time, the chief of the village was sheltering neophytes who had fled from Mission San Gabriel (Palomares 1808).

Santos and Tomás Manuel knew that what they called Wá'peat (Guapiabit) had been the center of an extensive territory. Harrington took them on a place name trip through the region and noted the following:

> After passing Hesperia perhaps 5 miles towards the Cajon Pass, we came to the place called Wá'peat. This is a placename that covers a tremendous territory, comprising the whole region between there and the summit of the Cajon Pass and extending from Huǎveat to the Yumaward to many miles over Los Angelesward of the auto road—way over to Sebastian's [Amutskayam] country. The plain was grown quite thickly with guata [juniper] and it must have produced a tremendous amount of that food for the Indians *antes* [before] [Harrington 1986:III:Rl. 101:Fr. 355].

Amutskupiabit

Along with Najayabit, two other communities linked by marriage to Mojave River villages and apparently forming part of the Desert Serrano social and political universe were Amutskupiabit and Tameobit. In addition, Kaiuvit (Cayyubit), a Mountain Serrano village and clan, was closely linked socially to upper Mojave River villages and was even said to

have owned portions of Mojave River territory in the nineteenth century.

Amutskupiabit was located just southwest of modern Cajon Junction some 16 km (10 mi) west of Summit Valley (Figure 2, No. 12). It had close ties with Guapiabit. A Desert Serrano village, Amutskupeat, located at Big Rock Creek on the south side of the Antelope Valley, was included by Santos Manuel in the clan territory of Amutskupiabit. Residents of Amutskupiabit were baptized at both Mission San Gabriel and Mission San Fernando, reflecting the clan's links to the Antelope Valley. Baptisms at the two missions numbered 77 (Huntington Library 2006).

A large archaeological site (CA-SBR-425/H) containing an ethnohistoric component is located at this place (see Grenda 1988; Gardner and Sutton 2008). In 1854 the foundations of Native houses were observed there (Whipple 1856a:131–132), and the site was visited in 1938 before the 10 to 14 ft diameter house floors were graded away (Smith 1963:12–13).

Tameobit

Tameobit was located to the east of the upper Mojave River (Figure 2, No. 13). Santos Manuel stated that the placename was associated with Rock Springs, at the base of the northwest slope of the San Bernardino Mountains, some 9.6 km (6 mi) east of Atongaibit (Harrington 1986:III: Rl. 101:Fr. 209, 210). Manuel's version of the name, using the Serrano locative ending -piat instead of the Gabrielino/Tongva ending -bit, was Taməpiat, glossed as "at the knees." Tameobit was linked by marriage ties to Atongaibit and other Mojave River area communities, especially Najayabit, as noted above. Approximately 11 people from Tameobit were baptized at Mission San Gabriel, while an additional four individuals from there were apparently never baptized, and three others were baptized at Mission San Fernando (Huntington Library 2006).

Najayabit

Najayabit was visited by Spanish soldiers after the 1810 mission revolt and was described as located somewhere in the backcountry (San Gabriel Mountains) to the northeast of Mission San Gabriel. However, Najayabit was said to be only a two-and-a-half day trip from Mission San Gabriel, so it could not have been located far downriver. Earle (2004a:174, 2005:9) speculated that Najayabit might have been associated with a section of the upper Mojave River called Nakaviat, which was apparently north of Atongaibit and adjacent to the swamp zone south of the Upper Narrows. It is possible that Najayabit was located near the upper Mojave River, because its marriage ties indicate a proximity to Tameobit, the latter located to the east of the Hesperia area and the upper Mojave River. Its exact location remains unresolved.

Chiefs from Najayabit were major players in the Serrano support for the 1810 revolt at Mission San Gabriel and helped organize both Chemehuevi and Mojave military support for the effort (Earle 2004a:20). They later tried to send quantities of beads to the Mojave to induce them to attack the Spanish again. At least 41 individuals from Najayabit were baptized at the missions (Earle 2004b:33). Marriage ties indicate that Najayabit was linked to both upper and lower Mojave River villages, including Tameobit, Guapiabit, Cayyubit, Cacaumeat, and Angayaba. Communication by Najayabit leaders with the Mojave and their familiarity with the bead exchange system also suggest that Najayabit was located near the exchange corridor used by the Mojave.

Desert Areas Adjoining the Mojave River Clan Territories

Desert Serrano settlements on and near the Mojave River corridor were surrounded by desert areas whose relation to these settlements and their claimed territories in the late 1700s is sometimes unclear. A

northern boundary of Desert Serrano territory north of the lower Mojave River has already been discussed. Little is known regarding the territorial relationships of upper Mojave River clan territories in the 1700s to the desert floor lying in the direction of the Antelope Valley. Santos Manuel assigned a vast area of desert to the west of Victorville and Barstow to the Kai'wiem clan of the northwest San Bernardino range, just as he assigned the west side of the upper Mojave River to them. However, as previously noted, these assignments appear to reflect conditions after the disappearance of clan villages from the Mojave River during 1820–1835.

Tə′mtak

Portions of the desert territory south and east of the Mojave River and north of the San Bernardino Mountains and Lucerne Valley were known to Santos Manuel as Tə′mtak (see Figure 1). One might consider this area a common pool resource zone (e.g., Eerkens 1999; also see below) in which resources within it were available to groups along its borders, in this case the Desert Serrano and Mountain Serrano. Manuel's comments on the location and geographical extent of Tə′mtak were not completely consistent, in one case emphasizing an area southeast of Victorville and in other contexts identifying it with a larger area of desert mountains to the east of the upper Mojave River. While visiting Barstow, Manuel Santos referred to Tə′mtak as lying to the south of the lower Mojave River. From his comments it is difficult to identify the northeastern and eastern boundaries of Tə′mtak or whether it extended further northeast and east than the lower desert ranges adjacent to the desert side of the San Bernardino Mountains. He indicated that he was not familiar with the far eastern reaches of this area and noted that he had not learned the names of places within Tə′mtak.

Manuel's comments about the relative lack of water in the area reflects the fact that well-known desert springs at the northern and northeastern foot of the San Bernardino Mountains, such as Rabbit Springs, Box Springs, Old Woman Spring, Cottonwood Spring, and One Hole Spring, lay just south of the main area of Tə′mtak. Nevertheless, the Ord Mountain and West Ord Mountain springs, Kane Spring (Newberry Mountains), Sheep Spring (Rodman Mountains), and other water sources did exist within Tə′mtak.

Tə′mtak was primarily arid but contained a large number of habitats and resource patches, including mountains, valleys, springs, playas (with occasional ephemeral lakes), washes, dunes, and lava fields. It contained a great variety of resources, including pronghorn, desert bighorn sheep, lagomorphs, rodents, reptiles, mesquite, willows, and grasses.

Manuel described Tə′mtak as being used for hunting during two-day or three-day forays. At the time of Santos's youth, that meant use by the Mountain Serrano rather than the Desert Serrano because the villages along the Mojave River had already been abandoned. He further reported that the Chemehuevi/Southern Paiute also hunted in Tə′mtak in the nineteenth century (Harrington 1986:III:Rl. 101:Fr. 354). The Paəveatam (Pervetum) of the northern San Bernardino Mountains were said to have hunted desert bighorn and pronghorn in Tə′mtak and had mountain sheep songs they sang in connection with this hunting (Earle 2004b:34). Manuel also noted that Mountain Serrano hunters feared running out of water when they were hunting on the desert side of the San Bernardino range (Harrington 1986:III:Rl. 101:Fr. 216).

Manuel commented about both use of Tə′mtak and territorial claims to the area that appear to date to the mid-to-late nineteenth century, and not to the era of Spanish contact. At one point, Manuel stated that Tə′mtak was considered the territory of his group, the Yuhaviatum, although he usually assigned the region to the Paəveatam clan based on the north side of the San Bernardino Mountains. He also stated that use of the area was shared by all Serrano groups

(Harrington 1986:III:Rl. 101:Fr. 350; also see Bean et al. 1981:270–271). Manuel's comments appear to have applied to the mid-nineteenth century, after the depopulation of the Mojave River settlements. It is not clear whether prior to 1800 the area was used mostly by hunting parties or whether there were Desert Serrano or Mountain Serrano family groups (or even larger groups) that utilized springs within Tə́mtak, at least seasonally. Similar to sites associated with Newberry Springs (e.g., Tɨmɨŋa; see above) at the northern edge of Tə́mtak that were frequently occupied by at least small groups through historic times, major spring sites elsewhere in Tə́mtak may have been used as base camps for activities other than big game hunting.

In the 1890s a prospector, William McHaney, observed the late use of a mountain margin area on the southeast edge of Tə́mtak near Twentynine Palms by a mixed group of Serrano and Chemehuevi (Walker 1931:11–19). Subsistence activities of this group, who were assigned a reservation there in 1894, included big and small game hunting and the harvesting of mesquite, screwbean, catclaw beans, chia, cacti, Joshua trees, grasses, and chaparral plants (e.g., manzanita). McHaney also noted the importance of "tanks,"natural reservoirs of rainwater, to this group for the provision of water when foraging.

Other Possible Common Pool Resource Zones

Eerkens (1999) proposed the presence of a common pool resource zone to the north of the Mojave River, in the north-central Mojave Desert (the Fort Irwin area). This region contains relatively little water except for several major springs but has some important resources such as mesquite, willow, and toolstone. Eerkens (1999) suggested that Desert Serrano would have shared this area with the Koso Shoshone, the Desert Kawaiisu, and the Southern Paiute (including the Chemehuevi). In contrast, Allen (1998:74) suggested that the zone may have existed as a product of competition rather than cooperative sharing.

However, the presence of a common pool resource zone north of the Mojave River is not supported by the ethnographic data. Kelly's (1953:17-4) Chemehuevi consultant, Mataviam, stated that the Calico Mountains formed a boundary between the Desert Serrano on the south and the Desert Kawaiisu to the north, implying that there was not an "unclaimed" zone in that region. Santos Manuel made a similar placement of the Desert Kawaiisu (the Panumint) to the north of the Desert Serrano. It remains to be seen whether this pattern was present prehistorically. Sutton (2017) proposed that during much of the Late Holocene most of the Mojave Desert constituted a common pool resource zone.

The desert portion of the Antelope Valley around Rodgers Dry Lake and the areas extending eastward past Harper Dry Lake toward the upper Mojave River is poorly documented ethnohistorically, although a named spring known to the Serrano existed at Buckhorn Dry Lake (see Figure 1). The area may have also been a common pool resource zone in protohistoric times (Sutton 2017). Important resources would have included extensive mesquite groves at Rogers, Buckhorn, and Rosamond lakes, along with several areas where toolstone could be procured. This area would probably have also been used by the Kawaiisu and Kitanemuk as well as by the Serrano living along the southern edge of the Antelope Valley. Some desert spring sites located closer to the northwest and southwest Antelope Valley foothills, such as Lovejoy Springs (CA-LAN-192) and Willow Springs and the Tropico area, may have been more permanently used by corresponding foothill groups.

Mojave River Settlement Characteristics

Information about Desert Serrano settlements along the Mojave River is incomplete because detailed placename and political geography information from early twentieth century Native consultants are lacking. Nevertheless, it is possible to match a number

of approximately located named settlements with Native ranchería (village) information recorded in Franciscan mission registers and other Spanish era documents. Along with the relatively sparse twentieth-century regional ethnographic testimony, the 1770–1830 historical record is largely limited to travel along the river itself. Thus, the political affiliation and settlement status of desert areas away from the river, like Tə́mtak, remain obscure for this time period.

The settlement of the Mojave River by Serrano speakers not only underscores the nature of the river as a linear oasis but also its nature as a corridor for movement of people and goods. The use of foodstuffs, such as acorns, pinyon, and juniper, that were moved downriver are reflected in the larger village populations along the upper portions of the river. An inverse relationship between settlement population size and distance from the headwaters of the Mojave River also reinforces the idea of the projection of Serrano culture and subsistence system out onto the desert. Clearly, there was continued sharing of a common culture between the mountain and desert divisions of the Serrano.

The movement of resources and people up and down the river conditioned relations between individual clan groups and relations with outsiders participating in the exchange system. Thus, we have the alliance of the Desert Serrano river villages with the Mojave traders of the Colorado River. A useful commentary on settlement along the Mojave River was presented by Earle:

> The spacing of Desert Serrano winter villages along the Mojave River and along the south side of the Antelope Valley to the west suggest territories of a minimum width of around 7 to 10 miles (11.2–16.1 km.) in respect to nearest neighbors. In both the southern Antelope Valley and along the upper Mojave River these territories don't appear to have been polygons because the distribution of winter villages named in the mission records was linear along environmental features offering high water and other resource availability. In the southern Antelope Valley village sites were distributed in a southeast- northwest linear orientation at canyon mouths and along water-laden sections of the San Andreas Fault. The Mojave River was a linear oasis. This meant that the territorial blocks might be narrower in respect to nearest neighbors than they were in respect to territory giving access to desert floor or upland resources located away from the axis of settlement.
>
> What was quite different about these two areas of Desert Serrano settlement, however, was that in the southern Antelope Valley it appears that mountain and desert floor resources were being pulled in to each one of these winter villages from uphill and downhill, so to speak, in a relatively self-contained way. By contrast, on the Mojave River upland resources were distributed deeper into the desert by passing downstream through the territories of several successive villages. We have noted the evidence for a significant flow of acorns and pinyon downstream, partly through direct procurement with permission by downstream villages. This would place a premium on the river villages maintaining a system of alliance that would foster peaceful relations. Chronic conflict between upstream and downstream villages would not be helpful for the downstream flow of these food resources [Earle 2015:32].

Social and Political Organization

Information regarding Desert Serrano social organization includes direct data from Franciscan mission registers, expedition accounts, and other ethnohistorical sources. In addition, twentieth century ethnographic

information about Mountain Serrano clans and their social and political organization is directly relevant. It permits us to better interpret and compare the patterning of social and political institutions between the Desert Serrano and Mountain Serrano between the 1770s and 1830s (the Mission period), based especially on mission register data. This includes analyzing the size, composition, and geographical distribution of villages and kin groups, identifying their political leaders, and tracing marriage and other links between specific clan villages. A comparison of features of village clan units between the Desert Serrano and the Mountain Serrano helps to clarify their shared common characteristics of social organization. This comparison also sheds light on religious and ceremonial institutions of the Desert Serrano.

The Serrano as a whole were organized into territorial exogamous totemic moieties,[4] Coyote (tuktum) and Wildcat (wahilyam), believed to have been created by Pakrokitat (Gifford 1918:178, 181; Kroeber 1925:617; Strong 1929:23) and which recognized patrilineal descent from a common male ancestor (Gifford 1918:178; Benedict 1924; Strong 1929). The clan was the largest autonomous political unit and had landowning responsibilities. Each clan was headed by a chief and religious leader (Kika) who was responsible for political and ceremonial leadership, maintenance of a sacred house and enclosure, and keeping the sacred bundle. The chief's position was inherited patrilineally (Gifford 1918:181). A second official, a ritual manager (Paxa), also had ceremonial duties, and his position was also inherited patrilineally. Typically, the leaders were male; however, if there was no male heir, a woman could succeed to the title (Bean et al. 1981:28). These leaders were responsible for ceremonial and religious activities, dealings with other clans, and scheduling the timing of various food collecting expeditions (Gifford 1918:181–182; Benedict 1924:372–379).

Certain clans not only intermarried but also assisted one another in conducting the principal religious and political event for the territorial clans, the periodic mourning ceremony. This ceremony was usually held in late autumn or early winter, when food was more abundant. Strong (1929:24) believed that the Mountain Serrano had developed this ceremonial reciprocity between clans to a rather greater degree than what occurred among the neighboring Cahuilla to the south. Thus, an important feature of this system was the existence of long-term close social ties between two allied clan villages. This social system, with its religious correlates, was expressed in patterns of interclan marriage and interclan mourning ceremonies and other fiesta gatherings. These patterns are reflected in Mojave River clan village data from Franciscan mission records and other ethnohistorical documents.

Several of the clans mentioned by Serrano people in the twentieth century as having occupied the southern margin of the Mojave Desert, including the Amutskayam and the Kai'uyam, were part of a network of alliances and intermarriage involving other clan villages in the upper Mojave River region, including Guapiabit, Atongaibit, Tameobit, Najayabit, and Topipabit. The Franciscan sacramental register information about these clan villages helps us address a number of questions about the political and social organization of the Desert Serrano. It appears that named villages on the Mojave River were also the principal villages of patrilineal territorial clans. These clans were apparently not internally broken down into politically or territorially distinct sub-communities or lineages, as occurred in some other southern California localities (e.g., Earle 2004a).

What is especially important for understanding social organization among the Serrano as a whole is that there are several cases in the upper Mojave River and adjacent areas, Amutskupiabit and Guapiabit, for example, where ethnographically known clans are associated with specific principal winter village locations that the Spanish visited and identified by name. Several cases also exist for Mountain Serrano

clans where such territorial clans were associated with known principal winter village sites. In these various instances it is clear that the clan units existed, that each clan had a principal village, that those villages were relatively large and aggregated, and that they were listed in the Franciscan sacramental registers as places of origin for Native converts.

The clans from Amutskupiabit and Guapiabit intermarried with other nearby Mojave River region villages, such as Atongaibit, Topipabit, Najayabit, and Tameobit, that may have had similar territorial clan organization, based on information from mission registers and other ethnohistorical sources. In the case of the villages of Atongaibit, Topipabit, and Najayabit, their clans are not reported ethnographically, in part because they did not survive into the mid-nineteenth century. One clear indication that the Mountain and Desert Serrano villages listed in mission registers were also clan units is the fact that Serrano localized territorial clans and villages were described ethnographically as traditionally exogamous. At the same time, if the Desert Serrano villages listed in Franciscan mission registers were clan units, one would expect to find that people within a given village did not marry one another. Earle (2004a:181–183) stated that at Mission San Gabriel, careful documentation regarding the actual village of birth of married females was not initiated until 1810. In that year Fr. José María de Zalvidea at San Gabriel became aware that a married woman was not necessarily born in her husband's village, and he began to make inquiries about this detail when he was recording baptisms.

After 1810 there is a clear pattern of village and clan marital exogamy in both Mountain and Desert Serrano villages. From a sample of 126 mostly Serrano marriages that were recorded between 1811 and 1815, the overall Serrano exogamy rate was 100 percent (Earle 2004a:181–182). That means that individuals born in a given village did not marry with others of the same village because they belonged to the same patrilineal kin group. It also means that village membership (as recorded in the mission registers) and clan and moiety memberships coincided.

Marriages between different clan villages usually involved females in-marrying from their villages of birth, with males remaining in their natal communities (patrilocality). This is clearly evident from the mission registers. While marriages were intended to be contracts between people whose clans belonged to different moieties, either wildcat or coyote, this was an ideal rather than an invariably observed rule (Earle 2004a:182). Twentieth century ethnographic information about the moieties of Serrano clans makes obvious that at least by the late nineteenth century the great majority of surviving clans were of Coyote rather than Wildcat affiliation, making the rule more difficult to follow.

Certain Serrano clan communities had higher rates of intermarriage, suggesting the possible establishment of alliances between clan villages of opposite moiety affiliation. In the upper Mojave River region, Amutskupiabit and Guapiabit were linked by 17 marriages among people baptized between about 1811 and 1815, and Guapiabit and Atongaibit were linked by seven marriages (Earle 2004a:182). Information on fall fiestas involving invited clan villages also indicates alliances between clans, as well as the fact that clans were politically identified by their primary winter village (Palomares 1808).

The Franciscan sacramental registers list clan villages as having a single chief and sometimes as having polygynous marriages. Garcés was astonished and impressed to be greeted by a chief at a village southwest and upriver of Barstow, where both shell beads and acorns were sprinkled on him as a ritual salute and greeting. Garcés noted that the chief's wife helped to carry out this ritual, as did a second woman whom he indicated was the chief's second wife (Galvin 1965:38; Walker 1986:242–243, 256):

> I went a league to the south-southeast, and arrived at the house of the chief of these *rancherías* [settlements]; I was presented with a string of white [shell] beads from the sea, 2 *varas* [yards] in length, and his wife showered me with acorns and threw away the basket, which is a sign among these people of much deference. From there in a moment, she [?] brought out beads from the sea in a little gourd container and sprinkled me with them in the manner of scattering flowers. When the second wife approached, she expressed her regards with the same ceremonies as well. I reciprocated as well as I could, and I was astonished to see that among such rustic people as these are found such expressions that one would associate with the most cultivated [people], and a special liberality in scattering their greatest treasure which are the beads [Walker 1986:242–243; (translated by D. Earle)].

Garcés noted that when he arrived at a village further upstream (believed to be Atongaibit), two chiefs were present who made the same ceremonial offering of shell beads, and women showered him again with acorns. At the last upstream village he visited, believed to be Guapiabit, he noted that the same offerings were made yet again. Thus, this unusual ceremony of respectful welcome was found at the villages southwest of Barstow reported as "Beñemé" and also at Atongaibit and Guapiabit on the upper section of the river, suggesting shared political and cultural institutions among these communities.

In sum, it is surmised that the Desert Serrano had principal villages with patrilineal clans and a patrilocal exogamous moiety (Coyote and Wildcat) system. In theory, clans of opposite moieties would have had geographically interspersed territories along the Mojave River.

Religion and Ritual

The Serrano shared some major features of religious ideology and ceremonialism with the Cahuilla, Luiseño, and Cupeño (Benedict 1924; Kroeber 1925:619; Strong 1929; Bean 1978:573). Serrano origin stories commemorated two brothers, Pakrokitat and his younger brother Kukitat, who created the human race and quarreled over how humans were to be endowed. Pakrokitat withdrew from the world of men, and Kukitat divided mankind into warring groups and created death. He was then slowly poisoned by disgruntled followers and cremated at a site at Big Bear Lake. A part of his body is stolen by Coyote during the cremation (Gifford 1918:182–184). It is assumed that the mountain and desert divisions of the Serrano shared this traditional account of origins, along with other elements of religious ideology.

This creation story, like those of Cahuilla clans, is reminiscent of the origin accounts of Colorado River Quechan groups, which mention founding brothers who quarrel. It also bears certain similarities to a coastal southern California religious tradition which speaks of a culture hero, Wiyot, created from the union of Earth and Sky. Wiyot also ruled a body of followers who become unhappy under his tutelage and conspire to slowly kill him. He was then cremated at the shores of a lake, where Coyote steals part of his body (Kroeber 1925:678).

Mortuary Practices

Strong (1929:32) stated that it is probable that the Serrano cremated their dead, a practice also noted by Kroeber (1925:618). The cremation of the culture hero Kukitat at Big Bear Lake appears to have provided a cultural charter for the practice of cremation (Gifford 1918:182–184; Benedict 1926:1). However, the information collected by Benedict (1924) on which some of Strong's discussion of mourning customs is based

appears to treat burial as a traditional practice. Body preparers were hired by the bereaved family. Benedict noted that large quantities of lengths of "thin curved" shell (ca. *Olivella* sp.) beads had been traditionally placed in burials and reported that this practice had been followed for at least a hundred years (Benedict 1924:382, 389). One might thus expect to encounter both cremations and inhumations in connection with locations occupied by Serrano continuously in both prehistoric and historic times.

The one direct ethnohistorical documentary inference about mortuary practices along the Mojave River has to do with Nuez's mention of apparent cremation of local victims of a Mojave raid in 1819 (Earle 2010a:186–187). Desert Serrano mortuary practices are assumed to have involved cremation as well as funeral property burning ceremonies and periodic mourning ceremonies found so widely in southern California (Bean and Smith 1978:572; Fortier 2008:23).

Archaeological evidence indicates that cremation was practiced in protohistoric times, but almost certainly along with inhumation. Such late cremated remains, for example, have been reported from a number of sites along the Mojave River (e.g., Smith 1963:87, 99; Leonard 1980). However, Sutton (2009:59; also see Allen 1994) argued that while cremation was practiced, it was uncommon among prehistoric Takic groups in southern California and is not by itself a marker trait of Takic groups such as the Desert Serrano.

Mourning Ceremonies

The universal occurrence of the mourning ceremony among both Takic and Numic groups in south-central and southern California makes it a virtual certainty that it was practiced by the Desert Serrano. It is possible that the "Beñemé" village near Lake Hughes visited by Garcés in 1776 was holding a mourning ceremony when later visited by Palomares in late October 1808 (Cook 1960:256).

Immediately after a person's death, some of his or her personal property was destroyed, and the deceased's house was burned. An additional ceremony called the *mamakwot*, was held soon after the death, perhaps a week to a month later (Benedict 1924:382). This was sponsored by the bereaved family. A feast was held, and the personal property of the deceased, with a few exceptions, was burned or broken up. It was believed that if this were not done the deceased could not be left in peace.

As was the case with other southern California groups, a mourning ceremony was also held periodically by a clan to honor all the clan's members who had died since the last ceremony (Gifford 1918:181–182; Benedict 1924:374–379; Strong 1929:32–34; Blackburn 1976:229–233). The mourning observance was the major ceremonial event on the ritual calendar. It appears to have been held on a regular annual basis and involved reciprocal obligations between different clans. A significant number of clans might be invited to the mourning ceremony. Benedict was told, for instance, that in former times the hosts of the ceremony she attended might have invited some six other clans. The ceremony was held after the close of the fall acorn and pinyon harvests. It was important for the harvesting tasks of autumn to be completed so that the investment of time necessary to host the ceremony could be made. It was also necessary that foodstuffs be available to underwrite the feasting. It is particularly important to keep in mind that a considerable block of time in late fall and early winter was taken up almost exclusively with either hosting or attending the mourning ceremonies when the various clans held their ceremonies in succession. The ceremonies involved, among other features, complex presentations of shell bead wealth between host and guest chiefs.

Other Ceremonies and Rituals

Another widespread religious complex in southern California involved cycles of sacred songs recounting

the travels of supernatural beings of creation times as they called out and interacted with sacred places and events on the landscapes of southern California and the Southwest. Versions of this religious institution are found among the Luiseño, Cahuilla, Serrano, and Chemehuevi and were especially highly developed among the Mojave (Kroeber 1925:257–260, 755–770). The Mojave had a song genre called the Tumanpa Vanyumé, which consisted of recitations of supernatural travels that included the Mojave River region. The Mojave suggested that they had learned it from the "Vanyumé" (Desert Serrano) and that the accompanying mythic story was in the Desert Serrano language (Kroeber 1925:759). This genre featured a song using Mojave words that recounts a supernatural journey to a sacred place near Barstow called Matavilya-vova (Earle 2005:25; Kroeber 1925:759). In addition, Kelly (1953:18-117) was told that the Chemehuevi at Pahrump had learned a Coyote song from the Desert Serrano.

With respect to other supernaturally associated places, Father Nuez stated in 1819 that the name of the village of Sisugenat (see above; also see Table 1) was associated with the frequent appearance of an apparently malevolent supernatural being at that place. Such a supernatural entity, known as Sisu, was also recognized by the Gabrielino/Tongva (Harrington 1986:III: Rl. 103: Fr. 31; McCawley 1996:44, 49, 248).

An additional element of the annual round of community and clan ritual was male and female initiation. Ceremonies were held for male and female youth containing elements of instruction and ordeal conducted by shamans, particularly for males. Some ritual occasions included the ingestion of Toloache (*Datura wrightii*) (Benedict 1924:375; Harrington 1986:III: Rl. 101: Fr. 436). In addition to curing, shamans oversaw initiation rituals. They practiced independently of clan ritual officials. It is known that rock painting among the Luiseño was associated with male and female initiation rituals, and additional evidence indicates that it was the case elsewhere in southern California (McCawley 1996:140). Santos Manuel mentioned pictographs painted by his own sister in the San Bernardino Mountains, although these are not specifically indicated as having been created during an initiation (Bean et al. 1981:149). Surviving Serrano pictographs show some stylistic themes that permit them to be identified in areas like Big Rock Creek in the southeastern Antelope Valley. Within the Mojave River area there are a number of locations where rock art of varying degrees of antiquity has been reported. The appearance of the Serrano style on the desert floor in the Antelope Valley to the west of the Mojave River seems to confirm the presence of Desert Serrano in that area (Earle 2015:29).

Subsistence

The Desert Serrano were hunters and gatherers and did not practice horticulture. They were described as "poor" by Kroeber (1925:615) and Bean and Smith (1978:570). However, it is clear from ethnohistoric accounts of traded commodities, food provisioning, and gift exchange with trading and traveling parties that they were clearly not impoverished but that their occupation of the river represented an economically beneficial presence on a strategic route of long-distance exchange (Harrington 1986:III: Rl. 167:Fr. 20; Earle 2004b:32). Garcés was an eyewitness to shell bead wealth and noted that the beads (*Olivella* disks; Earle 2005) were the "greatest treasures" of the Desert Serrano (Coues 1900:I:244–245).

Acorns were clearly an important commodity, but because the core territory of the Desert Serrano was the Mojave Desert and outside the native range of oaks, a principal feature of the economy of the river villages south of modern Barstow, and possibly to the east of it, was the importation of this resource from the San Bernardino Mountains. This reflected a pattern also found in the Antelope Valley area with the movement of acorns from mountain slopes to desert floor sites.

Botanical Resources

We have referred to the Mojave River as a linear oasis, one that provided subsistence and water resources to the permanent desert villages of the Desert Serrano. Not only were local riverine resources such as mesquite used, but tree-based foodstuffs were also moved considerable distances down the river. This is an important example of a more generalized phenomenon of export of upland and desert-edge food resources outward into the interior deserts, with acorn export being especially important. Thus, in areas of Desert Serrano occupation in the southern Antelope Valley, the transport of acorns to habitation sites on the desert floor appears to have occurred (Wiewall and Earle 2012). The phenomenon of long-distance movement or exchange of acorns has also been noted for the eastern Sierra (Haney 1992) and for the Kawaiisu, where acorns were reportedly exported to the Mojave Desert in return for mesquite (Zigmond 1981:54).

Food resources moved downriver included acorns (*Quercus* spp.), pinyon pine nuts (*Pinus monophylla*), and juniper berries (*Juniperus californica*). Acorns and pine nuts were moved from upland areas around the headwaters of the Mojave River. Juniper berries were gathered in the mesa region adjacent to Summit Valley farther downslope at the upper end of the river. The movement of these food resources would have contributed to the support of larger village populations along the river than otherwise would have been possible. The importance of the subsistence contribution of these transported foodstuffs is hinted at by the size distribution of river villages, with larger communities located on the upper and middle reaches of the river.

Acorns

The movement of acorns down the Mojave River from the northern slopes of the San Bernardino Mountains is referred to in several ethnohistorical sources. Most striking is the reference by Garcés in 1776 to the consumption of acorns far downriver from the mountains. Traveling up the Mojave River, Garcés reached a Native settlement to the southwest of Barstow where his party was offered quantities of acorn porridge. Garcés was very surprised that the chief who greeted him also provided a ritual greeting where baskets of both shell beads and acorns were poured over Garcés. This suggests that acorns were considered especially valuable. This kind of ritual greeting was repeated at several upstream villages, probably Atongaibit and Guapiabit (see above).

Further information about the transport of acorns appears in the diary account of the Palomares expedition of 1808, which had visited the southeastern margin of the southern San Joaquin Valley and then later crossed the southern Antelope Valley from west to east (Palomares 1808). Palomares visited a village just to the southeast of Palmdale, where he was told that most of the inhabitants were absent at an acorn gathering fiesta being held nearly 65 km (40 mi) to the east at the village of Guapiabit. The expedition followed a trail to the southeast that took it to Atongaibit on the Mojave River. Most of the inhabitants of that place were absent, attending a fiesta at Guapiabit. Palomares then visited Guapiabit, where people from five different villages were involved in an acorn gathering fiesta. When Palomares arrived, the participants of the fiesta were collecting acorns on the slopes of the San Bernardino Mountains south of the village. This was an area where black oak acorns, especially prized for their flavor, were found.

This account provides evidence about the movement of mountain slope acorns to destinations both on the Mojave River and in the southern Antelope Valley. The gathering of acorns in the Summit Valley area by the inhabitants of the village near Palmdale indicates that acorns might be transported considerable distances. It appears likely that in this case access to high-quality black oak acorns was being provided by the community of Guapiabit to its political allies. Such

access may have been institutionalized as a recurring arrangement between allies.

The downriver transport of acorns and pinyon pine nuts is also indicated by a Jedediah Smith diary entry, penned in the fall of 1826, noting that while camped along the river somewhere in the Victorville region he and his party were fed a porridge made from acorns and pinyon pine nuts (Brooks 1977:92). Acorn movement is also suggested by the recovery of both tools and botanical remains in downriver areas. McCarthy and Wilke (1983:103–104) mentioned the recovery of an acorn hull at the Oro Grande site (CA-SBR-72) downriver from Victorville, a site dated to at least 500 years before Spanish contact. In addition to this material, two stone pestles of a kind often used with portable stone mortars to process acorns were found at the site (Rector et al. 1983:60–63). Drover (1979:183–184) also reported acorn and pinyon remains from CA-SBR-259 at East Cronese Lake, the overflow playa lake on the lower Mojave River. The feasibility of acorn transport was discussed by Earle:

> Mayer (1976) studied Miwok acorn use and calculated the volume of acorns stored in Miwok granaries as between 1,360 kg (3,000 lb.) and 2,721 kg (6,000 lb.). A 1,360 kg stored cache would provide each member of a family of six about 3,000 kcal per day for a year (Mayer 1976:13–15). As Mayer noted, this would be sufficient total daily caloric intake even for adults. If half that amount were consumed (1,500 kcal per day) and supplemented with other foods, and the acorns were packed as 27 kg (60 lb.) loads in burden baskets, this would total 25 loads of acorns. If these were transported a distance of 20 miles, three people could transport the acorns from an annual harvest in eight trips. The point is that the adults of a household could feasibly transport enough acorns to make a significant contribution to the annual food supply, even if the total amounts were less than 680 kg (1,500 lb.) per annum [Earle 2015:16].

Pinyon Nuts

Santos Manuel and another Serrano consultant also discussed the harvesting of pinyon pine nuts in the San Bernardino Mountains in the middle decades of the nineteenth century (Harrington 1986:III: Rl. 101:Fr. 227, 325). Members of different clans gathered together to carry out a joint harvest of pine nuts, with the "home" clan receiving a portion of the harvest from visiting clans. This gathering was carried out in a fiesta context, with both ceremonial dancing and hunting to procure game for the fiesta. As Santos Manuel had described in detail, the Mountain Serrano clans occupied clearly defined clan territories whose boundaries in the San Bernardino Mountains were precisely delineated (also see Chace 1995).

Juniper Berries

The juniper tree (*Juniperus californica*) produced an important edible fruit or berry. It was also moved down the Mojave River. The mesa region north and northeast of the summit of Cajon Pass was covered with juniper woodland. This *wa'at* woodland gave the village of Guapiabit in Summit Valley its name (Harrington 1986:III: Rl. 101: Fr. 355). This area suffered extensive removal of juniper after the completion of the rail line through the area in 1885, as woodcutters, including Native people like Harrington's Serrano consultant Tomas Manuel, were hired to cut juniper and extract juniper roots for shipment to Los Angeles as firewood for bakeries (Harrington 1986:III:Rl. 101:Fr. 355).

Santos Manuel told Harrington that in the past, probably around the mid-nineteenth century, this juniper woodland area was a rendezvous location for both Serrano clan groups and Chemehuevi/ Southern Paiute at harvest time in August. The juniper berry was a major

food resource for communities on both the coastal and desert sides of the San Bernardino Mountains. It was noted as among the five most important traditional plant foods by missionaries at San Gabriel (Engelhardt 1927:101–102). The introduction of sweet foods of non-local origin in the nineteenth century may have contributed to the decline in importance of this food item in the southern California region, as was also the case with carrizo sugar.

Evidence of the downriver movement of juniper berries includes the recovery of berries at CA-SBR-72, the Oro Grande site (McCarthy and Wilke 1983:103). These remains are, like the acorn hull recovered, believed to date from at least 500 years before the historic period (McCarthy and Wilke 1983:103). In 1826 Jedediah Smith, encamped in the general vicinity of Victorville, wrote in his diary of having been fed a Native bread made from juniper berries (Brooks 1977:92).

Mesquite

Both honey mesquite (*Prosopis glandulosa*) and screwbean (*P. pubescence*) were found in many places along the length of the Mojave River. Honey mesquite (*P. glandulosa*) is highly dependent on permanent groundwater and is generally found associated with drainages, seeps, playas, and sand dunes. The distribution of screwbean (*P. pubescence*) is more sporadic and is mostly associated with riparian habitats, such as along the Mojave River, and its stands are especially dense in areas where water flowed on the surface. Thus, the slough zone above the Upper Narrows, the Fish Ponds area near Daggett, and the surface water locality around Camp Cady all featured dense mesquite thickets. Extensive areas of mesquite were also found to the south of the lower Mojave River in the Mojave Valley and east of Afton Canyon in the alluvial delta.

Garcés noted the use of mesquite along the Mojave River (Coues 1900:I:239–240), confirmed by Santos Manuel (Bean et al. 1981:6). Mesquite was harvested in August and September. The pods and beans were pounded in mortars to make meal or dried and stored in baskets or granaries raised off the ground. Dried mesquite pods could be stored for long periods of time. Honey mesquite was considered superior in taste. Like juniper berries and carrizo sugar, mesquite was enjoyed for its sweetness prior to the introduction of European sweet foods. Across the Mojave Desert, cottonwood log mortars and pointed stone pestles were commonly employed for processing mesquite beans, a technology referred to by Santos Manuel (Bean et al. 1981:61).

Carrizo Grass Sugar

Carrizo grass sugar was a favorite Desert Serrano food. It was a sweet, candy-like secretion deposited on carrizo grass (*Phragmites australis*) or, sometimes, tule reeds (*Scirpus* spp.) by an aphid, *Hyalopterus pruni* (Sutton 1988a; Lawlor 1995:509). Carrizo grass was harvested in the autumn. Santos Manuel recalled that the Mojave River above the Upper Narrows was well known for an abundance of carrizo grass. He described how the harvested grass was shaken out on a mat to gather the "sugar," called *Pākats,* and how this was formed into a thin roll that was wrapped in the leaves of the carrizo grass. Like other processed food items, the carrizo grass sugar could be stored, for example, in caches in caves. Jedediah Smith, during his first ascent of the Mojave River in 1826, noted that carrizo grass sugar was used as an emergency ration by his Desert Serrano guides:

> One of my guides said he knew where his people had a cache of some provision and the next day as I traveled on he went with one of the men to procure some at night they returned bringing something that resembled in appearance loaves of bread weighing each 8 or 10 pounds. It was so hard that an ax was required to break it and in taste resembled

> Sugar Candy. It was no doubt sugar but in that imperfect form in which it is found among nations to which the art of granulation is unknown. On enquiry I found it was made from the cane grass which I have before spoken of on Adams River [Virgin River] and the same of which the Amuchabas make their arrows [Brooks 1977:90].

Smith further noted consumption of carrizo grass sugar further upstream in the vicinity of Victorville. Carrizo grass grows not only in riparian environments along the river, but sometimes at desert springs such as Newberry Springs. This was another Native food desired for of its sweetness, but it may have become less important for Native people in the later nineteenth century due to the availability of European sweet foods. In addition, carrizo grass reportedly became quite scarce by that time as cows and horses were fond of eating it.

Yucca

Other significant foods included several species of yucca growing in the Desert Serrano region, including *Hesperoyucca whipplei* and *Yucca brevifolia*. *Hesperoyucca whipplei,* sometimes called Our Lord's Candle or Spanish Bayonet, occurred abundantly in the northern foothills of the San Gabriel and San Bernardino ranges. The basal heart of the plant was gathered for roasting in the early spring. The plant stalks grew and bloomed later in the spring, at which time the stalks were cut up and roasted in earth ovens.

The Joshua tree (*Yucca brevifolia*) produced both fruit and blossoms that were gathered and eaten in the spring (Zigmond 1981:69). Harrington referred to its use in the western Mojave Desert. Bean and Saubel (1972:153) reported that the Cahuilla obtained Joshua tree blossoms from the Serrano in trade. A red-colored root element from this species was also used for sewing strands to decorate Serrano baskets in historic times (Earle 2010a).

The Mojave yucca (*Yucca schidigera*) also grew in Desert Serrano territory, although the related *Y. baccata* was not common. The Mojave yucca provided both food and fiber to other southern California desert groups, including the Cahuilla and the Chemehuevi. The fruit of this yucca was a Cahuilla food source (Barrows 1900:59; Bean and Saubel 1972:151–152). The fruit pods were gathered during April and May. Chemehuevi exploitation was reported by Laird (1976:108) and Lawlor (1995:497–498). Although Desert Serrano ethnographic information attests to the consumption of yucca fruit, it is not clear if this included the Mojave yucca.

Cacti

Prickly pear (*Opuntia basilaris*) was infrequently found in the Mojave River environment, being found more abundantly at higher foothill altitudes. It produced both edible fruit and fleshy leaves. It was not mentioned as an important food source for the Desert Serrano, but was probably utilized to a limited extent. The neighboring Chemehuevi harvested buds and young leaves of prickly pear in the spring, and in the fall wooden tongs were used for harvesting the fruit, which was pounded in a mortar to be made into cakes (Fowler and Garey-Sage 2016:64–66). Seeds of other cacti, such as cholla, were also used by the Chemehuevi.

Other Botanical Resources

Important seed-yielding plants found in the Mojave River region and widely exploited by Native groups in interior southern California included tansy mustard and pepper grass (*Descurainia pinnata*), buckwheat (*Eriogonum* spp.), bunchgrass (*Melica imperfecta*), chia (*Salvia columbariae*), Indian rice grass (*Stipa hymenoides*), and members of the genus *Mentzelia* (Laird 1976:107; Zigmond 1981:26, 29, 34, 40, 41, 62; Turner 1994; Lawlor 1995:465, 483–485, 487–488, 504–513; Keeler-Wolf 2007). Other desert or desert-margin plants yielding seeds known to have

been exploited by the Cahuilla, Kawaiisu, Southern Paiute (Bean and Saubel 1972: 43, 45; Lawlor 1995:460–462, 471), and possibly the Desert Serrano include saltbush (*Atriplex* spp.), desert needle grass (*Stipa speciosa*), pigweed (*Amaranthus* spp.), basin sagebrush (*Artemisia tridentata*), and desert dicoria (*Dicoria canescens*). The range of utilized desert or desert-margin, seed-producing plants may have been extensive, as was the case with the Desert Cahuilla (Bean and Saubel 1972:20, 45, 52–53, 72, 88–89, 98–99, 136–138).

Garcés observed other root and seed food items along the Mojave River, including wild grapes (*Vita* spp.) and tule and bulrushes (*Scirpus and Typha* spp.) (Coues 1900:I:239–240; Walker 1986:239). The riparian occurrence of these rushes provided an important fall-back food for times of scarcity. Garcés also referred to the use of gourds, suggestive that the coyote gourd plant (*Cucurbita palmata*) or another Cucurbita species may have been harvested (Coues 1900:I:244; Walker 1986:242–243). Such species yielded seeds that were sometimes consumed by groups in interior southern California and the southwestern Great Basin (Bean and Saubel 1972:57; Lawlor 1995:473–474).

Another important food-producing plant, the islay hollyleaf cherry (*Prunus ilicifolia*), was abundant on the north slopes of the San Bernardino Range near the upper end of the Mojave River (Daniel F. McCarthy, personal communication 2015). The pit was extracted, mashed, and boiled, and it was a favorite food item in Native southern California (Earle and Wiewall 2012). The cherry fruit was also eaten. These foods may have been transported down the Mojave River.

Faunal Resources

Large Game

Three large game animals inhabit Desert Serrano territory: pronghorn (antelope) (*Antilocapra americana*), desert bighorn sheep (*Ovis canadensis*), and black-tailed deer (*Odocoileus hemionus*). Pronghorn primarily inhabited the valley bottoms, desert bighorn sheep were associated with rocky slope environments, even at low elevations, and black-tailed deer were associated with forb browsing in more wooded mesic habitats. By the twentieth century over-hunting with firearms had changed the distribution of these fauna in interior southern California. Ethnographic information indicates a formerly much wider distribution of these species. Information about the distribution of these large game species and Native exploitation of them is more abundant than in the case of various other animal species because both male Native people and early male visitors from the outside considered these large game animals to be interesting and important. For the Desert Serrano and their neighbors, the supernatural commemoration of mountain sheep and deer, and their hunting as well, were key activities. Although Kroeber (1925:704) stated that southern California Native groups used an unbacked bow, Manuel Santos stated that the Serrano used sinew-backed bows with a very heavy draw for hunting. Carrizo grass cane was used for arrow shafts. He also described the use of deer headdress disguises for stalking (Harrington 1986:III:Rl. 101:Frs. 165, 176, 197).

Pronghorn (antelope) were formerly common not only in the western Mojave Desert but also in regions closer to the southern California coast. The relative abundance of pronghorn in the Antelope Valley region west of the river is historically documented. Santos Manuel recalled pronghorn in the mesa region north of Summit Valley that descended Cajon Pass to the valley below. Jedediah Smith observed signs of pronghorn on the lower Mojave River in 1826. When his party was camped near modern Victorville, a pronghorn was shot to feed the group.

In the western Mojave Desert pronghorn utilized the more open grazing areas containing grasses rather than the more closed desert woodland areas containing

forbs that were browsed by deer. Hunters wearing pronghorn disguises could approach pronghorn from downwind to dispatch them with bows; such a technique was portrayed in a woodcut in the 1853 Railroad survey in the Cañada de Las Uvas area to the north of the west end of the Antelope Valley (Williamson 1856:25). Communal pronghorn hunting was reported for the Indian Wells Valley in the northwestern Mojave Desert (Steward 1938:81–82), and Santos Manuel mentioned that pronghorn were hunted in the Tə́mtak desert region to the north of the San Bernardino Mountains, apparently by small hunting parties.

Archaeologists have differed on the importance of pronghorn hunting in areas like the western Mojave Desert due to an apparent paucity of pronghorn skeletal elements in desert sites. However, it seems likely that the infrequency of identification of both pronghorn and deer skeletal elements is due in part to heavy processing of these elements for food and other purposes (Glassow 2012).

Desert bighorn sheep were reported by Santos Manuel as living in the hills to the east of Victorville, at Pat' kaits, or "mountain sheep mountains." He recalled that the region of Tə́mtak, east of the upper Mojave River, was visited by Serrano hunting both pronghorn and desert bighorn. A remnant Chemehuevi group living near Newberry Springs in the early twentieth century still hunted desert bighorn in the adjacent Newberry Mountains partly for their hides. Desert bighorn mountain sheep were present in the mountains near Afton Canyon and in low mountains to the east and west of the river (Van Dyke 1976:41; Fouts 1986:221). When Jedediah Smith ascended the lower Mojave River in 1826, he witnessed the presence of desert bighorn along the lower river (Brooks 1977:90).

Like desert bighorn mountain sheep, mule deer were considered important in the sacred lore of different interior southern California groups, including the Serrano and the Chemehuevi. Songs recounting supernatural travel by deer beings down the Mojave River were an expression of this (Kroeber n.d.:Rl. 104:Fr. 52).

Mule deer fed in areas of developed riparian habitat along the river. Earle (2015:17) noted Kroeber's (1951:77,151) discussion of Mojave River deer hunting mentioned in a Mojave traditional history:

> Kroeber had published what he called a Mojave historical epic, a Mojave account of the travels of a Mojave chief and his followers in ancient historical (not mythological) times. The account at one point referred to Mojave settlement along and east of the Mojave River in an area south of Barstow, and mentioned the hunting of deer along the river. Kroeber commented that this could not, in fact, have been the case. However, accounts by travelers along the river in the mid-nineteenth century make clear that deer were being hunted in the riparian areas there at that time. Thus it is not surprising that Mojave sacred song cycles, and apparently similar Serrano songs, described the travels of supernatural deer protagonists along the upper and lower Mojave River (Kroeber 1948:42) [Earle 2015:17].

Small Game

As elsewhere in interior southern California, procurement of hares, rabbits, and rodents was the basis of the animal protein supply. However, as Kroeber (1925) noted about California food procurement in general, a wide variety of animal resources was exploited. Kroeber (n.d.:103, 292) was told that the Desert Serrano on the Mojave River ate "snared rabbits and birds, and deer [and] mesquite." While the hunting of pronghorn, desert bighorn, and deer were favorite male activities, hunting small game was more important for meeting subsistence needs. Landscapes occupied by the Desert Serrano included both the mesa areas lying above the Mojave River terraces and the riparian and adjacent

river terrace environments. Jackrabbits were hunted in the mesa areas, while other small animals, rodents, chuckwallas, tortoises, and birds, were found in the terrace and riparian zones.

Jedediah Smith observed jackrabbit hunting in the vicinity of Victorville in his 1826 journey up the Mojave River:

> As there were in the neighborhood a plenty of hares the Indians said they must give us a feast. Several went out for this purpose with a net 80 or 100 yards long. Arriving at a place where they knew them to be plenty the net was extended among the wormwood. Then divided on each wing they moved in such direction as to force the frightened game to the net where they were taken while entangled in its meshes. Being out but a short time they brought in 2 or three doz[en] a part of which they gave me [Brooks 1977:92].

Along with net hunting of jackrabbits, various groups in southern California dispatched jackrabbits and cottontails with curved wooden throwing sticks (e.g., Hudson and Blackburn 1979:133; Koerper 1998). In the case of the Mountain Serrano, Santos Manuel mentioned the holding of rabbit drives that involved participation of several different clan groups led by chiefs. These joint drives could involve setting fires as a means of driving animals. As with the joint gathering of acorns by different communities, rabbit hunting provided the setting for fiesta activities (Bean et al. 1981:48–49, 78–79,114–116).

Santos Manuel noted desert tortoise (*Gopherus agassizi*) as abundant in the Mojave River area (Harrington 1986:III:Rl. 101:Fr. 318, 442; also see Schneider and Everson 1989:189–191). The desert tortoise was an important prehistoric food resource in the Mojave Desert, as was the chuckwalla (*Saurmaus obesus*) (e.g., Wallace 1978), which the neighboring Chemehuevi pulled from the rocks with hooked wooden staffs. The western pond turtle (*Actinemys marmorata*) was also found along the Mojave River. Desert rodents that were hunted included antelope ground squirrel (*Ammospermophilius leucurus*), pocket gopher (*Thomomys bottae*), and wood rat (*Neotoma* spp.) The aquatic birds that on the basis of archaeological data appear to have been hunted include teal (*Anas cyanoptera*), mallard (*Anas platyrhynchos*), and coot (*Fulica americana*). The areas of slough and permanent surface water along the river attracted the seasonal presence of wildfowl. The archaeological remains of Mojave tui chub (*Gila bicolor*) have also been found along the river (Rector et al. 1983:169–174). Lieutenant Whipple of the 1853–1854 Pacific Railroad Survey reported fish in the upper river (Whipple 1856b:8, 15). Protein-rich insects, including crickets and grasshoppers, were also exploited (Walker 1931:14; also see Sutton 1988a).

Trade and Exchange

The Mojave River served as one of the major trade routes linking the southern California coast and the southern San Joaquin Valley with the Colorado River and the Southwest. This route was regularly used by the Mojave (Kroeber 1959:304; Davis 1961; Schneider 1989:9; Earle 2005; Smith and Sauvelle 2015). Marine materials carried eastward included *Olivella* beads, clamshell disc beads, and *Haliotis* shell. *Olivella* beads, the most popular commodity, were often obtained by Mojave trading parties directly from the Chumash. Clamshell disk beads were traded from the southern California coast to Yokuts groups of the southern San Joaquin Valley, and from there Mojave traders carried quantities of these beads to the Colorado River by way of the Mojave River (Earle 2005:12–17). Garcés's diary references to the Mojave conduct of this long-distance trade are especially valuable for details about the frequency of these trading expeditions and the relations of the Mojave traders with groups that hosted them (Coues 1900).

Garcés reported cloaks made from the skin of an animal he identified as "nutria" along the Mojave River (Coues 1900:I:230, 240). These skins may have been those of otters, possibly sea otters (*Enhydra lutris*) obtained on the Pacific Coast or possibly beaver (*Castor* spp.). The movement of products through the Mojave River corridor included *Apocynum* fiber textiles from the southern San Joaquin Valley transported eastward by Mojave traders and cotton textiles from the Southwest transported westward to the coast and to the San Joaquin Valley (Davis 1961; Earle 2005:13–15). These Hopi textiles were carried to the Colorado River by the Walapai and Havasupai and from there to California. Deer and pronghorn hides, some apparently obtained from the Havasupai by the Mojave, were traded to groups along the California coast (Earle 2005:14–15). Other coast-bound items included willow staves, a type of root gum (probably from mesquite root), and mineral pigments (Earle 2005:15).

Mojave heading east from the southern San Joaquin Valley likely carried semi-cultivated "wild tobacco" from the Tehachapi Mountains region, where its production was a local specialty (Earle 2005:17; also see Zigmond 1981). The Mojave used coastal shell beads to obtain rabbit skins, rabbit skin blankets, rabbit hunting nets, and other netting and cordage (likely of *Apocynum*) from desert groups living away from the Colorado River. It is thus quite possible that these items could sometimes be obtained by the Mojave from the Desert Serrano as they traveled down the Mojave River corridor. Finally, the Desert Serrano obtained foodstuffs (e.g., acorns and pine nuts) from the San Bernardino Mountains, resources that helped sustain village populations of 40 to 80 people (Earle 2004b:31).

Beyond the importation of acorns and pinyon pine nuts downriver in Desert Serrano territory, a range of riverine resources were sought in historic times by Native groups visiting the region. These included mesquite and screwbean, carrizo grass sugar, juniper berries, and in the Barstow area, willow shoots for basketmaking. Willow shoots may have been exchanged to Chemehuevi groups, although they may have had permission to harvest them.

A metate quarry was identified at Elephant Mountain near Barstow (Schneider et al. 1995), but it is not known how far the metate blanks were traded. A salt deposit mentioned in Mojave oral tradition was located across the river north of Daggett, suggesting it was known to them (and thus possibly a trade resource), and another was known at Soda Lake (Kroeber 1925:762; Earle 2005:11). In general, desert deposits provided salt to groups living closer to the coast. According to Santos Manuel, Mountain Serrano had a great demand for salt, at least partly met by desert sources (Harrington 1986:III:Rl. 101:Fr. 188).

The bead wealth reported by Garcés, along with other information about the Mojave transport of *Olivella* beads, suggests that the alliance between the Desert Serrano and the Mojave involved gifts of beads to Mojave River chiefs as well as exchange between the Mojave and their Desert Serrano hosts.

Material Culture and Technology

Archaeological, ethnographic, and ethnohistorical sources document Desert Serrano material culture, which reflected a combined focus on riverine and mountain resources. Garcés observed that the Desert Serrano wore little clothing but had *mantas* (cloaks) of rabbit fur and the skins of what he called "otter" (Coues 1900:I:230, 240; Walker 1986:239). Rabbit fur cloaks and blankets were commonly made by various southern California desert groups including the Chemehuevi and were a trade item exchanged to the Mojave (Earle 2005:17). Garcés noted that the Desert Serrano he encountered had nets made of what he called *cáñamo* (wild hemp), probably *Apocynum cannabinum* (Indian hemp), which occurs in riparian habitats in the Mojave Desert (Coues 1900:I:241;

Walker 1986:239). Garcés mentioned an abundance of hemp growing in the river area. Hemp was used by the Chemehuevi to make carrying nets and rabbit nets (Kelly 1953:18-34). Jedediah Smith observed the use of nets for jackrabbit hunting (Brooks 1977:92).

Garcés observed baskets being used on the lower and upper Mojave River and compared them to those seen in the Santa Barbara Channel area (Coues 1900:I:240). This desert basketry was probably of local manufacture but of a coiled type similar to baskets of the Mountain Serrano, Gabrielino/Tongva, and Chumash. Baskets were constructed of rush (*Juncus textilis*), available in local wetland and riparian environments, and sumac (*Rhus trilobata*) on a deer grass (*Muhlenbergia rigens*) foundation. The latter two materials were probably exported downriver from foothill and canyon areas near the upper Mojave River. A place called Huaveat, near the confluence of Deep Creek and the Mojave River, was named for extensive stands of reeds that were used for basket weaving (Harrington 1986:III:Rl. 101:Fr. 75).

The type of *Juncus* basketry made by Takic groups differed from Chemehuevi/Southern Paiute basketry in placing greater emphasis on larger and less portable storage containers and less emphasis on the indestructibility and portability of baskets, which the Chemehuevi wove with sturdier willow sewing strands and three-rod willow foundations (Earle 2010b). Santos Manuel commented on baskets in the Mojave River area that stored mesquite meal (Bean et al. 1981:61).

Sedges on the lower Mojave River, such as *Scirpus* (tule reed), were used to fabricate matting that, among other things, facilitated the processing of carrizo grass sugar (Bean et al. 1981:61). Sedge matting and thatch covered the inside and outside walls of dwellings.

Garcés referenced gourds as containers for shell beads (Coues 1900:I:244). Several species of gourds of the genus *Cucurbita,* referred to as coyote gourd, are candidates for such containers. Parenthetically, Moha's mother was born at a place called Gourd Mountain (Earle 2005:10).

Vegetal foods, including hard seeds, acorns, and juniper, were processed with ground stone milling tools. In 1819 Nuez was told about the milling stone (metate) quarry at Elephant Mountain on the north side of the Mojave River opposite Daggett. Andesite metates, pestles, and portable mortars were produced there (Schneider et al. 1995). The fact that Nuez was informed about the place suggests the production locale was well known outside the immediate area.

The preparation of acorns for "porridge," as it was referred to by Garcés and Jedediah Smith, indicates that portable and/or bedrock mortars were employed for processing (Coues 1900:I:244; Brooks 1977:90–91). These implements along the river are known archaeologically (e.g., Smith 1963; Schneider 1989; Schneider et al. 1995). Processing hard seeds, acorns, pine nuts, and juniper berries required a broad inventory of ground stone implements. Mesquite beans were often pulverized using cottonwood log mortars and pointed stone pestles (see Bean et al. 1981:61).

Pottery was not mentioned in Garcés's diary but has been found archaeologically in protohistoric Mojave River settlements. At Amutskupiabit in Cajon Pass, abundant ceramic remains were observed by a railroad survey party in 1854 (Whipple 1856a:131–132; also see Grenda 1988; Gardner and Sutton 2008). In the southeastern Antelope Valley, late prehistoric ceramic remains have been found (Sutton 1988b). Pottery was manufactured by the Mountain Serrano.

The Desert Serrano After Contact

The Franciscan mission sacramental registers document that beginning in the 1790s many of the Desert Serrano in villages along the Mojave River were

baptized at Missions San Gabriel and San Fernando (see Earle 2004b). Johnson (2006) identified 142 individuals from at least eight Mojave River villages that were baptized at Mission San Fernando between 1798 and 1834.

A number of upper Mojave River villages, including Amutskupiabit and Tameobit, underwent three phases of missionization. During 1795 and 1796, a number of children and some young adults over age 15 were baptized. From 1801 through 1804 a second wave of baptisms were recorded. Beginning in 1809 there was a sustained increase in the removal and relocation of residents from upper Mojave River villages to the missions. After the 1810 mission revolt, the period from 1811 through 1814 was the era of the most intensive missionization, possibly involving military coercion of upper Mojave River villages. For Amutskupiabit and Guapiabit, the last recorded baptisms occurred between 1816 and 1819, although both villages appear to have been occupied in 1819. For villages further down the Mojave River, the last baptism of neophytes from Topipabit was recorded in 1817, from Cacaumeat in 1821, from Atongaibit in 1822, and from Angayaba in 1825 (Huntington Library 2006).

Forced relocation took place despite the fact that the Mojave River was beyond the limits of Spanish and Mexican settlement and thus was infrequently visited by Hispanic officials or settlers. Colonial missionary and military influence was not as strong on the lower Mojave River. The fewer baptisms from downriver communities reflect smaller populations and an ability of the villagers to more frequently avoid baptism and mission life.

Prior to 1806 the missionization of Serrano-speaking groups, including those on the Mojave River, consisted mostly of young adults and infants. Father Zalvidea, who visited the upper Mojave River in 1806, was assigned to take up duties at Mission San Gabriel that same year. He later complained about the difficulties of getting adults to agree to be baptized, commenting that, " … This freedom which they lose by adopting Christianity, inspires them with a great disaffection for Christianity" (Geiger and Meighan 1975:129).

Some Desert Serrano, including leaders from the villages of Angayaba and Najayabit, supported the revolt at Mission San Gabriel in late 1810 (Earle 2005:19–20). This may have been related to Zalvidea's reputation for zealous brutality, both at the mission and in pursuing runaways. In his 1808 visit to Guapiabit, Palomares tried to persuade the chief of Guapiabit to give up runaways being harbored there (Palomares 1808:239–241). The chief complained that on a previous occasion Zalvidea had promised him cloth if runaways were returned, and when he complied, he was whipped for nine days rather than rewarded. As a result of the 1810 uprising (that was reported to include 800 Mojave warriors traveling south through Cajon Pass to support the rebellion), in 1811 Zalvidea and the Spanish military may have attempted to round up the inhabitants of entire Mountain and Desert Serrano villages and take them to Mission San Gabriel (Earle 2005:19–20).

The next decade saw the Mojave River area partially depopulated, with the Spanish fearing Mojave attacks upriver because they periodically sent military expeditions into the upper Mojave River region. Those remaining in their home villages were eventually caught in the middle of the conflict between the Mojave and the Spanish when the Mojave raided upriver in the fall of 1819, killing some local residents, and the Spanish shortly afterward counter-marched down the river. The political context of these attacks was discussed by Earle (2005:19–23).

Nuez's expedition account does not make explicitly clear whether the villages he passed through were still occupied in 1819, with the exception of his mention that Topipabit was unoccupied. For two of the visited

communities, Amutskupiabit and Guapiabit, the last recorded baptisms at these places had occurred prior to 1816. However, at the end of 1819, the Mission San Gabriel burial register indicates that neophytes on furlough from the mission had recently died and been buried at both Amutskupiabit and Guapiabit, so it is likely that these villages had not yet been completely abandoned (Huntington Library 2006). We have referred to a young man from Angayaba who had recently returned from the Mojave villages and was employed by Nuez as a guide. He later killed one of Nuez's Native auxiliaries and apparently fled with local female captives toward the Mojave villages. This episode also indicates that there were still Native people living along the upper and lower Mojave River at this time who had fled from the threat of attack (Earle 2010a:186–189).

The relocation of Desert Serrano to the missions depopulated their territory such that relatively few residents were observed on the Mojave River after about 1826. In addition, the so-called "Old Spanish Trail" was laid out down the river in 1829–1830 to provide a trade caravan route between Los Angeles and Santa Fe, New Mexico. At the same time, Native American stock raiders from beyond the Mojave River were traveling up the river to reach Cajon Pass and the Mexican ranchos nearer the coast, and Chemehuevi bands were also moving into the area from the east. Old village sites on the river were no longer permanently settled. However, a few Desert Serrano may have remained on the river, and at various points in time neophytes from this region ran away from the missions to live with the Mojave on the Colorado River or returned to their lands along the Mojave River. Recall that Jedediah Smith was guided up the Mojave River in 1826 by two former Mission San Gabriel Desert Serrano neophytes living among the Mojave (Brooks 1977:85, 91, 105). In 1844 John C. Frémont encountered a Desert Serrano man who had fled the mission system and was traveling with a Mojave party (Jackson and Spence 1970:676).

As previously discussed, a Desert Serrano survivor named Moha, living among the Mojave, had been interviewed by Alfred Kroeber. She had belonged to a small surviving group of Desert Serrano that was reported to have been killed or captured by the Mojave at some point after 1830 (Kroeber 1959:301, 304). Moha told Kroeber (1959:300) that the "Mexicans" were responsible. In separate later interviews of Chemehuevi by Van Valkenburgh (1986) and Kelly (1934) in the early 1930s, the Mojave were stated as having been responsible (Kroeber 1959:300; Van Valkenburgh 1986:Fr.491, 515). J. P. Harrington's Mojave source, Ohue (William Osler), supported this story (Earle 2005:25). Versions of the event indicated that a few survived and were taken to live among the Mojave. Information collected by both Kroeber and Harrington also indicated that some survivors (e.g., Moha's brother, Tavastan [Sebastian]) ended up in the Tejón Ranchería area (Earle 2005:26; Kroeber 1959:304–305). Harrington was told that Mojave of part Desert Serrano descent linked to another survivor were alive in the early twentieth century (Harrington 1986:III:Rl. 135:Fr. 454–455).

It also appears that small mixed groups of Serrano-speakers and Chemehuevi/Southern Paiute could be found in the desert south of Barstow as late as the 1860s (Earle 2005:26). Benjamin Wilson led several expeditions down the Mojave River in 1845 that were directed against Native stock raiders, including mixed Chemehuevi and "mission Indian" groups, possibly Serrano. Some Spanish-speaking female captives were afterward brought back from the desert (Walker 1986:135–136). When Santos Manuel was asked by Harrington if he knew who the Pitanti were, Pitanti being the Chemehuevi term for the Desert Serrano or "Vanyumé," he replied that he had heard the Chemehuevi or Paiute speak of them. He thought that they were desert Akutusjam (Desert Kawaiisu) and recalled that the Pitanti were known to be good at raiding horses and cattle from the Hispanic settlements (Harrington 1986:III:Rl. 101:Fr. 87).

Desert Serrano Descendants

Ethnohistorical research suggests that Desert Serrano descendants might be found among mission populations at San Gabriel and San Fernando because the Desert Serrano likely intermarried with other Natives there. Modern descendants of the late nineteenth century Tejón Rancheria community in Kern County may also include Desert Serrano descendants. When residents of the Mojave River villages or of communities elsewhere that intermarried with them were missionized, their descendants also intermarried with members of other language or cultural groups living at the missions. Some descendants of the Mission San Fernando community have been identified as having Desert Serrano ancestry (Johnson and Lorenz 2006).

Fortier (2008:23) indicated that Desert Serrano descendants today live in Newhall and Hesperia. Kroeber (1925) and Blomberg (1987) detailed the presence of a mostly Numic origin community at Victorville in the early twentieth century and noted the existence there of people of Paiute, Chemehuevi, Kawaiisu, and Serrano backgrounds. This community had largely dispersed by the mid-twentieth century, although Harrington worked with a surviving community member, María Chapule, in the late 1940s. He was not aware of Serrano descendants living there at the time. However, it is possible that descendants of Mojave River village inhabitants had intermarried with people from other groups, and so individuals with some Desert Serrano ancestry may still have been present in the Mojave Desert area in the twentieth century (e.g., Strong 1929:13; Kroeber 1959:307). In addition, the Tejón Ranchería community, which recently received federal acknowledgment, may include individuals descended from Desert Serrano survivors who made their way to the Tejón Ranchería in the nineteenth century. Both the San Fernando Band of Mission Indians and the San Manuel Band of Mission Indians in Highland, California, presently represent the interests of Desert Serrano descendants and other Native people in cultural heritage issues in the Mojave River region.

Discussion and Conclusions

In this article the primary ethnohistorical and ethnographic information and published literature bearing on the Desert Serrano has been reviewed. An attempt has been made to clarify the origin and application of the term "Vanyumé" and the related origin of the idea of the desert division as a possibly distinctive political or cultural group. Several major sources of data have supported different perspectives on the Desert Serrano of the Mojave River.

The various accounts of expeditionary travel through the area prior to 1830, particularly that of Garcés in 1776, treated the Desert Serrano as having a territory, foreign relations, and alliances separate from those of the Mountain Serrano, that is, that in some sense they were a separate sociopolitical entity. This perspective was clearly heavily influenced by the view of Garcés's Mojave guides who, along with the Chemehuevi, saw the Desert Serrano, their "Vanyumé," as separate from the Mountain Serrano.

More recent ethnographic information from Mountain Serrano elders in the early twentieth century provides a different view of the Desert Serrano, with no explicit recognition of a distinct Desert Serrano "culture." Instead, ethnographic testimony identified several areas where Native groups had lived along the Mojave River and also separately assigned jurisdiction over portions of the river to still-existing Serrano clans, the Kai'uyam and Paəveatam. Native elders did not recall the whereabouts of most of the Mojave River region villages mentioned in Spanish-era ethnohistorical sources, likely due to the removal of most of the Desert Serrano population from the Mojave River region prior to about 1830.

One means of reconciling these different interpretations has been the use of Franciscan mission register data on Desert Serrano villages and populations. These data have included information or provided inferences regarding village locations, population composition, community and kin group exogamy, and intervillage alliances. Analyzed in conjunction with the travel accounts, these data provide important facts about villages and kin groups viewed from the angle of regional interaction. This comparison of data on specific Native settlements and their populations derived from different sources has been useful not only for studying the communities along the river but also for answering wider questions about Serrano political and social organization, permitting a more accurate reconstruction of Desert Serrano ethnography and sociopolitical organization.

We have discussed primary sources that identified the Desert Serrano, or "Vanyumé," as a distinct group, and their subsequent characterization in the ethnographic literature on Native southern California. Our review of mission register research on the interaction of Serrano-speaking communities in the Mojave River region confirms what Kroeber suspected—the Desert Serrano (Vanyumé) were not a separate ethnic group but were, in fact, Serrano, albeit living largely along the Mojave River and sharing most of their cultural and social institutions with the Mountain Serrano. Nevertheless, we have identified several characteristics that set the Desert Serrano apart from the Mountain Serrano.

First, the Desert Serrano along the Mojave River occupied a highly important trans-desert exchange corridor through which the Mojave traded to and from the Pacific coast, an exchange circuit that emphasized the transport of shell beads to the Colorado River and beyond. Given this geographical reality, the Desert Serrano developed a pragmatic political alliance with the Mojave, in contrast with the Mountain Serrano who were allies of the Halchidhoma, enemies of the Mojave. This alliance was significant to the development of shell bead wealth and was later important in the Desert Serrano resistance to the Spanish colonial system.

Second, since the territory of the Desert Serrano extended to the north and east across the Mojave Desert, the riverine oasis and desert floor habitats represented a very different environmental context from that of the primary territory of the Mountain Serrano. The Mojave River was a source of a great many subsistence resources, but the river dwellers were still reliant on imported acorns, pinyon nuts, and juniper berries from the San Bernardino Mountains and foothills. These resources were imported on a significant scale and appear to have helped maintain larger village populations than would otherwise have been possible. These populations were, in fact, larger than those maintained in the same locations later in the nineteenth century by Chemehuevi/Southern Paiute groups.

In addition, Tə́mtak, the desert region east of the Mojave River and north of the San Bernardino Mountains, may have been shared by the Desert Serrano and the Mountain Serrano. As previously noted, it is not known whether other local groups of Serrano affiliation may have occupied spring sites within this area in protohistoric times. The eastern extent of Tə́mtak would have bordered on the territory of the Chemehuevi as it existed in Garcés's time.

Thus, it is proposed that the Desert Serrano possessed a unique adaptation, both in the economic and political spheres, in respect to benefiting from a long-distance exchange circuit. This adaptation set them apart from the Mountain Serrano in several important respects. However, the Desert Serrano also provide an example of a wider phenomenon in southern California. This is where Native ethnic-language groups had desert interior branches or divisions extended from the transverse ranges into interior arid areas and developed subsistence regimes to support these desert occupations. Thus the Serrano, Cahuilla, and Kawaiisu all had such

desert divisions. In all of these cases, the desert groups were also involved in long-distance exchange across the interior deserts. The Desert Serrano developed this interior desert occupation "strategy" to a remarkable degree. This makes an understanding of them critical to an appreciation of human adaptation in the Mojave Desert.

Endnotes

1. The collection of John P. Harrington field notes at the National Anthropological Archives, Smithsonian Institution, were published on microfilm in the 1980s and have recently also been made available on-line by the Smithsonian Institution as scanned images of the original microfilm. Frame numbers for the microfilm and for the corresponding on-line image are not the same. For Harrington's (1986) Serrano field notes on Vol. 3, Reel 101, the frame numbers cited in this article are from the original 1986 microfilm edition. To find the corresponding frame number of cited material in the on-line image edition, add 10 to the microfilm frame numbers we cite in this article.

2. A principal Serrano linguistic and ethnographic consultant who worked with John P. Harrington (1986) was tribal elder and leader Santos Manuel. He was known to Harrington as Manuel Santos. Santos Manuel's contribution to our knowledge of Native life in southern California and among the Serrano is very great, and he is today remembered as a remarkable man and tribal leader.

3. Garcés's original diary was recopied soon after it was written in 1776. Two such copies, published by Coues (1900) and Galvin (1965), differed slightly from the Garcés holographic original in omitting certain original textual passages. The manuscript copies that these editions were based on did not report encountering an abandoned village in the diary entry for March 16, 1776. Walker (1986) published the Mojave River portion of a third manuscript copy of the original diary now at the University of Arizona Library, a version that did report this village.

4. In this paper we follow Gifford (1918) and Strong (1929) in referring to Serrano exogamous territorial patrilineal descent groups as clans. Here the term clan is not used, as it sometimes is in Africa and elsewhere, to designate geographically dispersed networks of putatively unilineally-related kin.

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