Archaeological Investigations at CA-KER-769, Tomo-Kahni State Historic Park, Sand Canyon, California

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Abstract

The CA-KER-769 site, located in the southern Sierra Nevada east of Tehachapi, was test excavated by Antelope Valley College in 1971. The site contains rock rings, milling stations, a substantial midden, faunal remains, and numerous artifact types, including many projectile points, bifaces, cores, debitage, shell beads, and pottery. KER-769 is interpreted as a small habitation locality probably occupied by one or two families during the Sawtooth Phase (ca. 1,500 to 650 BP) through ethnohistoric times, although some earlier occupation may have occurred. The association of a number of nearby sites, collectively referred to as the Nettle Spring Site Complex, is proposed and a related model of regional settlement is offered, suggesting that KER-769 is but one of a series of small villages associated with the much larger village located at Nettle Spring.

Introduction

The CA-KER-769 site is located within Tomo-Kahni State Historic Park and lies along the western edge of Sand Canyon in the southern Sierra Nevada, about 20 km northeast of Tehachapi in Kern County, California (Figure 1). The site lies approximately 100 m east of Nettle Spring, the focus of a large complex of sites that includes KER-769. Investigation of the Nettle Spring area was conducted by the Archaeological Survey Association of Southern California (ASA) between 1954 and 1956, by Antelope Valley College (AVC) between 1970 and 1971, and by California State Parks after 1993.

The site was first recorded in about 1955 by the ASA as part of its survey program of the "Phillips Ranch" area (see Price 1954; Steele 1982:26) and was designated as "39-S-E" at that time. A very small surface collection from the KER-769 site was made by ASA, and while the nature and extent of that fieldwork is unclear, at least some of the ASA materials are present in the collection and are reported here.

In 1970, AVC began work in the Nettle Spring area under the overall direction of Roger W. Robinson. At that time it was believed that the large site at Nettle Spring was recorded as CA-KER-21; following this, the site that would later become KER-769 was called KER-21A by AVC. At the time it was not known that KER-21 had been renumbered as CA-KER-230 and that in 1970 the KER-21A site had been recorded as KER-769 (Jones 1970). Thus, all the original records (notes and catalog) from the 1971 AVC work at the site are labeled "KER-21A." The site was also sometimes referred to as the "Hill Site." In 1971 test excavations were conducted at KER-769 by AVC under the field direction of the senior author, then an AVC student.

No formal research design was developed for the AVC excavations. However, a series of general questions guided the work, including the function and dating of the site, a delineation of subsistence, the nature of the rock ring features, the relationship between the occupation and the petroglyph panel, and the relationship of the site to other sites in the vicinity.

In 1971 the site was on private land (then part of Phillips Ranch) but was subsequently acquired and included within Tomo-Kahni State Historic Park in 1993. In 1994 archaeologists from California State Parks updated the KER-769 site record, recorded additional milling features, and collected four artifacts from the surface (Dallas and Mealey 1994). State Parks personnel also conducted extensive surveys of the general area and recorded and updated a number of other sites in the park (Dallas 2000). The ASA and AVC collections were transferred to California State University, Bakersfield (CSUB), in the early 1990s, and a brief report on the work at the site was presented by Osborne (1994). This article serves as the final report on the ASA and AVC work at the site. No human remains were identified.

Natural Setting

The KER-769 site lies in the foothills of the southern Sierra Nevada. It is situated on top of a hill just east of Nettle Spring at elevations ranging between 1,361 and 1,383 m asl. The terrain of the site is generally rocky and slopes to the southeast, where a small area of flat ground (identified here as Locus B) is located. The local geology consists of sedimentary formations of limestone and sandstone with volcanic intrusions.

The site is situated within a juniper woodland community characterized by the presence of California juniper (*Juniperus californica*), single-leaf pinyon

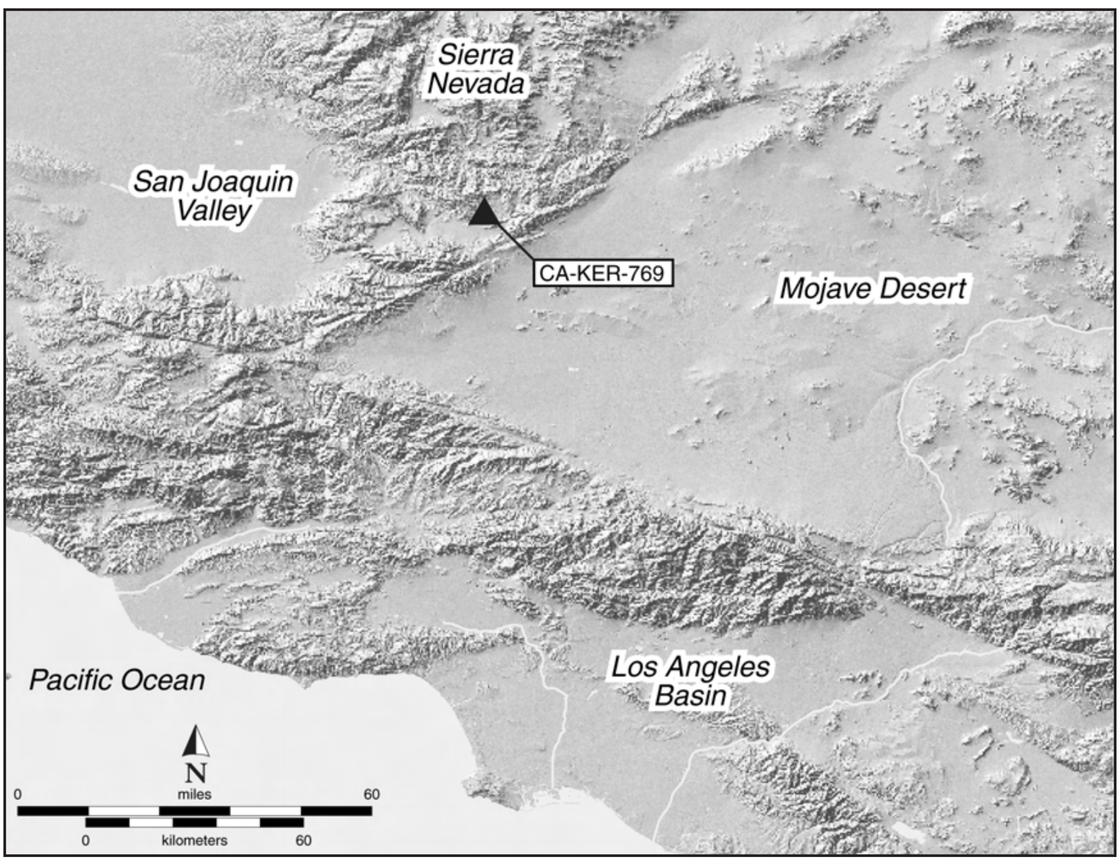

Figure 1. Location of CA-KER-769 in the southern Sierra Nevada.

(*Pinus monophylla*), rabbitbrush (*Chrysothamnus* spp.), big sagebrush (*Artemisia tridentata*), annual and perennial grasses, buckwheat (*Eriogonum* spp.), and a number of wildflowers. Common fauna of the area include mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), occasional mountain lion (*Felis concolor*), gray fox (*Urocyon cinereoargenteus*), skunks (*Spilogale putorius* and *Mephitis mephitis*), California ground squirrel (*Citellus beecheyi*), packrats (*Neotoma* spp.), mice (*Peromyscus* spp. and *Perognathus californicus*), California quail (*Callipepla californica*), common raven (*Corvus corax*), and a variety of small birds and insects.

Ethnographic Background

The site is within the territory claimed by the Kawaiisu (Zigmond 1978, 1986; Garfinkel and Williams 2011), who were bordered by the Tübatulabal to the north, the Yokuts to the west, the Kitanemuk to the south, and the Panamint to the east (Zigmond 1986: Figure 1). The Kawaiisu occupied the southern Sierra Nevada south of the Kern River and into the northern Tehachapi Mountains just south of Tehachapi Pass. They also claimed a major portion of the western Mojave Desert, although the desert areas may have only been used on an ephemeral basis during ethnographic times (Zigmond 1986). Steward (1938:Figure 1, 84) reported that the Kawaiisu also occupied the southern portions of the Panamint Valley, the Panamint Mountains, and Death Valley.

It has recently been proposed (Underwood 2006; also see Garfinkel and Williams 2011:24-26), however, that a separate division of the Kawaiisu—the Desert Kawaiisu—existed and occupied the western and central Mojave Desert on a permanent basis, at least in historic times (a map of the proposed Mountain and Desert Kawaiisu territories was presented in Garfinkel and Williams [2011:24]). To the northeast of KER-769, at least one major trade route apparently passed directly through Red Rock Canyon (Sample 1950), and there are hints that an important trading center existed at or near Koehn Lake during protohistoric times (e.g., Farmer 1935; Sample 1950; Davis 1961).

The Kawaiisu were hunters and gatherers and spoke Kawaiisu, one of the languages of the Numic family. Primary plant foods included acorns (*Quercus* spp.), pine nuts (*Pinus* spp.), and various grass seeds, but many other plant foods were also consumed (Zigmond 1978, 1981, 1986). The Kawaiisu hunted a variety of animals, including bighorn sheep (*Ovis canadensis*), mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), black-tailed hare (*Lepus californicus*), and desert cottontail (*Sylvilagus audubonii*).

Prehistoric Background

Little archaeological research has been conducted in the southern Sierra Nevada, resulting in sparse data on the regional prehistory. General summaries of southern Sierra Nevada prehistory are available in Schiffman and Garfinkel (1981) and Moratto (1984:331-334). The following is a generalized account of the prehistory of the area.

There is little evidence of a Paleoindian (ca. 12,000 to 10,000 BP) occupation of the region. However, a few isolated Clovis projectile points were reported from the Tehachapi Mountains (Glennan 1971) and the southern Sierra Nevada (Zimmerman et al. 1989) suggesting early use, but a sustained occupation remains to be demonstrated.

The Holocene chronology for the southern Sierra Nevada has been divided into five phases: Kennedy, Lamont, Canebrake, Sawtooth, and Chimney (see Moratto 1984:333; Garfinkel 2007:Table 4.2). The Kennedy Phase (ca. 10,000 to 6,000 BP) is identified by the appearance of stemmed (e.g., Lake Mojave) points, while the Lamont Phase (ca. 6,000 to 3,200 BP) is marked by the presence of Pinto series points. Both phases probably reflect a relatively minor occupation of the region, and no confirmed Kennedy or Lamont phase sites are known in the region.

The subsequent Canebrake Phase (ca. 3,200 to 1,500 BP) is marked by Elko series points and may reflect an occupation focused on the exploitation of pinyon. Although there is some evidence of use of the Sand Canyon area during the Canebrake Phase (e.g., Elko points at some sites), no major Canebrake sites are known, suggesting an ephemeral occupation of the region during that time.

The Sawtooth Phase (ca. 1,500 to 650 BP) is marked by Rose Spring points, manos and metates, bedrock mortars, stone beads, and *Olivella* spire-ground beads (Class A; Bennyhoff and Hughes 1987). It is thought that the use of upland habitats increased during the Sawtooth Phase, perhaps with a focus on pinyon.

The Chimney Phase (ca. 650 to 150 BP) is characterized by Desert Side-notched and Cottonwood Triangular points, brownware pottery, glass beads, and *Olivella* rough disk beads (Class H; Bennyhoff and Hughes 1987). It appears that site intensity further increased from Sawtooth times, reflecting a generalized hunting and gathering economic system, similar to that known during ethnographic times.

Previous Archaeological Research in the Area

As noted above, both the ASA and AVC conducted a series of investigations at a number of sites in the vicinity of Nettle Spring, the largest being KER-230. These various sites are considered to be part of a site complex, herein named the Nettle Spring Site Complex (NSSC). The NSSC (see Table 1) includes a large "village" (KER-230) with numerous house rings, milling features, and midden accumulations. Several smaller "villages" (CA-KER-2357, CA-KER-229, and KER-769) that also contain house rings, milling features, and middens are located within several kilometers, as are a number of small surface scatters (e.g., Hinshaw and Rubin 1996; Huerta 2002), small rockshelters (Des Lauriers and Sutton 2010), rock art localities (e.g., Sutton 1981, 2001; Lee 1999; Fleagle and Sutton 2007), and an isolated cremation (Siefkin and Sutton 1995).

The majority of the materials from these NSSC sites appear to contain materials that date to the Sawtooth and Chimney phases (see Moratto 1984:333) and/or ethnohistoric times, although there are some projectile point types (e.g., Gypsum) present in the collections that suggest an even earlier occupation. However, the full nature and extent of the NSSC is not yet understood.

Another large site complex that is centered on the ethnographic Kawaiisu village of *Ma'a'puts* (CA-KER-339) is located several kilometers to the south. This complex was investigated by UCLA in 1970 (no report of that work was ever prepared) and by CSUB in 1986 (Pruett 1987). Many other sites of various types are also known in the vicinity (e.g., Robinson 2005).

Site Description

The KER-769 site (Figure 2) is located on top of a hill or ridge just east of Nettle Spring and the large KER-230 site. When originally recorded, the site was described as being 110 m x 40 m in size (Jones 1970). During the AVC work in 1971, the site was estimated to be some 200 m north-south and 75 m west-east. Subsequent site record updates (Parr 1993; Dallas and Mealey 1994) measured the site as about 275 m north-south by 150 m east-west. Jones (1970) originally reported that the site contained nine house pits "with attached storage bins," a petrogylph, and numerous artifacts, and it was considered to be in "perfect condition." Three major loci (A, B, and C) are present, with Loci A and B being defined by AVC in 1971, while

Table 1. Summary of Sites within the Nettle Spring Site Complex.

Site	General Description	House Rings	Milling Features	Midden	Rock Art	References
CA-KER-230	large village	≈20	yes	yes	incised lines	Allen and Burns 2008
CA-KER-2357	small village	2	yes	yes	–	Ptomey 1991
CA-KER-229	small village	4	yes	yes	–	Sutton et al. 2010
CA-KER-769	small village	8	yes	yes	petroglyphs	this article
CA-KER-2334	surface scatter	–	yes	yes	–	Hinshaw and Rubin 1996
CA-KER-5950	surface scatter	–	–	unknown	–	Huerta 2002
Witchstick Cave	rockshelter	–	–	–	–	Des Lauriers and Sutton 2010
CA-KER-508	rockshelter	–	–	yes	pictographs	Sutton 1981, 2001; Lee 1999
CA-KER-4445E	rockshelter	–	–	–	cupules	Fleagle and Sutton 2007
CA-KER-4168/H	cremation	–	–	–	–	Siefkin and Sutton 1995

Locus C is identified herein as a result of new findings during the 1994 recordation of the site (Dallas and Mealey 1994).

Locus A

Locus A is located on the crest of the hill (see Figure 3) and was sometimes referred to as the "upper site." On top of the highest point of the locus is a large boulder containing a petroglyph panel. Immediately to the east of the petroglyph are five rock-lined circular depressions, called house rings (HR-1 through -5). Artifacts were present on the surface of the locus, and midden was apparent in some locations. Six bedrock metate features are also present at Locus A.

Locus B

Located on a fairly flat area at the southern end of the site, Locus B (Figure 4) contains three house rings (Jones [1970:1] reported four in what he referred to as the "lower" area of the site), a fairly extensive and dark midden, and many surface artifacts. Seven bedrock mortar features and two bedrock metate features are located along the far southern portion of the locus.

Locus C

In 1994 the site was recorded once again (Dallas and Mealey 1994). At that time a bedrock metate feature and a number of artifacts were discovered some 120 m north of Locus A, and the site boundary was modified to include that area. This site area is herein designated as Locus C (see Figure 2), although no formal investigations have been conducted there.

Field Methods

The methods employed by ASA for their surface collection are unknown. The AVC work began with the establishment of a grid over the site. The main grid that had previously been established over the nearby KER-230 site was extended east onto KER-769 where a primary datum (Stake "XX") was established. A grid (true north) was established over the site from the main datum. The units at Locus A were set out following that grid, but for reasons long since forgotten, most of the units in Locus B were set out using magnetic north, while a few were not on the grid at all (see Figure 2).

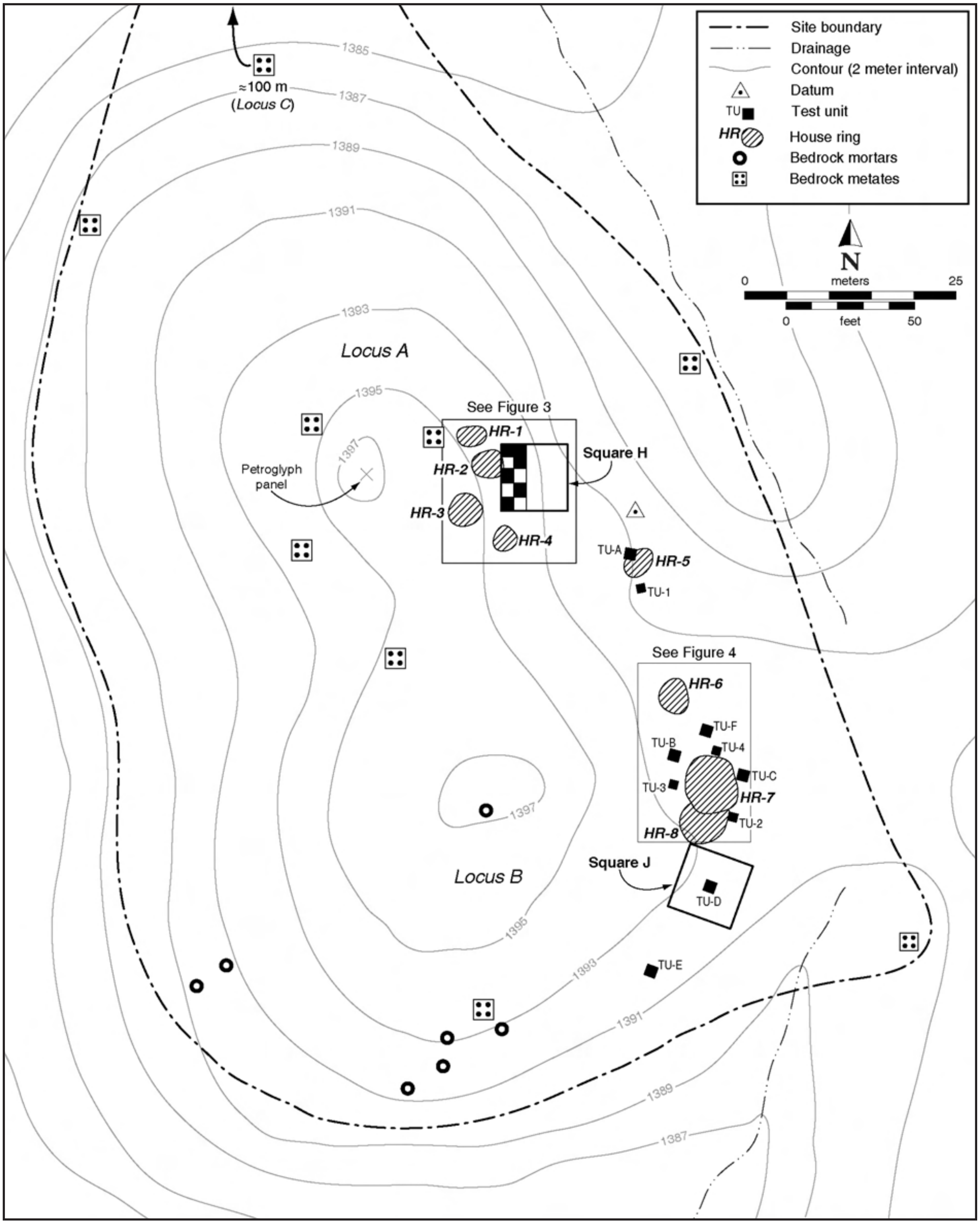

Figure 2. Map of CA-KER-769, showing loci, milling features, house rings, and excavation units.

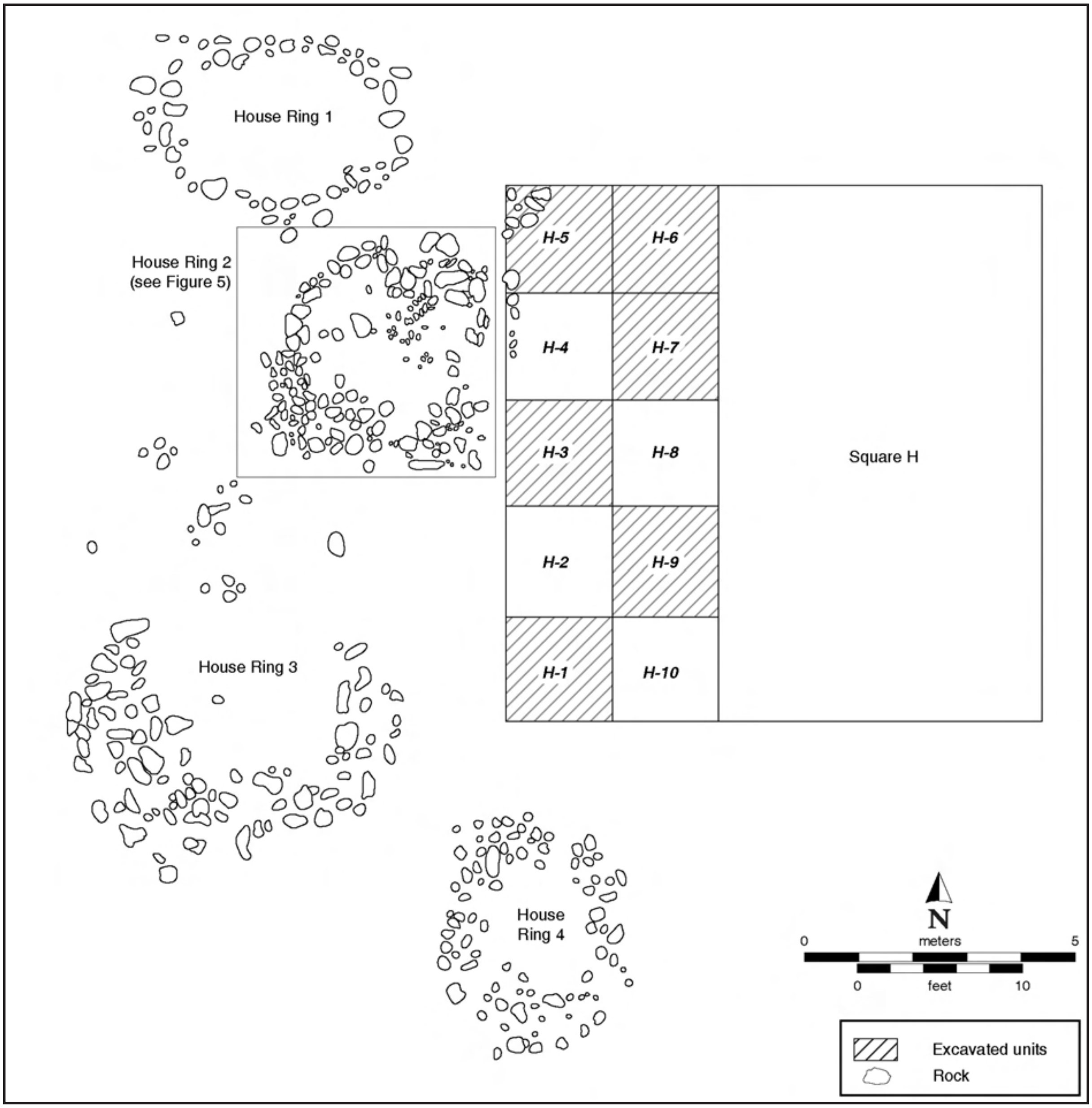

Figure 3. Map of Locus A at CA-KER-769, showing features and units excavated by Antelope Valley College in 1971.

Twenty test units (TUs) were excavated in 1971 (see Table 2), and two 10 x 10-m^2 units (H and J) were surface scraped (from which approximately 2-5 cm of the loose soil was screened). Four units (TUs-1 through -4) were 1 x 1 m in size, 12 units (TUs-A through -F and the H units) were 2 x 2 m in size, and four units were quadrants of HR-2. All the units were excavated in 10-cm levels with the southwestern corner of the units serving as the datum. TU-3 and TU-E were only excavated to 10 cm due to lack of time.

Twelve units and four quadrants were excavated at Locus A (see Figure 3). House Ring 2 was excavated in quadrants, with the levels being "surface" and

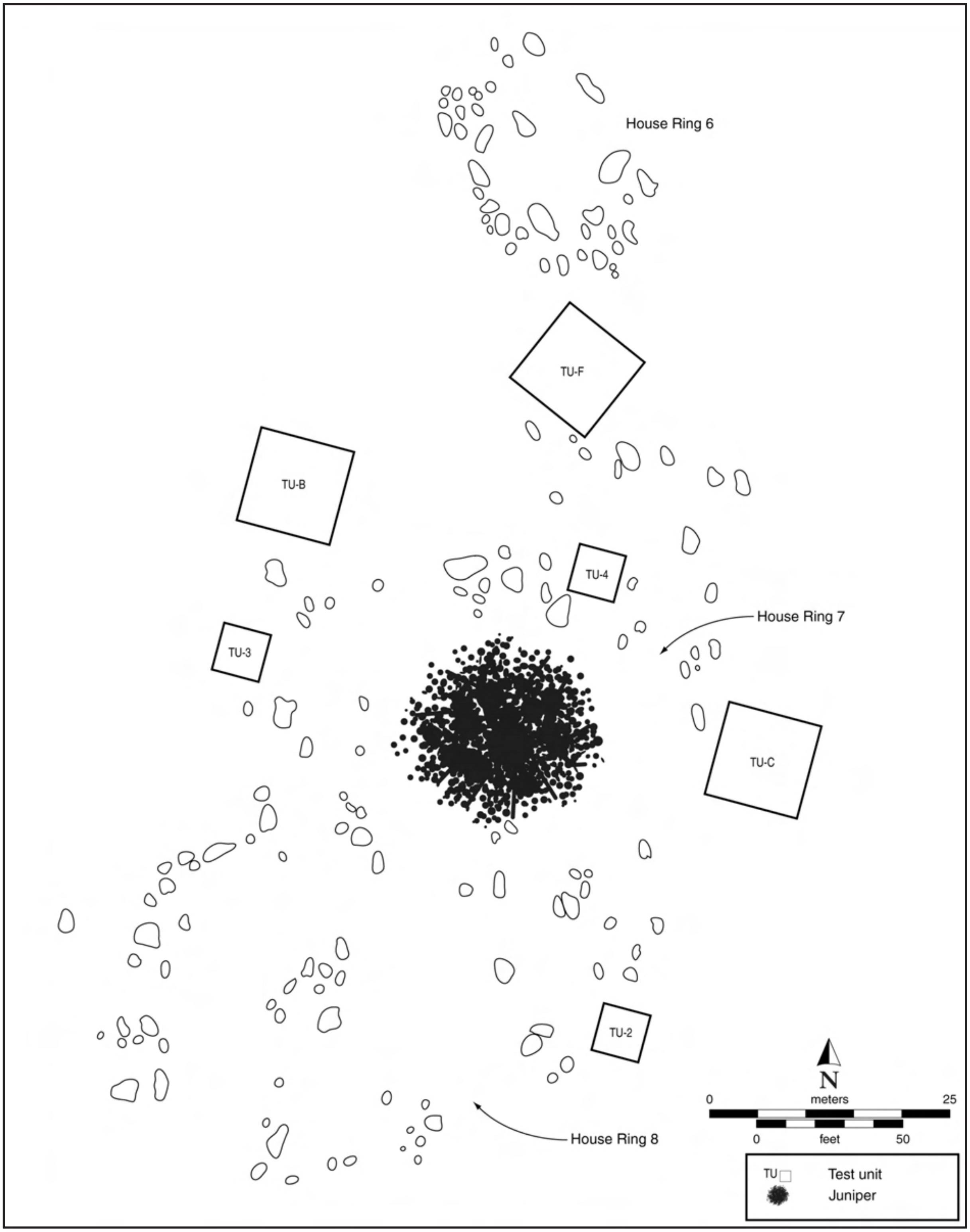

Figure 4. Map of Locus B at CA-KER-769, showing features and units excavated by Antelope Valley College in 1971.

"surface to floor." The northwestern perimeter of HR-5 was tested with TU-A, while TU-1 was excavated just south of HR-5. Immediately east of HR-2, a 10 x 10-m surface scrape (Square H) was established with the western 4 x 5-m portion of the square being divided into ten 2-m units, designated H-1 through H-10. Units H-1, -3, -5, -6, -7, and -9 were excavated in an unsuccessful attempt to locate buried bedrock mortars. It was noted, however, that all the bedrock exposed by the H units showed evidence of having been burned. The remainder of Square H was surface scraped.

At Locus B (Figure 4), TU-4 was placed along the rim of HR-7, with TUs -3, -B, and -C being placed around the periphery of HR-7. TU-F was excavated between HRs -6 and -7. TU-2 was placed along the rim of HR-8, while TU-E was placed south of HR-8 to explore the southern portion of the deposit (but was not completed). A second 10 x 10-m surface scrape (Square J) was established, and TU-D was placed in the center of the square and excavated to 80 cm.

Table 2. Excavation Unit Size, Depth, and Excavated Volume at CA-KER-769.

Unit No.	Unit Size	Depth (cm)	Estimated Volume (m^3)	Comments
Locus A				
TU-1	1 x 1 m	40	0.4	–
TU-A	2 x 2 m	70	2.8	–
H-1	2 x 2 m	30	1.0	not full levels due to slope
H-3	2 x 2 m	30	1.0	not full levels due to slope
H-5	2 x 2 m	50	1.8	not full levels due to slope
H-6	2 x 2 m	70	2.6	not full levels due to slope
H-7	2 x 2 m	60	2.2	not full levels due to slope
H-9	2 x 2 m	70	2.6	not full levels due to slope
HR-2, NW	quarter of house	<10	0.1	excavated to top of floor
HR-2, NE	quarter of house	<10	0.1	excavated to top of floor
HR-2, SW	quarter of house	<10	0.1	excavated to top of floor
HR-2, SE	quarter of house	<10	0.1	excavated to top of floor
Square H	10 x 10 m	3 to 5	4.0	surface scraped
Subtotal	–	–	18.8	–
Locus B				
TU-2	1 x 1 m	30-base (≈40)	0.4	–
TU-3	1 x 1 m	10	0.1	–
TU-4	1 x 1 m	30-floor (≈40)	0.4	–
TU-B	2 x 2 m	30	1.2	–
TU-C	2 x 2 m	40	1.6	–
TU-D	2 x 2 m	80	3.2	–
TU-E	2 x 2 m	10	0.4	–
TU-F	2 x 2 m	30	1.2	–
Square J	10 x 10 m	3 to 5	4.0	surface scraped
Subtotal	–	–	12.5	–
Total	–	–	31.3	–

In total, 31.3 m^3 of soil were excavated and screened (Tables 2 and 3), mostly in Locus A (60 percent). All excavated materials were removed using trowels and shovels and screened through 1/8-in mesh, although 1/16-in mesh was used in the 0 to 10-cm level of TU-C due to the presence of many small shell beads. The units were subsequently backfilled. In addition, artifacts considered diagnostic were surface collected (discussed below).

Laboratory Methods

The AVC collection from KER-769 was first catalogued by AVC students in 1971, embedded within the catalog for the overall KER-21 collection (recall that in 1971, KER-769 was considered a locus of KER-21). After it was transferred to CSUB, the collection was disentangled from the KER-21 catalog, recatalogued, and assigned new numbers in a new catalog specific to KER-769 (many of the artifacts still retain the AVC KER-21A numbers that had been written directly on them in ink).

Over the years, portions of the collections were sent out for special analyses or were used in museum displays, with the unfortunate result that many artifacts, including most of the projectile points, were lost (but see Bigham 1978; Lockhart 1984). However, some of the metrics and some sketches of many of the missing artifacts were available in the original catalog. In the case of the missing projectile points, many could be classified based on those drawings.

Soils and Stratigraphy

No specific stratigraphic observations or drawings were made of the soils in the 1971 excavations. However, there are basic soil descriptions in the field notes, and these observations are summarized in Table 4. In general, the soils in Locus A were shallower than in Locus B, and in most of the units, the soil was dark in the upper levels but became lighter as it neared bedrock.

Features

A number of features were documented, including house rings, bedrock milling features, and rock art. No hearths were encountered during the AVC excavations. Each feature is discussed below.

House Ring Features

Eight generally circular rock rings (called house rings) were recorded, five in Locus A (Figure 3) and three in Locus B (Figure 4). However, Jones (1970:1) had identified nine "house pits" with "attached storage bins"; five in the "upper" part of the site (Locus A) and four in the "lower" part (Locus B). The reason for this discrepancy is unknown. House rings 2, 5, 7, and 8 were tested to some degree. The attributes of each of the house rings are presented in Table 5, and the four that were excavated are discussed below.

House Ring 2

Within Locus A was HR-2, a circular rock-lined depression some 4.75 m in diameter and perhaps 20 cm deep (see Figures 3 and 5). Incorporated within its rock foundation were a number of artifacts, including

Table 3. Percentage of Excavation by Depth at CA-KER-769.

Depth (cm)	Cubic Meters Excavated	Percentage
0-10 (scrapes and HR-2)	13.0	41.6
10-20	4.2	13.4
20-30	4.2	13.4
30-40	3.2	10.2
40-50	2.5	8.0
50-60	2.1	6.7
60-70	1.7	5.4
70-80	0.4	1.3
Totals	31.3	100

one mano, two metates, and one mortar, with another metate just outside the ring. No obvious door was detected, but there are relatively fewer rocks on its eastern edge.

House Ring 2 was divided into quadrants (NW, NE, SW, SE), each of which was excavated. Given the shallow depth of the feature, only two levels were designated, "surface" and "surface to floor," which was between 5 and 10 cm below the surface. A prepared floor of fine clay was encountered in the interior of the structure, but it had been damaged by rodent activity. No excavation was undertaken through the floor. No preserved structural posts were discovered along the rim, and no internal features (such as a hearth) were found. However, the bedrock exposure immediately to the east had been burned, perhaps related to use of the structure (e.g., heat in the winter?). Relatively few artifacts or ecofacts were found in association with HR-2 (but see Figure 5), although 13 modified flakes were recovered.

House Ring 5

House Ring 5 was an oval rock-lined depression approximately 4.0 x 3.0 m and 40 cm deep, located in the southern portion of Locus A (Figure 2). TU-A was excavated in its northwestern rim in a search for

Table 4. Observations on Soils and Stratigraphy at CA-KER-769.

Unit	Level (cm)	Soil Description
TU-A	to 70	top was brown and powdery, turning to light brown with light gray hard clay by 50 cm, bedrock at 70 cm
TU-B	to 30	fine and powdery but rocky to 20 cm, decomposing sandstone bedrock at 30 cm
TU-C	to 40	top was dark brown, fine, and compact to 30 cm, dark brown and loose to bedrock at 40 cm
TU-D	to 80	dark and loose to 10 cm, then a caliche layer, then light and loose to 40 cm, dark brown and loose to 50 cm, rocky, soil became lighter and more clay-like as it neared bedrock at 80 cm
TU-F	to 30	top was fine, loose, and light gray, quickly turned to soft, fine, and dark brown
TU-2	to 40	soil was dark, becoming lighter as it neared bedrock
TU-3	to 10	light brown soil, hard and compact, fine when screened
H-1	to 30	light brown and very compact, considerable charcoal
H-5	to 50	light gray, considerable charcoal

Table 5. Attributes of House Rings at CA-KER-769.

HR-	Locus	General Description	Size (m)	Depth (cm)	Tested
1	A	oval	4.25 x 3	–	no
2	A	circular, no internal features, prepared floor	4.75	≈ 20	yes
3	A	circular, northern portion of foundation was missing	6.0	–	no
4	A	circular	3.0	–	no
5	A	oval, western "rim" was bedrock	4.0 x 3.0	≈ 40	yes
6	B	oval	4.0 x 3.0	–	no
7	B	circular, no architecture or other features	7.0	"shallow"	yes
8	B	circular, possibly impacted by the construction of HR-7	7.0	"shallow"	yes

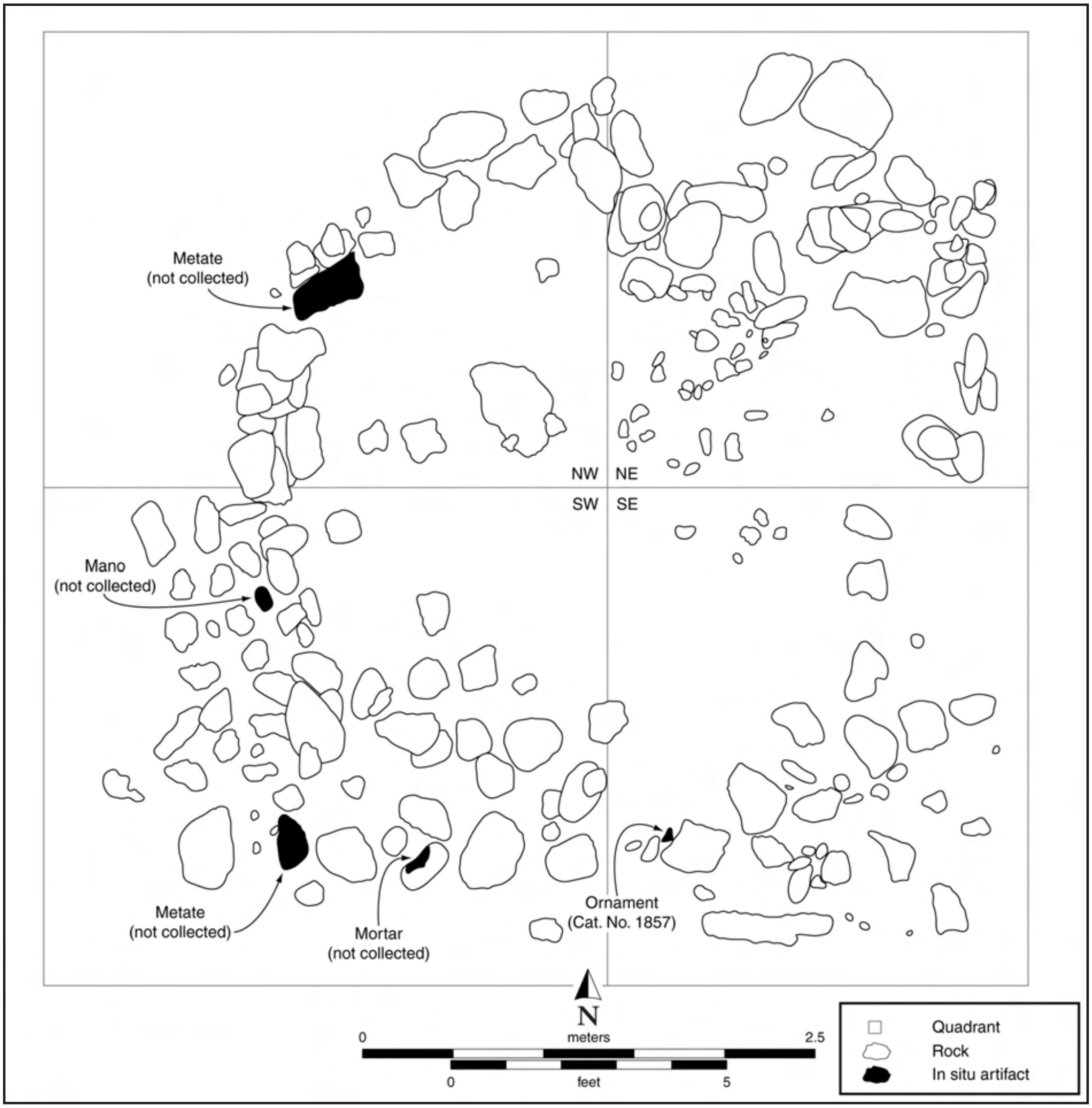

Figure 5. Map of House Ring 2, Locus A at CA-KER-769, showing the rock ring, artifacts in the rim, and quadrants excavated by Antelope Valley College in 1971.

architecture. Bedrock was rapidly encountered in the southwestern corner of the unit, suggesting that a bedrock ledge may have formed the western edge of the structure (assuming it was a structure). No other structural foundations or other features were discovered in TU-A.

House Ring 7

House Ring 7 (Figure 4), located in Locus B (see Figure 2), was a circular feature some 7.0 m in diameter and appeared to be shallow, although its depth was not measured. One unit (TU-4) was excavated in the "rim" of the depression, but no obvious architecture was found. No floor or other internal features were discovered in HR-7. Bedrock was encountered at 40 cm, and a variety of materials was discovered within the unit, including glass beads as deep as 40 cm. Several other units were excavated in the vicinity of HR-7, part of the investigation of the midden in Locus B.

House Ring 8

Located adjacent to HR-7 in Locus B (see Figure 2), HR-8 (Figure 4) is a rock circle some 7.0 m in diameter with a shallow depression. It is possible that HR-8 was truncated by the subsequent construction of HR-7. Another possibility is that HR-8 is actually a part of HR-7, perhaps forming a "double" ring. Such features are present at KER-230, located just to the west. One unit, TU-2, was placed in the presumed rim of the structure to expose any architectural features. No such architecture was discovered, and no other features were found.

Milling Features

A total of 16 bedrock milling features have been discovered at the site, nine bedrock metate features (seven in Locus A) and seven bedrock mortar features (all in Locus B). This nearly exclusive distribution of the types of milling features between the two major loci is intriguing but may just be a result of the geology of the hill. Most of the features were plotted by AVC, but additional ones were discovered by State Parks (Dallas and Mealey 1994). None of the features were mapped in detail, and so the number and dimensions of individual milling surfaces at each locality is unknown.

Rock Art Panel

A small panel consisting of four petroglyph elements is located on a boulder at the highest point of Locus A (see Figure 2). The panel was first reported by Price (1954:9; also see Cawley 1963:147-148) and was described in detail by Sutton (1981:14-16), who placed the panel at KER-230 (at that time KER-769 was considered a locus of KER-230). Lee (1999:35, Figures 51a and 51b) reported that the boulder had been overturned by vandals, which caused scarring at two locations on the panel. The elements (Figures 6 and 7) (also see Lee [1999: Figure 51]) appear to depict two anthropomorphs and two zoomorphs. The larger of the zoomorphs clearly represents a bighorn sheep with swept back horns, and it faces away from the anthropomorphs. Lee (1999:35) thought that the sheep motif was similar to that found at CA-INY-35 in the Argus Range to the east (e.g., Grant et al. 1968:98). One anthropomorph appears to be armed with a bow, seemingly pointed toward the sheep. The second anthropomorph is to the right of the first, and it appears that the second zoomorph is between its legs. The second zoomorph is much smaller than the sheep; it has "ears" that are not swept back, and the element may represent a dog. One could argue that the scene depicts two people hunting sheep with the aid of a dog (see Sutton 1981). Rock art of this type and motif is common in the Great Basin but is rare in the California culture area (this is perhaps the westernmost example). The panel is undated, but the apparent presence of a bow suggests that it dates no earlier than about 1,800 BP.

On the other hand, Lee (1999:35) argued that the abraded designs could be interpreted in different ways and suggested that the weapon might be a spear rather than a bow and arrow. If so, the panel could date earlier than 1,800 BP. Lee (1999:3) also suggested that the petroglyph "may have served as a shrine." If the panel predates the bow and arrow, the major occupation of the site may post-date the panel, suggesting that if it had been a shrine, whatever significance the panel may have had to its makers, it was then ignored by its later occupants.

Figure 6. The petroglyph panel at CA-KER-769 (photo by Richard H. Osborne, 1994).

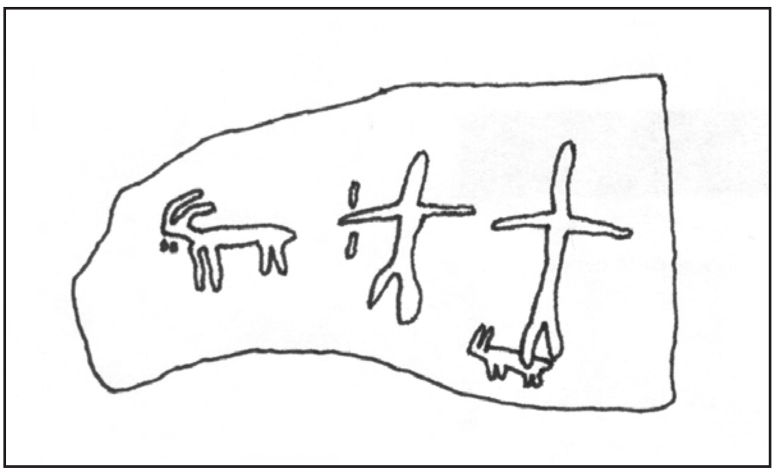

Figure 7. Drawing of the petroglyph panel at CA-KER-769 (redrawn from Sutton [1981: Figure 1]).

Material Culture

A variety of materials were recovered from KER-769 (Table 6). These include prehistoric artifacts of ground stone, flaked stone, shell beads, and ornaments, as well as faunal and botanical remains. A few historical items were also recovered. These materials are described and discussed below.

Ground Stone

The ground stone collection from KER-769 consists of 129 specimens, including metates, manos, bowls, a portable mortar, pestles, unidentified ground stone, tabular stone ornaments, and stone beads. Each category is described below.

Metates

Twenty-five metates were recovered (Table 7), including one complete specimen (Cat. No. 392). Two additional metates were recorded in the foundation of HR-2 (see Figure 5) but were not collected, and other metates were noted on the surface of the site but were not collected. The complete specimen was found on the surface and is a very small unifacial metate made from

Table 6. General Distribution of Collected Prehistoric Material Culture by Provenience at CA-KER-769.

Artifact Type	General Surface	Locus A	Locus B	Totals
metates	11	8	6	25
manos	21	12	16	49
bowls	–	1	1	2
pestles	1	–	4	5
unidentified ground stone	1	2	2	5
stone ornaments	3	2	11	16
stone beads	1	3	22	26
projectile points	23	41	61	125
bifaces	18	15	24	57
drills	1	2	3	6
scrapers	5	1	5	11
cores	57	26	34	117
hammerstones	4	–	2	6
modified flakes	35	66	120	221
debitage	1,859	3,518	6,891	12,268
modified bone	–	–	1	1
pottery	18	5	48	71
shell beads	7	10	332	349
bone bead	–	–	1	1
glass beads	–	–	37	37
miscellaneous materials	2	2	–	4
Totals (excluding debitage)	208	196	730	1,134

sandstone. It is reminiscent of a pigment grinder, but no discoloration was observed on its grinding surface.

Of the 24 fragmentary specimens (of which three are missing), 11 are sandstone, six are basalt, five are granite, one is andesite, and one is schist. Of the classified specimens, five are unifacial, and two are bifacial. Three of the fragments are burned. Eleven of the metates in the collection were found on the surface, and there were others known but uncollected. Eight fragments (and two others uncollected from the rim of HR-2) came from Locus A, while six were found at Locus B.

Manos

A total of 49 manos, 10 complete and 39 fragments, were recovered (Table 8). One additional specimen was recorded in the foundation of HR-2 but was not collected. Of the 10 complete specimens (of which two are missing), four are granite, three are andesite, and one each is sandstone, basalt, and rhyolite. Of the nine complete and classified specimens, five are bifacial and unshaped (one burned), two are bifacial and shaped, one is unifacial and shaped, and one is unifacial. Twenty-one manos came from the surface; 12 were from Locus A, and 16 were from Locus B.

Table 7. Provenience and Attributes of Metates from CA-KER-769.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
General Surface								
089	surface	fragment	sandstone	97.0	60.4	21.7	164.0	–
232	surface	fragment	sandstone	107.0	93.1	34.0	325.0	unifacial
238	surface	fragment	sandstone	144.0	89.7	26.7	41.0	bifacial
243	surface	fragment	sandstone	129.0	84.6	46.2	488.0	unifacial
271	surface	fragment	sandstone	96.0	82.6	53.9	510.0	unifacial
297	surface	fragment	granite	98.0	58.6	54.9	199.0	–
361	surface	fragment	basalt	50.0	35.0	–	–	missing
368	surface	fragment	sandstone	99.0	90.6	38.3	305.0	unifacial
392	surface	complete	sandstone	193.0	138.0	25.0	921.0	unifacial, very small
393	surface	fragment	granite	68.0	53.7	36.6	154.0	–
394	surface	fragment	basalt	96.0	78.1	39.6	390.0	bifacial, burned
Locus A								
1327	H-3, 10-20	fragment	granite	124.0	86.2	51.2	1,089.0	–
1328	H-3, 10-20	fragment	sandstone	74.0	63.3	11.6	36.0	–
1343	H-5, 0-10	fragment	sandstone	94.0	90.6	3.5	258.0	–
1365	H-5, 20-30	fragment	granite	70.0	60.0	–	–	missing, burned
1401	H-6, 60-70	fragment	basalt	103.0	60.5	52.8	516.0	–
1417	H-7, 10-20	fragment	schist	102.0	47.0	26.1	105.0	–
1442	H-9, 0-10	fragment	sandstone	96.0	65.9	20.4	125.0	burned
1501	Square H	fragment	granite	46.0	27.0	14.7	15.0	two refitted pieces
Locus B								
486	TU-2, 10-20	fragment	basalt	77.0	47.7	46.2	258.0	–
973	TU-C, 20-30	fragment	andesite	175.0	102.0	5.6	919.0	–
1005	TU-C, 30-40	fragment	granite	69.0	43.8	33.9	116.0	–
1141	TU-D, 40-50	fragment	basalt	94.0	92.7	23.5	234.0	–
1248	TU-F, 10-20	fragment	basalt	75.0	70.2	32.9	207.0	–
1693	Square J	fragment	sandstone	35.0	28.0	14.0	–	missing

Note: Metrics in millimeters and grams.

Table 8. Provenience and Attributes of Manos from CA-KER-769.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
General Surface								
088	surface	fragment	granite	87.0	86.0	51.1	479.0	bifacial, shaped
091	surface	fragment	granite	54.0	43.4	23.4	58.0	–
233	surface	fragment	sandstone	75.0	38.7	38.4	115.0	bifacial, shaped
234	surface	fragment	sandstone	69.0	53.4	42.5	202.0	shaped, burned
235	surface	fragment	granite	76.0	58.1	45.1	249.0	bifacial, shaped, burned
236	surface	fragment	granite	91.0	82.6	45.1	384.0	bifacial, shaped
237	surface	fragment	granite	89.0	60.1	55.3	386.0	shaped
239	surface	complete	andesite	120.0	78.4	58.3	732.0	bifacial, shaped
240	surface	complete	sandstone	145.0	122.0	70.3	1,255.0	unifacial, shaped
242	surface	fragment	granite	103.0	70.1	33.6	207.0	pitted
248	surface	fragment	granite	66.0	57.8	48.1	164.0	bifacial, shaped
299	surface	fragment	quartzite	104.0	65.4	50.8	456.0	bifacial
300	surface	complete	rhyolite	89.0	70.0	38.0	287.0	bifacial, unshaped
301	surface	fragment	granite	85.0	50.0	–	–	missing
302	surface	fragment	granite	70.0	47.6	22.0	94.0	–
303	surface	fragment	granite	94.0	65.1	49.2	469.0	bifacial, shaped
304	surface	fragment	granite	85.0	53.1	32.1	148.0	–
367	surface	fragment	granite	74.0	59.0	25.9	119.0	bifacial, shaped
369	surface	fragment	granite	82.0	62.0	50.6	287.0	bifacial, shaped
370	surface	complete	andesite	79.0	69.3	49.3	344.0	unifacial, unshaped cobble
395	surface	fragment	rhyolite	74.0	51.2	39.6	197.0	bifacial, shaped, burned
Locus A								
011	surface	fragment	basalt	75.0	75.0	37.0	–	missing, bifacial, burned
1367	H-5, 20-30	complete	granite	107.0	88.8	52.7	709.0	bifacial, unshaped, burned
1369	H-5, 20-30	fragment	granite	88.0	68.2	47.6	463.0	unifacial, unshaped
1378	H-5, 30-40	fragment	granite	33.0	27.3	22.7	19.0	–
1412	H-7, 0-10	fragment	granite	77.0	53.5	29.4	149.0	–
1416	H-7, 10-20	fragment	granite	77.0	65.1	34.5	186.0	–
1443	H-9, 0-10	fragment	granite	88.0	70.0	37.6	278.0	–
1504	Square H	fragment	unidentified	55.0	33.0	35.0	–	missing
1552	Square H	fragment	granite	82.0	55.7	36.1	200.0	bifacial, shaped
1595	Square H	fragment	basalt	116.0	66.4	49.2	367.0	unifacial, unshaped
1596	Square H	fragment	granite	76.0	54.7	34.7	146.0	–
1597	Square H	fragment	rhyolite	63.0	47.1	32.2	133.0	–

Table 8. Continued.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
Locus B								
028	surface	complete	granite	85.0	63.0	50.0	–	missing; bifacial, unshaped
030	surface	complete	basalt	89.0	67.4	36.4	286.0	missing
069	surface	fragment	basalt	76.0	59.1	40.9	281.0	bifacial, shaped, burned
678	TU-B, 10-20	fragment	granite	75.0	63.1	43.2	270.0	bifacial
750	TU-C, 0-10	complete	granite	83.0	57.0	44.6	294.0	bifacial with red stain on tip and one face
982	TU-C, 20-30	fragment	granite	101.0	97.1	73.4	1,018.0	bifacial, shaped
1105	TU-D, 30-40	fragment	granite	91.0	80.2	57.3	427.0	unifacial
1115	TU-D, 20-30	fragment	granite	94.0	60.4	50.2	304.0	–
1151	TU-D, 50-60	complete	andesite	95.0	82.1	48.9	496.0	bifacial, shaped
1166	TU-D, 60-base	fragment	rhyolite	67.0	50.9	47.2	139.0	bifacial, shaped
1196	TU-E, 0-10	complete	granite	89.0	79.7	40.8	385.0	bifacial, unshaped, pecked in center of each side, burned
1247	TU-F, 10-20	fragment	granite	89.0	40.2	34.5	176.0	bifacial, shaped, burned
1690	Square J	fragment	unidentified	63.0	30.0	–	–	missing
1691	Square J	fragment	rhyolite	70.0	35.0	–	–	missing
1692	Square J	fragment	granite	40.0	35.0	–	–	missing, bifacial
1784	Square J	fragment	sandstone	96.0	68.5	36.3	261.0	unifacial, shaped

Note: Metrics in millimeters and grams.

Of the 39 mano fragments, 26 are granite, four are rhyolite, three are sandstone, three are basalt, one is quartzite, and two are unidentified. Twelve of the 39 specimens were too fragmentary to fully classify, while 16 were bifacial and shaped (three burned), four were bifacial and unshaped (one burned), three were unifacial and unshaped, two were unifacial and shaped, and two were shaped (unknown number of ground faces, one burned). Loci A and B produced 11 mano fragments each.

Stone Bowls

Two fragments of stone bowls were recovered. The first (Cat. No. 1311) was found in the 10 20-cm level of TU H-1 and is the rim of a fairly large sandstone bowl. The fragment measures 89 x 63.6 x 35.9 mm and weighs 148 g. The second piece (Cat. No. 499) is a body sherd from a steatite bowl. It measures 34 x 30.1 x 8.9 mm, weighs 16.3 g, and was recovered from the 0 10-cm level of TU-2.

Portable Mortar

One fragment of a portable mortar was recorded in the foundation of HR-2. This specimen was not collected, and no other information is available.

Pestles

Five pestle fragments were found (Table 9), four from Locus B (three from TU-C and one from TU-F). Two

Table 9. Provenience and Attributes of Pestles and Unidentified Ground Stone Artifacts from CA-KER-769.

Cat. No.	Provenience	Artifact	Material	Condition/Comments	Length	Width	Thick	Wt
358	surface	pestle	granite	tip	170.0	130.0	87.5	1,863.0
896	TU-C, 10-20	pestle	rhyolite	tip	68.0	54.3	42.4	229.0
1020	TU-C, 20-30	pestle	andesite	midsection	115.0	91.6	64.2	662.0
1006	TU-C, 30-40	pestle	granite	tip	72.0	49.4	28.0	84.0
1224	TU-F, 0-10	pestle	rhyolite	midsection	57.0	55.1	20.9	76.0
291	surface	unidentified	sandstone	striations in depression	49.0	46.5	20.2	45.0
010	Locus A, surface	unidentified	basalt	unifacial, missing	85.0	70.0	50.0	–
625	TU-A, surface	unidentified	granite	–	142.0	88.3	25.7	447.0
665	TU-B, surface	unidentified	granite	–	103.0	85.2	45.7	515.0
900	TU-C, 10-20	unidentified	andesite	burned	72.0	51.6	27.9	115.0

Note: Metrics in millimeters and grams.

of the specimens are granite, two are rhyolite, and one is andesite. None of the specimens were burned. Given the presence of seven bedrock mortar features on the site, the number of pestles seems small.

Unidentified Ground Stone

Five small fragments of ground stone that could not be identified as to form were found (Table 9). Their shapes suggest that they may have been from metates, although one (Cat. No. 291) had a depression suggestive of a bowl or mortar.

Tabular Stone Ornaments

Sixteen specimens identified as tabular ornaments were found (Table 10), five of which are missing. Most (n = 11; 68.7 percent) were found at Locus B. Eight of the 16 specimens are green slate, one is brown slate, and seven are sandstone. Five specimens (four of green slate and one of brown slate) were found in the same 10 to 20-cm level of TU-C and might be a single broken ornament. None of these ornaments had perforations or were burned, but two had small areas of a "red stain" (presumably ochre) on their surfaces. Only four of the specimens were incised. At least two of the pieces appear to be incompletely made, perhaps broken during manufacture. The general lack of incising also suggests that the pieces were being made at the site.

Incised slate is an uncommon artifact but appears to have been widely distributed, albeit sparsely, across the Mojave Desert (e.g., Ritter 1980; Sutton 1982) and the Great Basin (Thomas 1983). Such artifacts generally date late in time, but their precise dating and possible functions are uncertain.

Stone Beads

Twenty-six small stone beads were recovered in the excavations (Table 11), three of which are now missing. Twenty were crafted from calcite, one was manufactured from serpentine, two were made of chlorite schist, and the three missing specimens were described as "steatite." No geochemical sourcing was conducted on any of the stone. The serpentine specimen is a short tube, while the other extant specimens are disks. The temporal placement of such beads is not fully understood.

Table 10. Provenience and Attributes of Tabular Stone Ornaments from CA-KER-769.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
General Surface								
317	surface	fragment	sandstone	15.0	10.0	–	–	missing
199	surface	complete	sandstone	41.0	36.9	6.2	4.1	unfinished, incised on one side
255	surface	fragment	sandstone	20.0	11.9	3.5	1.4	smooth surface
Locus A								
1551	Square H	fragment	sandstone	33.0	20.8	11.1	5.9	series of grooves on end
1857	HR-2, SE ¼	fragment	green slate	67.0	17.8	3.2	5.2	triangular, incised on one side
Locus B								
052	surface	fragment	sandstone	30.0	14.0	4.0	–	missing, one well-ground edge
051	surface	complete	sandstone	23.0	17.0	5.0	–	missing, one red-stained area
467	TU-2, 10-20	complete	green slate	29.0	10.8	3.2	2.2	triangular, grooved edges on one side
483	TU-2, 10-20	fragment	green slate	–	–	–	–	missing
938	TU-C, 10-20	fragment	green slate	13.0	5.5	3.1	0.3	edge piece
934	TU-C, 10-20	fragment	brown slate	24.0	12.6	2.3	1.2	–
935	TU-C, 10-20	fragment	green slate	24.0	12.2	4.3	1.7	some edge
936	TU-C, 10-20	fragment	green slate	19.0	10.6	3.9	0.9	some edge, incised on one side
937	TU-C, 10-20	fragment	green slate	21.0	5.7	2.8	0.5	incised on one side with red stain
1193	TU-E, 10-20	fragment	green slate	28.0	9.1	4.6	1.3	triangular, broken in manufacture
1694	Square J	–	sandstone	77.0	30.0	18.0	–	missing, incised

Note: Metrics in millimeters and grams.

Most (n = 22) of the stone beads came from Locus B; with seven from TU-C and eight from Square J. Many of the green slate ornament fragments also came from TU-C, and perhaps these two artifact types are associated.

Flaked Stone

The flaked stone assemblage includes projectile points, bifaces, drills, scrapers, modified flakes, cores, hammerstones, and debitage. Each category is discussed below.

Projectile Points

A total of 125 projectile points were identified from the site (Table 12), 118 of which are currently missing from the collection. Fifty-four of the points were classified (mostly using the sketches in the original catalog), including 35 Cottonwood Triangular (various subtypes), 13 Rose Spring, 3 Desert Side-notched, 2 Elko, and 1 Gypsum (see Figures 8 through 10). An additional 12 bases could not be classified. Eighty-two points (65.6 percent) are obsidian (a similar percentage to the nearby KER-229 site [Sutton et al. 2010]), 33 (26.4 percent) are cryptocrystalline (chalcedony, chert, or jasper), 5 (4.0 percent) are quartz, and 5 (4.0 percent) are rhyolite. Obsidian was clearly the preferred material for projectile points (both arrow and dart points). Two additional points were collected from the surface of the site by State Parks in 1994 (Dallas and Mealey 1994:5; see Table 12). Of the total number of

Table 11. Provenience and Attributes of Stone Beads from CA-KER-769.

Cat. No.	Provenience	Material	Dia.	Perf. Dia.	Thick	Wt	Comments
General Surface							
247	surface	serpentine	6.7	3.0	7.7	0.7	short tube
Locus A							
1479	H-10, surface	chlorite schist	7.6	2.4	2.3	2.0	disk
433	TU-1, 20-30	calcite	4.0	1.0	1.1	1.5	disk
636	TU-A, 20-30	calcite	–	1.5	1.0	1.1	¼ disk
Locus B							
068	surface	calcite	2.9	1.2	1.3	1.2	disk
458	TU-2, 0-10	calcite	4.0	1.2	1.1	1.3	disk
542	TU-4, surface	calcite	6.5	1.9	1.0	1.4	disk
595	TU-4, 30-floor	calcite	4.0	1.9	1.1	1.1	disk
728	TU-C, surface	calcite	5.3	2.5	2.5	2.1	disk
730	TU-C, surface	calcite	5.9	1.7	1.7	1.1	disk
731	TU-C, surface	calcite	7.9	2.1	2.0	–	½ disk
824	TU-C, 0-10	calcite	4.0	1.3	1.3	1.7	disk
825	TU-C, 0-10	calcite	3.1	1.3	1.2	1.4	disk
826	TU-C, 0-10	calcite	3.2	1.3	1.2	1.5	disk
972	TU-C, 10-20	calcite	3.3	1.1	1.0	1.1	disk
1124	TU-D, 20-30	chlorite schist	5.4	1.5	1.1	1.4	disk, burned
1279	TU-F, 10-20	calcite	4.8	1.4	1.2	1.4	disk
1280	TU-F, 10-20	calcite	5.1	1.2	1.3	2.0	disk
1610	Square J	calcite	5.8	1.9	1.1	1.0	disk
1611a	Square J	"steatite"	–	–	–	–	missing
1611b	Square J	"steatite"	–	–	–	–	missing
1611c	Square J	"steatite"	–	–	–	–	missing
1673	Square J	calcite	4.8	1.6	1.2	2.0	disk
1674	Square J	calcite	6.2	1.9	1.2	1.7	disk
1675	Square J	calcite	6.9	1.9	1.1	1.7	disk
1782	Square J	calcite	5.4	1.5	1.4	1.1	disk

Note: Metrics in millimeters and grams.

Table 12. Provenience and Attributes of Projectile Points from CA-KER-769.

Cat. No.	Provenience	Condition	Material	Type/Subtype	Length	Width	Thick	Wt	Comments	Fig.
General Surface										
077	surface	complete	chalcedony	Cottonwood straight base	25.0	19.0	–	–	missing	8a
094	surface	fragment	quartz	–	50.0	25.0	–	–	missing	–
095	surface	tip	quartz	–	15.0	15.0	–	–	missing	–
096	surface	base	chalcedony	Cottonwood straight base	28.0	18.0	–	–	missing	8b
097	surface	midsection	quartz	–	15.0	10.0	–	–	missing	–
106	surface	fragment	rhyolite	–	25.0	10.0	–	–	missing	–
113	surface	fragment	obsidian	–	29.0	0.7	–	–	missing	–
143	surface	base	obsidian	Gypsum	20.0	27.0	–	–	missing	8c
144	surface	midsection	chalcedony	–	20.0	10.0	–	–	missing	–
173	surface	tip	obsidian	–	11.0	–	5.0	–	missing	–
197	surface	complete	obsidian	Cottonwood/unclassified	18.0	14.0	–	–	missing	8d
221	surface	base	chalcedony	–	18.0	14.0	–	–	missing	–
250	surface	fragment	obsidian	–	25.0	12.0	–	–	missing	–
280	surface	tip	chert	–	11.0	4.0	–	–	missing	–
288	surface	fragment	obsidian	–	12.0	11.0	–	–	missing	–
309	surface	tip	chalcedony	–	23.0	23.0	–	–	missing	–
315	surface	tip	obsidian	–	15.0	13.0	–	–	missing	–
316	surface	base	obsidian	Rose Spring	14.0	10.0	–	–	missing	8e
319	surface	base	obsidian	Rose Spring	18.0	15.0	–	–	missing	8f
320	surface	fragment	obsidian	–	20.0	15.0	–	–	missing	–
372	surface	tip	chalcedony	–	25.0	20.0	–	–	missing	–
Locus A										
012	surface	base	chert	unclassified	26.0	11.0	6.0	–	missing	–
017	surface	midsection	obsidian	–	12.0	9.0	4.0	–	missing	–
018	surface	complete	chalcedony	Cottonwood concave base	21.0	11.0	–	–	missing	8g
253	surface	base	unidentified	Elko-eared	33.0	27.0	4.0	–	missing	8h
1484	Square H	base	chalcedony	Cottonwood straight base	19.0	12.0	–	–	missing	8i
1485	Square H	complete	chalcedony	Rose Spring	20.0	10.0	–	–	missing	8j
1495	Square H	complete	chert	Cottonwood straight base	31.0	20.0	–	–	missing	8k
1499	Square H	midsection	obsidian	–	14.0	12.0	2.0	–	missing	–
1500	Square H	fragment	obsidian	Desert Side-notched	10.0	4.0	2.0	0.1	–	8l
1511	Square H	base	rhyolite	Cottonwood straight base	28.0	13.0	2.0	–	missing	8m
1529	Square H	base	obsidian	Cottonwood concave base	26.0	13.0	2.5	–	missing	8n
1530	Square H	base	obsidian	Cottonwood concave base	11.0	9.0	4.0	–	missing	8o

Table 12. Continued.

Cat. No.	Provenience	Condition	Material	Type/Subtype	Length	Width	Thick	Wt	Comments	Fig.
1531	Square H	base	obsidian	Cottonwood concave base	14.0	10.0	2.0	–	missing	8p
1532	Square H	complete	obsidian	Rose Spring	21.0	11.0	4.0	–	missing	8q
1533	Square H	base	obsidian	Desert Side-notched	15.0	10.0	2.0	–	missing	8r
1534	Square H	base	obsidian	Rose Spring	4.0	13.0	1.0	–	missing	8s
1536	Square H	tip	obsidian	–	12.0	6.0	–	–	missing	–
1537	Square H	tip	obsidian	–	10.0	11.0	–	–	missing	–
1539	Square H	base	obsidian	Cottonwood leaf-shaped	31.0	8.0	–	–	missing	8t
1540	Square H	fragment	obsidian	–	12.0	10.0	–	–	missing	–
1544	Square H	base	obsidian	unclassified	9.0	12.0	3.0	–	missing	–
1545	Square H	midsection	chalcedony	–	19.0	7.0	5.0	–	missing	–
1557	Square H	midsection	obsidian	–	15.0	12.0	–	–	missing	–
1559	Square H	tip	obsidian	–	15.0	10.0	–	–	missing	–
1560	Square H	complete	obsidian	Rose Spring	15.0	10.0	–	–	missing	8u
1561	Square H	midsection	chert	–	14.0	10.0	–	–	missing	–
1562	Square H	fragment	chalcedony	Cottonwood concave base	25.0	15.0	–	–	missing	8v
1577	Square H	complete	quartz	Cottonwood concave base	32.0	12.0	–	–	missing	9w
1578	Square H	complete	obsidian	Rose Spring	15.0	10.0	–	–	missing	9x
1579	Square H	complete	obsidian	Desert Side-notched	15.0	13.0	–	–	missing	9y
1585	Square H	tip	obsidian	–	8.0	8.0	–	–	missing	–
1587	Square H	tip	jasper	–	11.0	10.0	–	–	missing	–
1331	H-3, 10-20	tip	chalcedony	–	15.0	–	–	–	missing	–
1344	H-5, 0-10	complete	obsidian	Cottonwood concave base	12.0	7.3	2.7	0.2	–	9z
1396	H-6, 50-60	complete	jasper	Cottonwood straight base	25.0	8.0	–	–	missing	9aa
1432	H-7, 40-50	base	obsidian	Cottonwood concave base	16.0	–	–	–	missing	9bb
1438	H-7, 50-60	midsection	rhyolite	–	15.0	8.5	3.0	–	missing	–
1820	HR-2, SW ¼, surface to floor	base	chalcedony	Cottonwood concave base	14.0	7.0	–	–	missing	9cc
1833	HR-2, SW ¼, surface to floor	base	chalcedony	unclassified	14.0	12.0	–	–	missing	–
1841	HR-2, SW ¼, surface to floor	midsection	obsidian	–	11.0	–	1.0	–	missing	–
419	TU-1, 10-20	base	obsidian	unclassified	–	–	–	–	missing	–
Locus B										
050	surface	complete	chert	Cottonwood concave base	17.0	14.0	–	–	missing	9dd
062	surface	fragment	obsidian	–	17.0	15.0	–	–	missing	–
064	surface	fragment	obsidian	–	18.0	12.0	–	–	missing	–
066	surface	base	obsidian	Elko	22.0	19.0	–	–	missing	9ee

Table 12. Continued.

Cat. No.	Provenience	Condition	Material	Type/Subtype	Length	Width	Thick	Wt	Comments	Fig.
471	TU-2, 10-20	base	obsidian	unclassified	12.0	12.0	–	–	missing	9ff
495	TU-2, 20-30	midsection	chalcedony	–	20.0	19.0	–	–	missing	–
496	TU-2, 20-30	base	rhyolite	unclassified	19.0	11.0	5.0	–	missing	–
538	TU-4, surface	fragment	obsidian	–	5.0	3.0	–	–	missing	–
684	TU-B, 20-30	complete	obsidian	Cottonwood leaf shape	15.0	10.0	–	–	missing	9gg
690	TU-C, surface	tip	obsidian	–	13.0	5.0	–	–	missing	–
753	TU-C, 0-10	tip	obsidian	–	13.0	6.9	2.1	0.1	–	–
835	TU-C, 0-10	complete	obsidian	Cottonwood straight base	18.0	9.0	–	–	missing	9hh
836	TU-C, 0-10	fragment	obsidian	–	20.0	10.0	–	–	missing	–
838	TU-C, 0-10	base	rhyolite	Cottonwood straight base	18.0	14.0	3.5	–	missing	9ii
858	TU-C, 0-10	base	obsidian	unclassified	10.0	8.0	–	–	missing	–
859	TU-C, 0-10	base	obsidian	unclassified	16.0	11.0	–	–	missing	–
916	TU-C, 10-20	complete	obsidian	Cottonwood concave base	25.0	10.0	–	–	missing	9jj
917	TU-C, 10-20	fragment	obsidian	–	15.0	10.0	–	–	missing	–
919	TU-C, 10-20	tip	obsidian	–	15.0	–	–	–	missing	–
920	TU-C, 10-20	tip	obsidian	–	15.0	17.0	–	–	missing	–
921	TU-C, 10-20	tip	obsidian	–	10.0	10.0	–	–	missing	–
923	TU-C, 10-20	tip	obsidian	–	8.0	5.0	–	–	missing	–
976	TU-C, 20-30	fragment	obsidian	–	23.0	13.0	–	–	missing	–
1004	TU-C, 30-40	tip	obsidian	–	12.0	6.3	2.4	0.1	–	–
1047	TU-D, 0-10	fragment	obsidian	–	1.5	9.0	–	–	missing	–
1048	TU-D, 0-10	fragment	obsidian	–	1.2	9.0	–	–	missing	–
1054	TU-D, 0-10	fragment	obsidian	–	2.5	1.2	–	–	missing	–
1029	TU-D, 10-20	complete	obsidian	unclassified	22.0	13.0	3.0	–	missing	–
1030	TU-D, 10-20	fragment	obsidian	–	17.0	13.5	3.0	–	missing	–
1086	TU-D, 10-20	base	chalcedony	Cottonwood concave base	1.6	1.5	0.3	–	missing	9kk
1087	TU-D, 10-20	complete	obsidian	Rose Spring	2.0	0.6	–	–	missing	9ll
1088	TU-D, 10-20	base	chalcedony	unclassified	1.8	1.5	–	–	missing	–
1089	TU-D, 10-20	midsection	obsidian	–	1.0	0.9	–	–	missing	–
1106	TU-D, 30-40	fragment	chalcedony	–	3.5	2.5	–	–	missing	–
1112	TU-D, 30-40	base	chalcedony	Rose Spring	1.7	1.5	–	–	missing	9mm
1144	TU-D, 40-50	midsection	obsidian	–	16.0	8.9	4.4	0.5	–	–
1165	TU-D, 60-base	tip	chalcedony	–	17.0	7.0	4.0	–	missing	–
1175	TU-D, 60-base	midsection	obsidian	–	22.0	9.5	4.5	–	missing	–
1177	TU-D, 60-base	tip	chalcedony	–	9.0	8.0	–	–	missing	–
1225	TU-F, 0-10	fragment	obsidian	–	13.0	11.0	–	–	missing	–

Table 12. Continued.

Cat. No.	Provenience	Condition	Material	Type/Subtype	Length	Width	Thick	Wt	Comments	Fig.
1239	TU-F, 10-20	tip	obsidian	–	16.0	6.0	–	–	missing	–
1240	TU-F, 10-20	base	obsidian	Cottonwood concave base	18.0	8.0	–	–	missing	9nn
1241	TU-F, 10-20	complete	obsidian	Rose Spring	17.0	10.0	–	–	missing	9oo
1256	TU-F, 10-20	base	obsidian	Rose Spring	15.0	8.5	2.5	–	missing	9pp
1284	TU-F, 20-30	complete	obsidian	Cottonwood concave base	18.0	11.0	–	–	missing	9qq
1285	TU-F, 20-30	complete	obsidian	unclassified dart	28.0	19.0	–	–	missing	9rr
1709	Square J	base	obsidian	Cottonwood concave base	18.0	11.0	–	–	missing	9ss
1710	Square J	complete	obsidian	Cottonwood straight base	15.0	9.0	–	–	missing	10tt
1711	Square J	base	obsidian	Cottonwood straight base	20.0	10.0	–	–	missing	10uu
1712	Square J	complete	obsidian	Cottonwood concave base	17.0	9.0	–	–	missing	10vv
1713	Square J	complete	obsidian	Rose Spring	16.0	9.0	–	–	missing	10ww
1714	Square J	base	obsidian	Cottonwood straight base	16.0	11.0	–	–	missing	10xx
1718	Square J	fragment	obsidian	–	15.0	10.0	–	–	missing	–
1722	Square J	fragment	obsidian	–	12.0	9.0	–	–	missing	–
1725	Square J	fragment	obsidian	–	9.0	6.0	–	–	missing	–
1726	Square J	base	obsidian	Cottonwood straight base	10.0	6.0	–	–	missing	10yy
1731	Square J	midsection	chalcedony	–	11.0	9.0	–	–	missing	–
1756	Square J	base	obsidian	Cottonwood straight base	21.0	10.0	–	–	missing	10zz
1768	Square J	base	chert	Cottonwood straight base	26.0	19.0	9.0	–	missing	10aaa
1776	Square J	complete	obsidian	Cottonwood straight base	13.0	9.0	–	–	missing	10bbb
1779	Square J	complete	quartz	Rose Spring	19.0	11.0	–	–	missing	10ccc
No Location (collected from the surface by State Parks in 1994, not present in this collection)										
–	surface	base	chert	unclassified	17.7	11.5	3.6	0.8	–	–
–	surface	complete	chert	Cottonwood/unclassified	16.5	13.3	3.2	0.7	–	–

Notes: Metrics in millimeters and grams. Most of the figures were redrawn from sketches in the original catalog.

projectile points, 32.8 percent came from Locus A, 48.8 percent came from Locus B, and 18.4 percent came from the surface.

Desert Side-notched Series

Small, side-notched points—called Desert Side-notched (DSN) in the Great Basin and southern California (Baumhoff and Byrne 1959:38; Heizer and Hester 1978:10-11)—are common in late contexts across much of western North America (Kehoe 1966; Lyneis 1982). These points are small, generally triangular in outline, and have obvious side notches. In the Great Basin and much of California, DSN points have often been associated with Numic groups (Harrington 1933:126, 1937:87, Figure 2a; Steward 1933:18, Figure 7; Swanson 1962:157; Malouf 1968; Sutton 1987:52-57; Delacorte 2008). DSN points are a marker of the Chimney Phase (Moratto 1984:333) and generally date after ca. 900 BP.

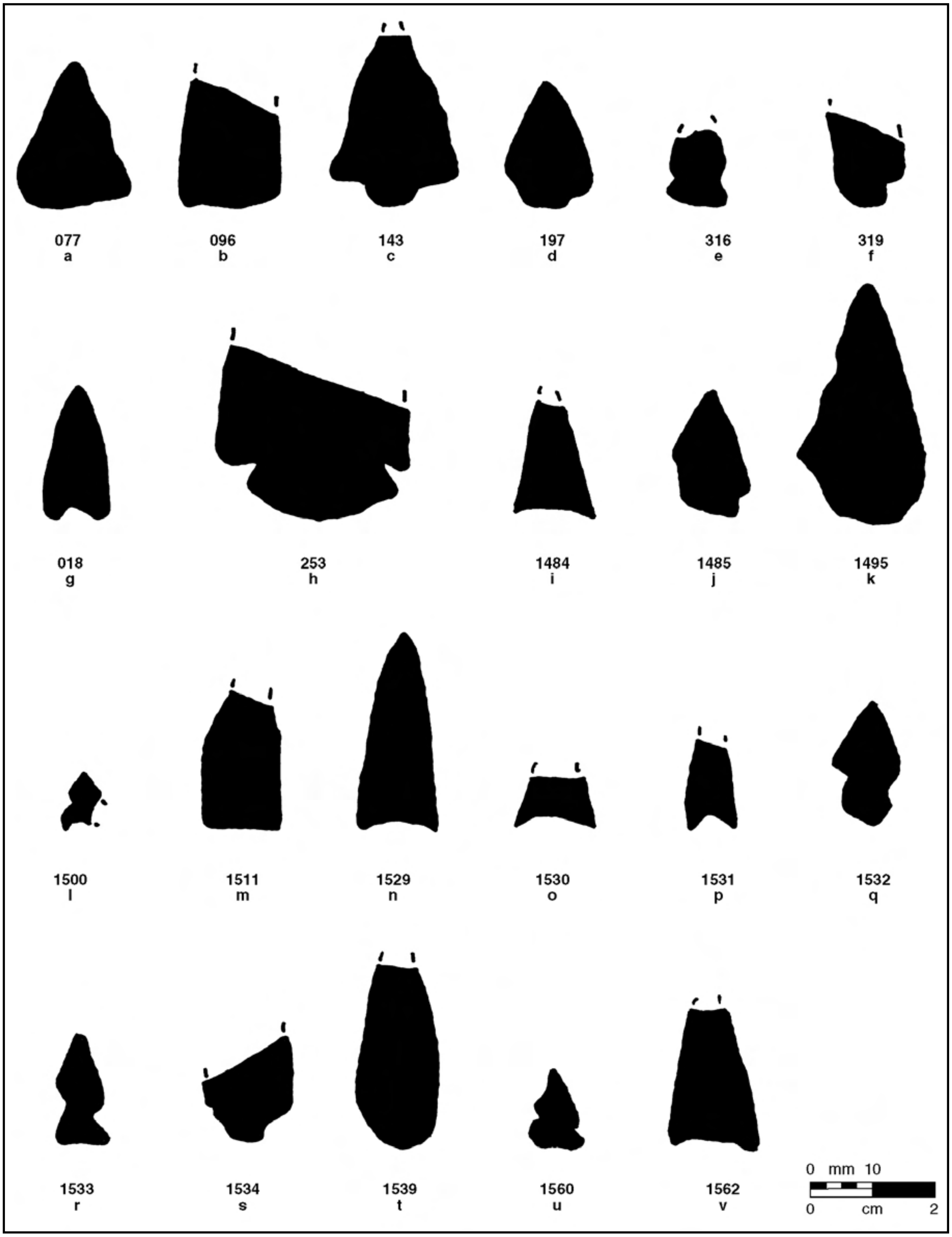

Figure 8. Projectile points from CA-KER-769; drawn in silhouette from sketches in the original 1971 catalog.

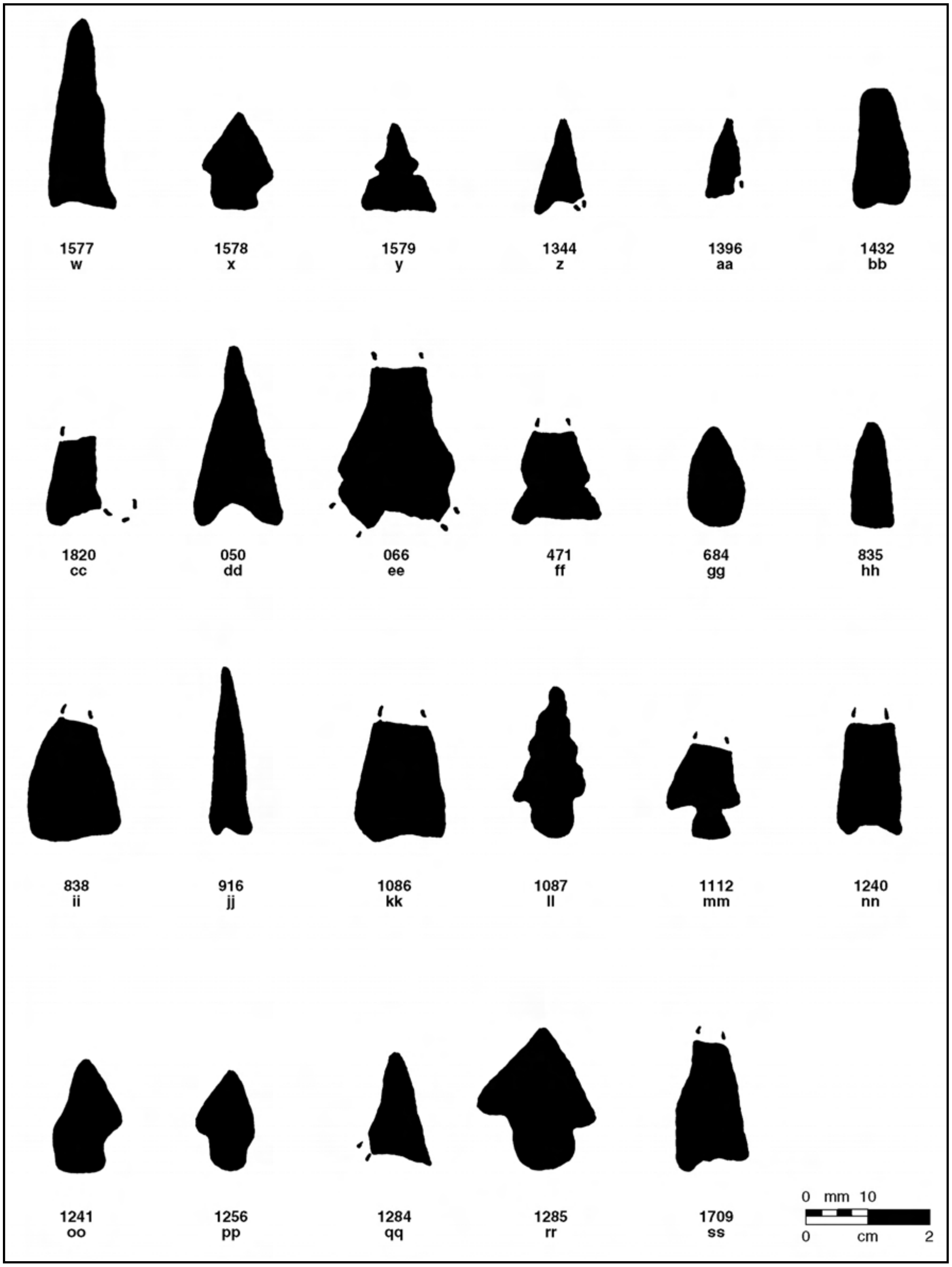

Figure 9. Projectile points from CA-KER-769; drawn in silhouette from sketches in the original 1971 catalog.

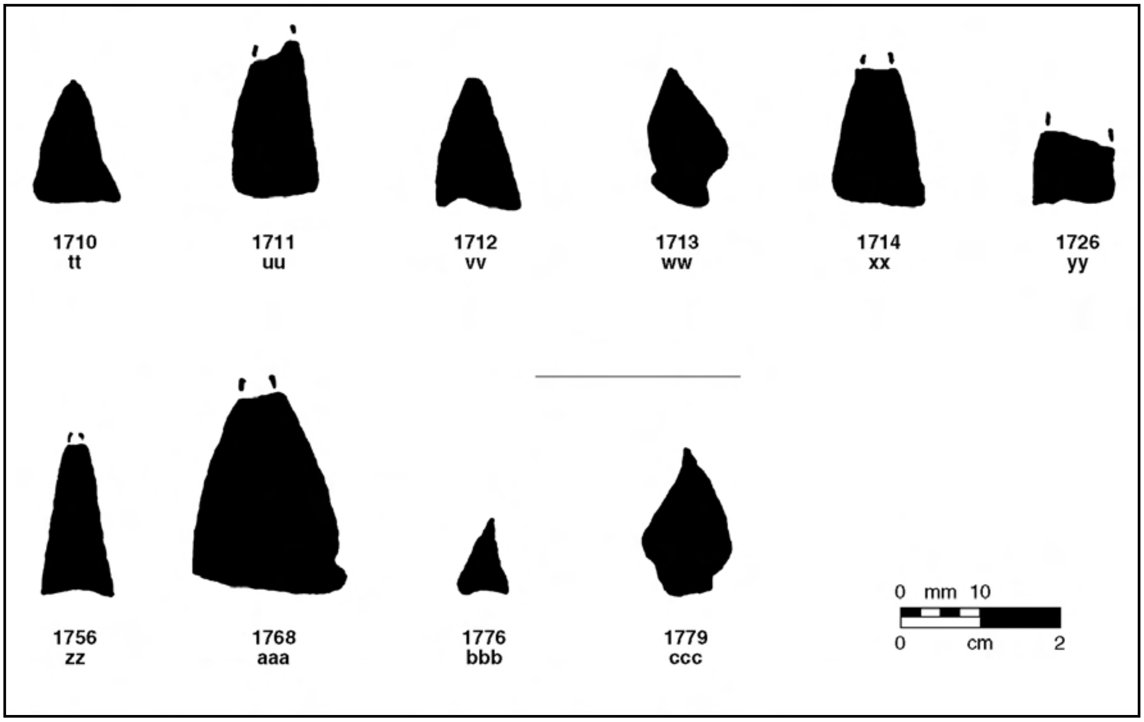

Figure 10. Projectile points from CA-KER-769; drawn in silhouette from sketches in the original 1971 catalog.

Three DSN specimens were found, all obsidian and all from Square H in Locus A. Thus, while these point types comprise only 5.5 percent of the total classified points, they make up 13 percent of the classified points from Locus A.

Cottonwood Triangular Series

The Cottonwood series (Lanning 1963:252-253; also see Riddell 1951:17; Riddell and Riddell 1956:30; Heizer and Hester 1978:11; Thomas 1981:16-17) consists of small, thin, unnotched points that are generally triangular or lanceolate in shape. Heizer and Hester (1978:11) noted that Cottonwood points tend to co-occur with DSN points in the Great Basin. Lanning (1963:252; also see Riddell 1951:Figure 1; Waugh 1988) further divided the triangular type into three major base forms: straight, concave, and convex (leaf-shaped).

Cottonwood points are markers of the Chimney Phase (Moratto 1984:333) and generally date after about 1,000 BP. However, the three main types may vary sequentially in time. Lanning (1963:276) argued that the leaf-shaped type was earlier than the triangular type and ranged in size, with the smallest dating to protohistoric and historic times. He further suggested that the triangular type, "especially the concave-base variety, is limited to protohistoric and historic times on the south coast" of California (Lanning 1963:276). Based on examples from northern San Diego County, Waugh (1988:112) proposed that the "deep" concave-base Cottonwood variant dated later than the other triangular forms. In summarizing a possible sequence of Cottonwood types, then, the leaf-shaped type would have originated first, followed quickly by both the straight-base and shallow concave-base forms, and finally by deep concave-base forms. Each of the types and varieties would have persisted until contact.

Of the 35 identified Cottonwood specimens (64.8 percent of the classified points), 33 could be identified to subtype: 15 straight base, 16 concave base, and two leaf-shaped. No distribution pattern of the Cottonwood points across the site could be ascertained (see Table 13). Most (57.1 percent) of the Cottonwood points were made from obsidian.

Rose Spring Series

The Rose Spring series consists of small arrow points with three varieties, corner-notched, side-notched, and contracting stem (Heizer and Hester 1978:7-10). Rose Spring points were originally named at Wagon Jack Shelter, Nevada (Heizer and Baumhoff 1961:123), based on the materials from the Rose Spring site (INY-372; Lanning 1963:252; Yohe 1992, 1998). Thomas (1981:30) classified Rose Spring as a type within his Rosegate series, a classification not generally used in the Mojave Desert (Sutton et al. 2007:Table 15.4) or in other areas of California. The dating of this series in the Great Basin is still a bit unclear (see discussion in Thomas [1981:30-31]), but they generally fall between 1,800 and 900 BP in the Mojave Desert (cf., Bettinger and Taylor 1974:19; Heizer and Hester 1978:9; Yohe and Sutton 2000; Sutton et al. 2007:241). The appearance of Rose Spring points in the Mojave Desert is seen as marking the entry of the bow and arrow into that region (e.g., Yohe 1998). Rose Spring points are markers for the Sawtooth Phase (Moratto 1984:333).

Thirteen points classified as Rose Spring were found, distributed somewhat evenly across the site (see Table 13). All are missing from the existing collection; none was identified as to subtype, and 10 (76.9 percent) were made from obsidian.

Elko Series

Originally defined by Heizer and Baumhoff (1961; also see Heizer and Hester 1978:5-7; Thomas 1981:32-33), Elko series points are commonly recovered in southern California sites, though rarely in large numbers (but see McDonald et al. 1987). Three types of Elko points are generally recognized: eared, corner-notched, and side-notched (the merit of the latter type was questioned by Thomas [1981:30]). Elko series points generally date between 4,000 and 1,500 BP (cf., Bettinger and Taylor 1974; Heizer and Hester 1978) and are markers of the Canebrake Phase (Moratto 1984:333).

Table 13. Type and Provenience Matrix of Classified Projectile Points from CA-KER-769.

Type/Provenience	General Surface	Locus A	Locus B	Totals
Desert Side-notched	–	3	–	3
Cottonwood Triangular straight base	2	4	9	15
Cottonwood Triangular concave base	–	9	7	16
Cottonwood Triangular leaf-shaped	–	1	1	2
Cottonwood (unclassified)	2	–	–	2
Rose Spring	2	5	6	13
Elko	–	1	1	2
Gypsum	1	–	–	1
unclassified	1	4	7	12
Totals	8	27	31	66

Two fragmentary Elko specimens (Figure 8h, Figure 9ee) were found during the 1971 work, one of obsidian and one of an unidentified stone. Their presence suggests some time depth to the occupation of the site, although it is possible that they were scavenged from other sites.

Gypsum Series

The Gypsum series consists of relatively large contracting stem points (following Heizer and Hester 1978:13; but see Thomas 1981:35). The Gypsum series generally dates between 4,000 and 1,800 BP in the Mojave Desert (Sutton et al. 2007:241) and, like Elko points, are markers of the Canebrake Phase (Moratto 1984:333). Only one contracting stem point, classified as Gypsum (see Figure 8c), was found on the surface of the site.

Discussion

A relatively large number of points (N = 125) were recovered from KER-769, classified into a fairly diverse number of types, a type distribution similar to that of the nearby KER-230 site (Allen and Burns 2008). Most of the points post-date about 1,000 BP, suggesting that much of the site occupation occurred after that time. The vast majority (n = 99; 79.2 percent) were fragmentary. No discernable pattern in the distribution of the types across the site is evident, with the exception that all the DSN specimens are from Locus A.

The presence of tips, midsections, and bases suggests that points were being manufactured at the site. If only retooling were taking place, one would expect tips and midsections to be uncommon since they would probably have been lost in the landscape during hunting.

Bifaces

A total of 57 bifaces (five complete and 52 fragments) were recovered (Table 14), with 43 specimens missing. Most specimens could not be classified as to portion (e.g., tip), as they were either too fragmentary or missing. Most of the bifaces were either chalcedony or obsidian and range in width from 4.0 to 45.0 mm (see Table 15). The five complete specimens average 20.6 mm in width. An additional biface was collected from the surface of the site by State Parks in 1994 (Dallas and Mealey 1994; see Table 14).

Eighteen bifaces were found on the surface; 15 at Locus A and 24 at Locus B (eight of those in TU-C). Relatively few (n = 83) biface thinning flakes were identified in the debitage (see below), suggesting that biface reduction was not a major activity.

Drills

Six artifacts classified as drills were identified (Table 16), two of which are complete. Four of the drills are made from chalcedony and two from obsidian. The six specimens include an obsidian biface (Cat. No. 246, see Table 14) that was possibly used as a drill. The specific use of these tools is unknown.

Scrapers

Eleven artifacts identified as "scrapers" were recovered (Table 17). All these artifacts are missing from the collection and cannot be reevaluated as to function. Of the 11, seven are chalcedony, one is rhyolite, and three are unidentified stone (none was obsidian). Five came from the surface; one was from Locus A, and five were from Locus B. The function of these artifacts is unclear.

Cores

A total of 117 cores were recovered (Table 18), 57 from the general surface (no locus recorded), 26 from Locus A, and 34 from Locus B. Seventy-five (64.1 percent) of the cores are chalcedony, 25 (21.4 percent) are chert, 12 (10.3 percent) are rhyolite, two

Table 14. Provenience and Attributes of Bifaces from CA-KER-769.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
General Surface								
076	surface	complete	chalcedony	44.0	22.0	–	–	missing
079	surface	fragment	jasper	32.0	18.0	–	–	missing, leaf-shaped
098	surface	fragment	chalcedony	21.0	20.0	–	–	missing
122	surface	fragment	chalcedony	22.0	17.6	8.8	3.8	base
123	surface	fragment	chert	21.0	14.7	7.5	1.9	base
124	surface	fragment	chalcedony	18.0	13.1	2.9	0.8	base
125	surface	fragment	obsidian	13.0	9.3	2.9	0.3	–
150	surface	fragment	chalcedony	36.0	27.1	10.1	11.5	–
167	surface	fragment	chalcedony	45.0	30.0	–	–	missing
170	surface	fragment	chert	34.0	25.0	10	–	missing, tip
171	surface	fragment	obsidian	19.0	17.0	4	–	missing
172	surface	fragment	obsidian	18.0	–	7	–	missing, tip
246	surface	fragment	obsidian	8.4	4.0	1.6	0.1	tip, possible drill
254	surface	fragment	unidentified	27.0	24.0	9.5	–	missing
274	surface	fragment	chalcedony	–	–	–	–	missing
276	surface	fragment	rhyolite	33.0	20.8	11.2	4.3	–
306	surface	complete	chalcedony	35.0	22.0	–	–	missing
Locus A								
002	surface	fragment	rhyolite	30.0	17.0	–	–	missing
003	surface	fragment	rhyolite	30.0	20.0	–	–	missing
004	surface	fragment	chalcedony	26.0	18.0	5.0	–	missing
005	surface	fragment	chalcedony	25.0	22.0	7.0	–	missing
023	surface	fragment	chalcedony	52.0	13.0	–	–	missing
026	surface	fragment	chalcedony	35.0	21.0	–	–	missing
1498	Square H	fragment	obsidian	18.0	6.0	3.0	–	missing
1541	Square H	fragment	obsidian	10.0	4.0	3.0	–	missing
1543	Square H	fragment	obsidian	12.0	8.0	1.0	–	missing, midsection
1570	Square H	fragment	chalcedony	17.0	12.3	3.6	0.7	missing
1317	H-1, 10-20	fragment	chert	19.0	21.0	–	–	missing
1362	H-5, 10-20	complete	chert	42.0	24.0	–	–	missing
1381	H-5, 30-40	fragment	chalcedony	32.0	18.0	10.0	–	missing
1819	HR-2, SW ¼ surface to floor	complete	jasper	35.0	20.0	–	–	missing
1832	HR-2, SW ¼ surface to floor	fragment	chalcedony	13.0	9.4	3.8	0.5	–

Table 14. Continued.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
Locus B								
033	surface	fragment	chalcedony	27.0	21.0	–	–	missing
039	surface	fragment	jasper	50.0	30.0	18.0	–	missing
048	surface	fragment	chalcedony	23.0	17.0	7.0	–	missing
049	surface	fragment	rhyolite	40.0	24.0	–	–	missing
059	surface	fragment	jasper	27.0	22.0	–	–	missing
063	surface	fragment	obsidian	18.0	16.0	2.0	–	missing
457	TU-2, 0-10	fragment	chalcedony	27.0	20.0	10.0	–	missing
539	TU-4, surface	fragment	obsidian	12.0	6.6	2.9	0.2	tip
589	TU-4, 20-30	fragment	obsidian	21.0	18.0	–	–	missing
739	TU-C, surface	fragment	chalcedony	36.0	23.0	–	–	missing
839	TU-C, 0-10	complete	rhyolite	19.0	15.0	3.0	–	missing
840	TU-C, 0-10	fragment	obsidian	14.0	12.0	2.5	–	missing
856	TU-C, 0-10	fragment	obsidian	15.0	14.0	5.0	–	missing, base
914	TU-C, 10-20	fragment	obsidian	9.1	7.9	2.4	0.1	–
918	TU-C, 10-20	fragment	obsidian	15.0	15.0	–	–	missing
924	TU-C, 10-20	fragment	obsidian	7.5	5.8	1.9	0.1	–
932	TU-C, 10-20	fragment	obsidian	10.0	7.3	2.3	0.2	–
1104	TU-D, 10-20	fragment	obsidian	6.0	4.0	2.0	0.1	–
1129	TU-D, 20-30	fragment	rhyolite	20.0	13.5	7.1	1.7	missing
1158	TU-D, 50-60	fragment	chalcedony	44.0	45.0	–	–	missing, tip
1197	TU-E, 0-10	fragment	chalcedony	28.0	11.5	–	–	missing
1233	TU-F, 0-10	fragment	obsidian	33.0	16.0	3.0	–	missing
1257	TU-F, 10-20	fragment	obsidian	16.0	10.0	–	–	missing
1798	Square J	fragment	obsidian	30.0	20.0	–	–	missing
No Location (collected by State Parks in 1994, not in this collection)								
–	surface	fragment	rhyolite	45.0	23.7	14.1	11.2	base

Note: Metrics in millimeters and grams.

(1.7 percent) are jasper, two (1.7 percent) are quartz, and one (0.8 percent) is an unidentified stone. The chalcedony, chert, and jasper were probably obtained from the famous Horse Canyon Agate Beds several kilometers to the east, while the rhyolite likely originated in the Antelope Valley some 40 km to the south. None of the cores were obsidian, suggesting that obsidian was brought to the site in the form of finished artifacts.

Most of the cores are small and appear to have been expended; indeed, six were subsequently used as hammers. Earlier in their life cycles, the cores could have produced flakes large enough for the production

Table 15. Biface Technological Summary for CA-KER-769.

Material	Number (Percentage)	Range of Biface Width (mm)
chalcedony	21 (36.8)	9.4 to 45.0
obsidian	20 (35.1)	4.0 to 33.0
rhyolite	7 (12.3)	13.5 to 24.0
chert	4 (7.0)	14.7 to 25.0
jasper	4 (7.0)	18.0 to 30.0
unidentified	1 (1.8)	24.0

Table 16. Provenience and Attributes of Drills from CA-KER-769.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
Locus A								
1507	Square H	complete	obsidian	9.0	6.0	1.0	0.1	–
1336	H-3, 10-20	complete	chalcedony	30.0	11.0	–	–	missing
Locus B								
035	Locus B, surface	fragment	chalcedony	48.0	20.0	–	–	missing
1134	TU-D, 30-40	fragment	chalcedony	19.0	5.5	–	–	missing
1178	TU-D, 60-base	tip	chalcedony	26.0	14.0	–	–	missing

Notes: Metrics in millimeters and grams. An additional specimen that may have been used as a drill is listed in Table 14 as a biface (Cat. No. 246).

Table 17. Provenience and Attributes of Scrapers from CA-KER-769.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Comments
112	surface	complete	chalcedony	43.0	33.0	–	missing
256	surface	complete	unidentified	32.0	25.0	6.0	missing
258	surface	complete	unidentified	40.0	28.0	15.0	missing
259	surface	complete	unidentified	56.0	33.0	11.0	missing
312	surface	complete	chalcedony	50.0	13.0	–	missing
1850	HR-2, NE ¼, to floor	–	chalcedony	33.0	27.0	9.0	missing
042	Locus B	fragment	rhyolite	27.0	23.0	10.0	missing
506	TU-2, 30-base	complete	chalcedony	45.0	40.0	–	missing
834	TU-C, 0-10	complete	chalcedony	47.0	20.0	–	missing
1056	TU-D, 0-10	–	chalcedony	5.0	4.5	–	missing
1738	Square J	–	chalcedony	40.0	40.0	19.0	missing

Notes: Metrics in millimeters and grams. No weights were recorded.

Table 18. Provenience and Attributes of Cores from CA-KER-769.

Cat. No.	Provenience	Direction	Material	Length	Width	Thick	Wt	Comments
General Surface								
386	off grid to east	–	jasper	35.0	30.0	–	–	missing
070	surface	–	chalcedony	60.0	70.0	55.0	–	missing
071	surface	–	chalcedony	60.0	50.0	45.0	–	missing
072	surface	–	chalcedony	65.0	60.0	35.0	–	missing
110	surface	multi	chalcedony	30.0	26.4	19.4	12.8	–
126	surface	multi	chalcedony	30.0	21.9	15.1	12.5	hammerstone
127	surface	multi	chert	43.0	25.1	19.1	16.9	–
130	surface	multi	chalcedony	46.0	28.2	26.3	39.2	–
131	surface	multi	rhyolite	33.0	24.5	19.9	15.8	cortex present
132	surface	multi	chert	58.0	45.6	33.7	81.8	–
133	surface	multi	chalcedony	40.0	28.1	24.0	17.7	–
134	surface	multi	chert	49.0	35.1	18.2	32.5	–
135	surface	multi	chalcedony	52.0	40.9	27.9	54.2	–
140	surface	multi	chert	39.0	28.4	25.4	34.4	–
141	surface	multi	chalcedony	75.0	56.8	41.5	163	–
151	surface	multi	chalcedony	37.0	26.6	15.3	13.1	–
152	surface	multi	chert	32.0	26.2	13.5	11.0	–
153	surface	multi	chalcedony	25.0	19.2	17.0	7.3	–
154	surface	multi	chalcedony	36.0	20.6	16.1	11.5	–
155	surface	multi	chalcedony	45.0	32.4	23.9	34.7	cortex present
156	surface	multi	chalcedony	39.0	29.7	21.9	26.6	–
157	surface	multi	chalcedony	49.0	45.1	31.1	65.1	assayed nodule
159	surface	multi	chert	48.0	40.2	28.4	49.3	–
160	surface	multi	chalcedony	39.0	32.5	22.9	30.1	cortex present
161	surface	multi	rhyolite	36.0	35.1	17.3	17.0	cortex present
162	surface	multi	chert	44.0	37.3	35.5	40.1	–
163	surface	multi	chert	47.0	41.2	25.1	44.6	–
164	surface	multi	chalcedony	40.0	24.7	17.2	11.2	–
165	surface	multi	chert	39.0	25.0	16.8	14.0	–
166	surface	multi	chert	39.0	23.6	17.6	14.8	–
182	surface	multi	chert	65.0	51.9	21.3	70.5	–
183	surface	multi	chert	39.0	31.2	22.1	18.9	–
184	surface	multi	chalcedony	33.0	29.2	24.0	24.6	–
185	surface	multi	chalcedony	47.0	45.6	38.6	57.6	hammerstone

Table 18. Continued.

Cat. No.	Provenience	Direction	Material	Length	Width	Thick	Wt	Comments
186	surface	multi	chalcedony	40.0	30.4	20.6	23.1	hammerstone
187	surface	multi	chalcedony	49.0	46.7	35.0	81.5	hammerstone
188	surface	multi	chalcedony	44.0	27.7	25.7	37.7	–
189	surface	multi	chalcedony	44.0	39.6	30.1	53.4	–
190	surface	multi	chalcedony	44.0	30.0	19.1	35.7	–
191	surface	multi	chalcedony	48.0	37.3	27.2	36.8	–
207	surface	multi	chalcedony	39.0	34.7	27.8	34.4	cortex present
208	surface	multi	chalcedony	44.0	28.6	20.8	29.9	–
209	surface	multi	chalcedony	49.0	36.1	24.1	36.8	–
210	surface	multi	chalcedony	50.0	44.7	28.0	54.5	cortex present
211	surface	multi	chalcedony	55.0	39.1	28.0	46.5	cortex present
212	surface	multi	chalcedony	49.0	33.4	28.2	34.7	–
213	surface	multi	chert	37.0	26.2	24.2	20.1	–
214	surface	multi	chert	45.0	36.5	34.3	48.5	cortex present
215	surface	multi	chert	44.0	31.4	20.0	25.9	–
216	surface	multi	chalcedony	44.0	38.5	37.1	71.1	cortex present
217	surface	multi	chert	46.0	33.2	20.7	28.9	–
218	surface	multi	chert	58.0	38.6	31.1	62.3	–
230	surface	–	chalcedony	33.0	28.0	21.0	–	missing
360	surface	–	chalcedony	–	–	–	–	missing
381	surface	–	chalcedony	35.0	25.0	–	–	missing
402	surface	multi	chalcedony	45.0	30.9	25.8	41.1	–
405	surface	multi	chalcedony	34.0	28.0	22.3	18.6	ASA
Locus A								
092	surface	–	chalcedony	60.0	55.0	–	–	missing
260	surface	–	unidentified	55.0	45.0	30.0	–	missing
266	surface	multi	chalcedony	31.0	25.1	17.1	10.2	–
267	surface	multi	chalcedony	36.0	33.6	22.0	18.4	–
268	surface	multi	jasper	33.0	24.2	20.1	9.9	–
269	surface	multi	chalcedony	24.0	14.1	13.9	4.9	–
270	surface	multi	chalcedony	36.0	27.4	13.5	10.0	–
1483	Square H	multi	chalcedony	37.0	24.9	20.3	15.6	–
1493	Square H	multi	chalcedony	52.0	24.0	15.6	16.8	–
1494	Square H	multi	chalcedony	25.0	25.0	14.4	8.9	–
1503	Square H	–	chalcedony	–	–	–	–	missing

Table 18. Continued.

Cat. No.	Provenience	Direction	Material	Length	Width	Thick	Wt	Comments
1521	Square H	multi	chert	43.0	26.9	20.8	24.4	–
1522	Square H	multi	chalcedony	35.0	32.2	20.6	17.6	–
1523	Square H	multi	chalcedony	26.0	22.5	15.1	6.1	–
1524	Square H	multi	chalcedony	23.0	16.6	14.0	4.8	–
1526	Square H	multi	chert	32.0	20.6	19.4	14.4	–
1527	Square H	multi	chert	44.0	36.2	29.6	28.2	cortex present
1571	Square H	multi	chalcedony	42.0	31.6	27.1	34.5	–
1572	Square H	multi	chalcedony	24.0	19.5	11.1	5.0	–
1573	Square H	multi	chalcedony	28.0	17.5	16.9	6.5	–
1599	Square H	–	quartz	40.0	33.0	–	–	missing
1601	Square H	–	quartz	45.0	27.0	–	–	missing
1320	H-1, 20-30	–	chalcedony	50.0	–	–	–	missing
1329	H-3, 10-20	–	chalcedony	50.0	–	–	–	missing
1330	H-3, 10-20	–	chalcedony	62.0	–	–	–	missing
633	TU-A, 20-30	–	chalcedony	–	–	–	–	missing
Locus B								
027	surface	–	chalcedony	90.0	60.0	47.0	–	missing
029	surface	–	chalcedony	43.0	38.0	28.0	–	missing
030	surface	–	chalcedony	50.0	47.0	32.0	–	missing
031	surface	–	chert	42.0	40.0	22.0	–	missing
037	surface	–	chert	38.0	38.0	18.0	–	missing
038	surface	–	rhyolite	45.0	28.0	20.0	–	missing
041	surface	–	rhyolite	45.0	44.0	37.0	–	missing
046	surface	–	chert	38.0	35.0	19.0	–	missing, hammerstone
047	surface	–	chert	60.0	45.0	43.0	–	missing
578	TU-4, 10-20.	–	rhyolite	–	–	–	–	missing
580	TU-4, 10-20.	multi	chalcedony	21.0	14.1	12.6	4.7	–
616	TU-4, 30-floor	multi	chalcedony	24.0	15.9	13.9	4.1	–
617	TU-4, 30-floor	multi	chalcedony	21.0	17.5	15.1	5.6	–
618	TU-4, 30-floor	multi	chalcedony	19.0	17.1	10.7	2.8	–
700	TU-C, surface	–	rhyolite	–	65.0	31.0	–	missing
704	TU-C, surface	–	rhyolite	50.0	33.0	–	–	missing
829	TU-C, 0-10.	–	rhyolite	–	–	–	–	missing
830	TU-C, 0-10.	–	chalcedony	–	–	–	–	missing
831	TU-C, 0-10.	–	chalcedony	–	–	–	–	missing

Table 18. Continued.

Cat. No.	Provenience	Direction	Material	Length	Width	Thick	Wt	Comments
832	TU-C, 0-10.	–	chalcedony	–	–	–	–	missing
833	TU-C, 0-10.	–	chalcedony	–	–	–	–	missing
901	TU-C, 10-20	–	chalcedony	25.0	20.0	–	–	missing
974	TU-C, 20-30	–	chalcedony	95.0	49.0	–	–	missing
1120	TU-D, 20-30	–	chalcedony	6.0	3.0	–	–	missing
1198	TU-E, 0-10	–	chalcedony	35.0	23.0	22.0	–	missing
1300	TU-E, 20-30	multi	chalcedony	35.0	30.0	20.0	18.6	hammerstone
1288	TU-F, 20-30	–	chert	–	–	–	–	missing
1737	Square J	–	chalcedony	58.0	40.0	28.0	–	missing
1751	Square J	–	rhyolite	68.0	25.0	23.0	–	missing
1752	Square J	–	rhyolite	29.0	25.0	17.0	–	missing
1753	Square J	–	chalcedony	35.0	30.0	20.0	–	missing
1754	Square J	–	chalcedony	35.0	35.0	12.0	–	missing
1612a	Square J	–	rhyolite	–	–	–	–	missing
1612b	Square J	–	rhyolite	–	–	–	–	missing

Note: Metrics in millimeters and grams.

of small bifaces and points; the cores then became too small, and few of the recovered specimens are now large enough to produce flakes that could be used to manufacture even small projectile points.

Hammerstones

Only six hammerstones were identified at the site, each an expended core that had then been used as a hammer (see Table 18). Given the apparent level of lithic activity at the site, the paucity of hammerstones is surprising.

Modified Flakes

A total of 221 modified flakes (Table 19) were recovered, 35 of which came from the general surface. Of the remaining 186 specimens, 66 were found in Locus A, including 44 within Square H and 13 in HR-2. At Locus B, 42 came from TU-D, 24 from TU-C, and 34 from Square J. Most of the modified flakes were chalcedony (98, 44.5 percent), 88 (40.0 percent) were obsidian, 14 (5.9 percent) were rhyolite, and the remainder were quartz (n = 8), jasper (n = 5), chert (n = 5), basalt (n = 2), and unidentified (n = 1). Most of these specimens are missing.

The edges of stone tools and flakes can be modified in a number of ways, by use such as cutting or by natural means such as trampling. Thus, in the absence of formal use wear studies (none was conducted on the KER-769 materials), caution in interpretation is warranted. Nevertheless, the relative abundance of edge-modified flakes within HP-2 suggests that activities involving some usage of flakes were important there. The relatively large number of obsidian specimens suggests that very sharp flakes were required for the tasks at hand.

Table 19. Provenience and Attributes of Modified Flakes from CA-KER-769.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
General Surface								
078	surface	fragment	basalt	65.0	53.0	–	–	missing
082	surface	complete	rhyolite	34.0	20.0	–	–	missing
086	surface	complete	chalcedony	45.0	35.0	–	–	missing
114	surface	complete	chalcedony	15.0	15.0	5.0	–	missing
142	surface	complete	obsidian	25.0	10.0	–	–	missing
145	surface	fragment	chalcedony	30.0	20.0	–	–	missing
168	surface	complete	chalcedony	32.0	20.0	–	–	missing
200	surface	complete	quartz	15.0	15.0	–	–	missing, 2 worked edges
201	surface	complete	obsidian	12.0	–	–	–	missing
219	surface	complete	quartz	15.0	14.0	–	–	missing
220	surface	complete	obsidian	22.0	18.0	–	–	missing
222	surface	complete	obsidian	18.0	9.0	–	–	missing
223	surface	complete	obsidian	17.0	11.0	–	–	missing
224	surface	complete	chalcedony	25.0	17.0	–	–	missing
225	surface	complete	chalcedony	28.0	18.0	–	–	missing
226	surface	complete	chalcedony	24.0	15.0	–	–	missing, 2 worked edges
229	surface	complete	chalcedony	42.0	37.0	3.5	–	missing, 2 worked edges
231	surface	complete	quartz	60.0	40.0	–	–	missing
244	surface	complete	chalcedony	23.0	13.0	2.0	–	missing
277	surface	complete	chalcedony	25.0	12.0	–	–	missing
278	surface	complete	rhyolite	60.0	27.0	–	–	missing
279	surface	complete	chert	38.0	32.0	30.0	–	missing
281	surface	complete	obsidian	22.0	20.0	–	–	missing
282	surface	complete	obsidian	11.0	10.0	–	–	missing
283	surface	complete	obsidian	17.0	16.0	–	–	missing
284	surface	complete	obsidian	16.0	0.9	0.6	–	missing
285	surface	complete	obsidian	13.0	12.0	–	–	missing
286	surface	complete	obsidian	15.0	12.0	–	–	missing
287	surface	complete	obsidian	10.0	8.0	–	–	missing
290	surface	fragment	rhyolite	54.0	39.0	–	–	missing
296	surface	complete	chalcedony	45.0	40.0	–	–	missing
311	surface	complete	chalcedony	30.0	19.0	–	–	missing
376	surface	complete	chalcedony	31.0	12	–	–	missing
382	surface	complete	rhyolite	47.0	25	–	–	missing
397	surface	complete	rhyolite	60.0	28	–	–	missing
Locus A								
013	surface	fragment	obsidian	25.0	12.0	3.0	–	missing
014	surface	fragment	obsidian	35.0	15.0	–	–	missing

Table 19. Continued.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
015	surface	fragment	obsidian	30.0	20.0	4.0	–	missing
016	surface	fragment	obsidian	19.0	16.0	4.0	–	missing, 2 worked edges
020	surface	complete	quartz	15.0	15.0	–	–	missing
024	surface	fragment	chalcedony	50.0	45.0	15.0	–	missing
1486	Square H	–	obsidian	16.0	12.0	–	–	missing
1487	Square H	–	chalcedony	5.0	5.0	–	–	missing
1488	Square H	–	chalcedony	27.0	20.0	–	–	missing
1489	Square H	–	chert	25.0	20.0	–	–	missing
1508	Square H	–	obsidian	22.0	12.0	2.0	–	missing
1509	Square H	–	unidentified	50.0	26.0	8.0	–	missing
1510	Square H	–	jasper	24.0	12.0	3.0	–	missing
1535	Square H	–	obsidian	27.0	9.0	3.0	–	missing
1538	Square H	–	obsidian	16.0	14.0	–	–	missing
1542	Square H	–	obsidian	12.0	10.0	–	–	missing
1546	Square H	–	quartz	16.0	10.0	8.0	–	missing
1547	Square H	–	chalcedony	16.0	7.0	5.0	–	missing
1548	Square H	–	chalcedony	31.0	22.0	–	–	missing
1549	Square H	–	chalcedony	34.0	27.0	–	–	missing
1550	Square H	–	chalcedony	7.0	5.0	–	–	missing
1554	Square H	–	obsidian	33.0	18.0	–	–	missing
1555	Square H	–	obsidian	17.0	14.0	–	–	missing
1556	Square H	–	jasper	12.0	10.0	–	–	missing
1558	Square H	–	obsidian	14.0	14.0	–	–	missing
1574	Square H	–	chert	15.0	15.0	–	–	missing
1575	Square H	–	obsidian	20.0	21.0	–	–	missing
1576	Square H	–	obsidian	14.0	12.0	–	–	missing
1580	Square H	–	obsidian	14.0	11.0	–	–	missing
1581	Square H	–	rhyolite	28.0	10.0	–	–	missing
1582	Square H	–	obsidian	18.0	10.0	–	–	missing
1583	Square H	–	obsidian	7.0	7.0	–	–	missing
1584	Square H	–	obsidian	25.0	15.0	–	–	missing
1586	Square H	–	obsidian	11.0	10.0	–	–	missing
1588	Square H	–	chalcedony	16.0	14.0	–	–	missing
1589	Square H	–	obsidian	12.0	5.0	–	–	missing
1590	Square H	–	obsidian	12.0	8.0	–	–	missing
1316	H-1, 10-20	–	chalcedony	12.0	11.0	–	–	missing
1332	H-3, 10-20	–	obsidian	10.0	–	–	–	missing
1337	H-3, 10-20	complete	chalcedony	29.0	24.0	–	–	missing
1350	H-5, 0-10	–	chalcedony	18.0	20.0	–	–	missing

Table 19. Continued.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
1353	H-5, 0-10	–	chalcedony	20.0	17.0	–	–	missing
1354	H-5, 0-10	–	chalcedony	25.0	20.0	–	–	missing
1355	H-5, 0-10	–	chalcedony	39.0	28.0	–	–	missing
1380	H-5, 30-40	–	chalcedony	22.0	21.0	4.0	–	missing
1382	H-5, 30-40	–	chalcedony	44.0	42.0	22.0	–	missing
1395	H-6, 50-60	–	rhyolite	15.0	3.0	–	–	missing
1407	H-6, 60-70	–	jasper	45.0	17.0	–	–	missing
1413	H-7, 0-10	–	chalcedony	42.0	26.0	–	–	missing
1462	H-9, 40-50	–	chalcedony	27.0	19.0	–	–	missing
1805	HR-2, NE ¼, surface	–	chert	25.0	20.0	–	–	missing
1806	HR-2, NE ¼, surface	–	chalcedony	33.0	20.0	7.0	–	missing
1809	HR-2, NE ¼, surface	–	rhyolite	46.0	22.0	–	–	missing
1825	HR-2, SW ¼, surf to floor	–	obsidian	11.0	9.0	–	–	missing
1826	HR-2, SW ¼, surf to floor	–	chalcedony	35.0	25.0	7.5	–	missing
1827	HR-2, SW ¼, surf to floor	–	chalcedony	21.0	13.0	7.5	–	missing
1828	HR-2, SW ¼, surf to floor	–	chalcedony	25.0	20.0	10.0	–	missing
1842	HR-2, SW ¼, surf to floor	–	obsidian	19.0	9.0	4.0	–	missing
1882	HR-2, NE ¼, to floor	–	obsidian	17.0	12.0	4.5	–	missing
1883	HR-2, NE ¼, to floor	–	chalcedony	23.0	21.0	5.0	–	missing
1884	HR-2, NE ¼, surface	–	chalcedony	25.0	16.0	–	–	missing
1885	HR-2, NE ¼, surface	–	chalcedony	26.0	22.0	12.0	–	missing
1886	HR-2, SW ¼	–	chalcedony	31.0	24.0	9.0	–	missing
630	TU-A, 10-20	complete	obsidian	–	–	–	–	missing
640	TU-A, 20-30	complete	obsidian	13.0	–	5.0	–	missing
414	TU-1, 0-10	complete	chalcedony	40.0	25.0	12.0	–	missing
Locus B								
034	surface	fragment	chalcedony	29.0	27.0	–	–	missing
036	surface	fragment	chalcedony	22.0	22.0	5.0	–	missing
044	surface	complete	chalcedony	50.0	20.0	13.0	–	missing
045	surface	complete	chalcedony	43.0	39.0	9.0	–	missing
060	surface	complete	obsidian	–	–	–	–	missing
061	surface	complete	obsidian	22.0	20.0	–	–	missing
065	surface	fragment	obsidian	45.0	28.0	–	–	missing
448	TU-2, surface	fragment	chalcedony	36.0	20.0	10.0	–	missing
468	TU-2, 10-20	complete	obsidian	–	–	–	–	missing
469	TU-2, 10-20	complete	obsidian	–	–	–	–	missing
505	TU-2, 30-base	complete	chalcedony	42.0	20.0	–	–	missing
540	TU-4, surface	complete	jasper	29.0	11.0	–	–	missing
599	TU-4, 30-floor	complete	obsidian	8.0	5.0	–	–	missing

Table 19. Continued.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
600	TU-4, 30-floor	fragment	obsidian	18.0	10.0	–	–	missing
691	TU-C, surface	complete	obsidian	18.0	17.0	16.0	–	missing
701	TU-C, surface	complete	chalcedony	–	–	–	–	missing
702	TU-C, surface	complete	chalcedony	35.0	30.0	–	–	missing
734	TU-C, surface	complete	obsidian	20.0	13.0	–	–	missing
735	TU-C, surface	complete	chalcedony	30.0	18.0	18.0	–	missing
736	TU-C, surface	fragment	chalcedony	34.0	21.0	–	–	missing
737	TU-C, surface	complete	chalcedony	35.0	19.0	–	–	missing
738	TU-C, surface	complete	chalcedony	37.0	24.0	–	–	missing
841	TU-C, 0-10	complete	chalcedony	40.0	20.0	11.0	–	missing
851	TU-C, 0-10	complete	chalcedony	25.0	–	5.5	–	missing
852	TU-C, 0-10	complete	chalcedony	30.0	26.0	12.0	–	missing
853	TU-C, 0-10	complete	chalcedony	31.0	31.0	10.0	–	missing
854	TU-C, 0-10	complete	chalcedony	22.0	18.0	–	–	missing
855	TU-C, 0-10	complete	obsidian	21.0	18.0	3.0	–	missing
860	TU-C, 0-10	fragment	chalcedony	37.0	15.0	–	–	missing
861	TU-C, 0-10	complete	chalcedony	21.0	13.0	–	–	missing
862	TU-C, 0-10	complete	chalcedony	20.0	13.0	–	–	missing
864	TU-C, 10-20	complete	obsidian	30.0	25.0	–	–	missing
867	TU-C, 10-20	complete	chalcedony	12.0	10.0	–	–	missing
922	TU-C, 10-20	fragment	obsidian	15.0	12.0	–	–	missing
933	TU-C, 10-20	complete	obsidian	13.0	10.0	–	–	missing
939	TU-C, 10-20	fragment	chalcedony	23.0	15.0	–	–	missing
940	TU-C, 10-20	fragment	chalcedony	19.0	18.0	–	–	missing
975	TU-C, 20-30	complete	chalcedony	41.0	13.0	7.0	–	missing
1049	TU-D, 0-10	–	obsidian	1.7	1.2	–	–	missing
1051	TU-D, 0-10	–	obsidian	1.5	1.5	–	–	missing
1052	TU-D, 0-10	–	obsidian	2.0	1.5	–	–	missing
1053	TU-D, 0-10	–	obsidian	9.0	7.0	–	–	missing
1055	TU-D, 0-10	–	obsidian	1.5	1.0	–	–	missing
1057	TU-D, 0-10	–	chalcedony	1.7	1.2	–	–	missing
1058	TU-D, 0-10	–	chalcedony	2.5	1.7	–	–	missing
1059	TU-D, 0-10	–	chalcedony	2.6	1.3	–	–	missing
1060	TU-D, 0-10	–	chalcedony	2.7	3.5	–	–	missing
1061	TU-D, 0-10	–	chalcedony	2.7	2.7	–	–	missing
1062	TU-D, 0-10	–	chalcedony	3.0	2.8	–	–	missing
1063	TU-D, 0-10	–	chalcedony	3.0	2.2	–	–	missing
1064	TU-D, 0-10	–	rhyolite	2.7	2.2	–	–	missing
1065	TU-D, 0-10	–	rhyolite	1.5	7.0	–	–	missing

Table 19. Continued.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
1066	TU-D, 0-10	–	rhyolite	1.5	1.5	–	–	missing
1067	TU-D, 0-10	–	chalcedony	1.5	2.0	–	–	missing
1068	TU-D, 0-10	–	chalcedony	2.7	1.2	–	–	missing
1069	TU-D, 0-10	–	chalcedony	1.4	4.0	–	–	missing
1025	TU-D, 10-20	–	rhyolite	21.0	30.0	–	–	missing
1026	TU-D, 10-20	–	chalcedony	28.0	25.0	–	–	missing
1028	TU-D, 10-20	–	chalcedony	42.0	20.0	–	–	missing
1031	TU-D, 10-20	–	obsidian	1.6	0.9	–	–	missing
1032	TU-D, 10-20	–	obsidian	1.6	1.1	–	–	missing
1033	TU-D, 10-20	–	obsidian	2.4	1.2	–	–	missing
1034	TU-D, 10-20	–	obsidian	1.6	1.1	–	–	missing
1035	TU-D, 10-20	–	obsidian	1.0	0.7	–	–	missing
1036	TU-D, 10-20	–	obsidian	1.2	0.6	–	–	missing
1122	TU-D, 20-30	–	obsidian	1.5	1.3	–	–	missing
1123	TU-D, 20-30	–	obsidian	2.0	0.8	–	–	missing
1130	TU-D, 20-30	–	chalcedony	20.0	10.0	3.0	0.8	–
1107	TU-D, 20-30	–	chalcedony	2.8	2.3	–	–	missing
1108	TU-D, 20-30	–	chalcedony	2.7	1.7	–	–	missing
1109	TU-D, 20-30	–	obsidian	1.1	1.1	–	–	missing
1110	TU-D, 20-30	–	chalcedony	3.5	1.3	–	–	missing
1111	TU-D, 20-30	–	chalcedony	3.0	1.2	–	–	missing
1114	TU-D, 20-30	–	chalcedony	2.5	1.7	–	–	missing
1152	TU-D, 50-60	–	chalcedony	24.0	21.0	–	–	missing
1167	TU-D, 60-base	–	chalcedony	50.0	–	–	–	missing
1168	TU-D, 60-base	–	chalcedony	28.0	23.0	–	–	missing
1171	TU-D, 60-base	–	chalcedony	25.0	20.0	–	–	missing
1172	TU-D, 60-base	–	chalcedony	20.0	20.0	–	–	missing
1176	TU-D, 60-base	fragment	obsidian	19.0	17.0	7.0	–	missing
1187	TU-E, surface	–	chalcedony	27.0	21.0	–	–	missing
1258	TU-F, 10-20	–	chalcedony	21.0	16.5	8.5	–	missing
1259	TU-F, 10-20	–	chalcedony	19.0	12.0	4.5	–	missing
1289	TU-F, 20-30	–	chalcedony	50.0	29.0	16.0	–	missing
1290	TU-F, 20-30	–	chalcedony	19.0	18.0	–	–	missing
1304	TU-F, rodent hole	–	obsidian	12.0	10.0	–	–	missing
1695	Square J	–	chalcedony	80.0	52.0	–	–	missing
1696	Square J	–	obsidian	18.0	12.0	–	–	missing
1701	Square J	–	chert	35.0	17.0	–	–	missing

Table 19. Continued.

Cat. No.	Provenience	Condition	Material	Length	Width	Thick	Wt	Comments
1702	Square J	–	quartz	30.0	15.0	–	–	missing
1703	Square J	–	chalcedony	35.0	27.0	–	–	missing
1704	Square J	–	chalcedony	23.0	10.0	–	–	missing
1705	Square J	–	chalcedony	14.0	10.0	–	–	missing
1706	Square J	–	chalcedony	23.0	15.0	–	–	missing
1707	Square J	–	chalcedony	30.0	23.0	–	–	missing
1715	Square J	–	obsidian	18.0	13.0	–	–	missing
1716	Square J	–	obsidian	25.0	14.0	–	–	missing
1717	Square J	–	obsidian	19.0	15.0	–	–	missing
1719	Square J	–	obsidian	20.0	7.0	–	–	missing
1720	Square J	–	obsidian	17.0	7.0	–	–	missing
1721	Square J	–	jasper	13.0	12.0	–	–	missing
1723	Square J	–	obsidian	13.0	11.0	–	–	missing
1724	Square J	–	obsidian	14.0	9.0	–	–	missing
1727	Square J	–	obsidian	18.0	7.0	–	–	missing
1728	Square J	–	obsidian	11.0	10	–	–	missing
1729	Square J	–	obsidian	11.0	8.0	–	–	missing
1730	Square J	–	obsidian	10.0	7.0	–	–	missing
1732	Square J	–	obsidian	24.0	15.0	–	–	missing
1734	Square J	–	obsidian	9.0	8.0	–	–	missing
1735	Square J	–	rhyolite	42.0	18.0	–	–	missing
1736	Square J	–	basalt	67.0	32.0	14.0	–	missing
1755	Square J	–	rhyolite	28.0	25.0	15.0	–	missing
1757	Square J	–	obsidian	17.0	12.0	–	–	missing
1758	Square J	–	obsidian	20.0	5.0	–	–	missing
1759	Square J	–	obsidian	19.0	14.0	–	–	missing
1760	Square J	–	obsidian	32.0	–	–	–	missing
1777	Square J	–	obsidian	10.0	9.0	4.0	–	missing
1778	Square J	–	quartz	24.0	24.0	–	–	missing
1780	Square J	–	quartz	17.0	9.0	–	–	missing
1799	Square J	–	obsidian	35.0	20.0	–	–	missing

Note: Metrics in millimeters and grams.

Debitage

Debitage was the most common constituent of the cultural materials recovered from KER-769 during the 1971 excavations. The original debitage total was 12,268 flakes (see Table 20), but during the 2011 analysis, it was discovered that 971 pieces were missing from the collection. All the debitage was recovered using either 1/8-in (3.2 mm) or 1/16-in (1.6 mm) mesh screens. Given the size of the debitage subassemblage and the number of missing specimens, debitage technological analyses were conducted on one subsample each from Locus A (HR-2) and Locus B (TU-D) for comparative purposes. These subsamples were selected as the debitage was mostly present from those units. The debitage study described below first provides a general description of the material types and observed trends, followed by a more formal technological analysis.

Most of the debitage was chalcedony (n = 7,494), followed by chert (n = 2,141) and obsidian (n = 1,839), all fine-grained materials. Coarse-grained materials included rhyolite (n = 455), basalt (n = 54), and quartzite (n = 51). Other materials occurred in smaller numbers (see Table 20). The strong preference for fine-grained over coarse-grained lithics is not surprising given the greater ease in reducing fine-grained lithics and its local availability.

Trends in Flake Production

Of the 1,659 flakes in the analyzed debitage sample, there were only two (0.1 percent) cortical flakes (one chalcedony and one rhyolite) and 54 (3.3 percent) partially cortical flakes (30 of chalcedony, 13 of chert, 9 of rhyolite, 1 of quartzite, and 1 of basalt). The low incidence of cortical and partially cortical flakes suggests that primary reduction activities were most likely being conducted off site, resulting in few such flakes entering the site deposit.

Technological Analysis

Debitage can be classified in a number of ways. Here, flakes were classified based on cortex, specifically primary flakes (with their dorsal aspect completely covered by cortex), secondary flakes (those having some cortex on their dorsal aspect), and tertiary flakes (those having no cortex).

In addition, flakes were classified by general flake type, including biface thinning flakes, notching flakes (from making the notches found in certain projectile points), pressure flakes, bipolar flakes, and nondiagnostic reduction flakes. The most diagnostic type is the biface thinning flake, usually curved in cross section longitudinally from the platform to the termination. Early versus late stage biface thinning flakes were differentiated by the complexity of the dorsal surface topography (number of remnant flake scars) and the flake curvature. The purpose of identifying, separating, and quantifying biface thinning flakes by early and late stages is to define the stage of lithic reduction activity occurring at the site. The nondiagnostic reduction flakes reflect general tool manufacture, maintenance, or rejuvenation.

The technological debitage analysis was conducted on the extant debitage from HR-2 (in Locus A) and TU-D (on Locus B). The sample consisted of 1,659 flakes (13.5 percent of the total debitage collection), 429 from HR-2 (Table 21) and 1,230 from TU-D (Table 22). As is often found in debitage analyses, nondiagnostic reduction flakes (n = 1,284 [77.4 percent], including partially cortical and noncortical shatter and fragments) far outnumbered diagnostic flakes (n = 375 [22.6 percent]).

A total of 83 biface thinning flakes (5.0 percent of the sample) were identified in the sample; 10 of obsidian, 55 of chalcedony, 17 of chert (all fine-grained lithics), and only one of rhyolite (a coarse-grained stone).

Table 20. Distribution of Lithic Debitage by Provenience at CA-KER-769.

Unit	Andesite	Basalt	Chalcedony	Chert	Jasper	Obsidian	Quartz	Quartzite	Rhyolite	Misc.	Totals	Percent by Provenience
General Surface												
surface	6 (11.8)	2 (10.1)	1,267 (2,870.5)	270 (1,323.3)	26 (71.7)	209 (72.6)	1 (13.9)	–	77 (442.0)	1 (–)	1,859 (4,815.9)	15.1
Locus A												
Locus A, surface	–	–	70 (–)	–	–	2 (–)	–	–	8 (–)	6 (–)	86 (–)	0.7
HR-2	3 (2.4)	17 (6.6)	275 (236.1)	83 (94.5)	5 (5.9)	56 (8.1)	–	–	19 (43.5)	1 (2.2)	459 (399.3)	3.7
Square H	5 (4.2)	10 (9.9)	1,159 (760.4)	361 (542.9)	37 (102.7)	260 (38.4)	3 (7.0)	–	51 (58.6)	–	1,886 (1,524.1)	15.4
H units (all)	–	5 (0.7)	571 (175.9)	92 (57.6)	2 (1.9)	172 (12.6)	3 (0.5)	–	35 (38.1)	–	880 (287.3)	7.2
TU-A	–	–	59 (24.1)	11 (25.1)	1 (0.1)	29 (4.1)	–	9 (–)	1 (–)	–	110 (53.4)	0.9
TU-1	–	–	43 (4.0)	8 (1.1)	1 (0.2)	35 (1.8)	2 (0.1)	1 (–)	7 (5.5)	–	97 (12.7)	0.8
Locus A Subtotals	8 (6.6)	32 (17.2)	2,177 (1,200.5)	555 (721.2)	46 (110.8)	554 (65.0)	8 (7.6)	10 (–)	121 (145.7)	7 (2.2)	3,518 (2,276.8)	–
Locus B												
Locus B, surface	–	–	74 (393.0)	33 (169.3)	–	1 (0.4)	–	–	7 (33.9)	–	115 (596.6)	0.9
TU-B	–	–	15 (6.4)	4 (0.5)	–	6 (0.6)	–	–	1 (–)	–	26 (7.5)	0.2
TU-C	–	1 (2.4)	776 (667.6)	260 (212.1)	32 (46.9)	293 (20.2)	–	5 (5.0)	29 (126.8)	1 (9.4)	1,397 (1,090.4)	11.4
TU-D	2 (3.3)	11 (3.7)	849 (514.2)	308 (323.1)	3 (2.6)	204 (8.6)	4 (29.3)	2 (0.9)	75 (32.8)	1 (1.1)	1,459 (919.6)	12.0
TU-E	1 (5.3)	–	18 (37.3)	2 (0.8)	–	17 (3.4)	–	–	3 (2.4)	–	41 (49.2)	0.3
TU-F	–	4 (4.9)	180 (139.1)	59 (23.7)	5 (2.2)	76 (7.0)	2 (0.7)	1 (4.4)	10 (0.6)	–	337 (182.6)	2.7
TU-2	–	–	318 (79.5)	23 (22.7)	–	49 (3.3)	1 (4.4)	–	25 (3.1)	4 (10.9)	420 (123.9)	3.4
TU-3	–	1 (0.1)	20 (25.6)	2 (0.1)	–	5 (0.2)	2 (0.1)	–	3 (1.1)	2 (0.3)	35 (27.5)	0.3
TU-4	–	2 (0.6)	118 (78.2)	25 (17.9)	–	42 (4.3)	–	–	9 (3.9)	–	196 (104.9)	1.6
Square J	–	1 (0.1)	1,682 (1,159.6)	600 (870.1)	71 (88.8)	383 (39.6)	–	33 (56.0)	95 (95.6)	–	2,865 (2,309.8)	23.4
Locus B Subtotals	3 (8.6)	20 (11.8)	4,050 (3,100.5)	1,316 (1,640.3)	111 (140.5)	1,076 (87.6)	9 (34.5)	41 (66.3)	257 (300.2)	8 (21.7)	6,891 (5,412.0)	–
Grand Totals	17 (27.0)	54 (39.1)	7,494 (7,171.5)	2,141 (3,684.8)	183 (323.0)	1,839 (216.2)	18 (56.0)	51 (66.3)	455 (887.9)	16 (23.9)	12,268 (12,504.7)	–
Percent by Material	0.1	0.5	61.1	17.5	1.5	15.0	0.1	0.4	3.7	0.1	–	100

Note: Number/Weight (in grams). A total of 971 pieces of debitage of various materials are missing from the collection, including 671 of chalcedony, 5 of chert, 219 of obsidian, 2 of quartz, 10 of quartzite, 60 of rhyolite, and one each of andesite, sandstone, siltstone, and unidentified. The numbers of the missing pieces are included in the table, but their weights are unknown.

Table 21. Debitage by Flake Type and Material from HR-2 at CA-KER-769.

Flake Type/Material	Andesite	Basalt	Chalcedony	Chert	Jasper	Obsidian	Granite	Rhyolite	Totals
NW ¼ (surface and surface to floor; most material is missing)									
early biface	–/–/–	–/–/–	–/–/–	–/–/1	–/–/–	–/–/–	–/–/–	–/–/–	–/–/1
late biface	–/–/–	–/–/–	–/–/–	–/–/1	–/–/–	–/–/–	–/–/–	–/–/–	–/–/1
nondiagnostic reduction	–/–/–	–/–/–	–/–/–	–/–/20	–/–/–	–/–/–	–/–/–	–/–/–	–/–/20
core reduction	–/–/–	–/–/–	–/–/–	–/–/6	–/–/–	–/–/–	–/–/–	–/–/–	–/–/6
NE ¼ (surface and surface to floor)									
early biface	–/–/–	–/–/–	–/–/5	–/–/–	–/–/–	–/–/–	–/–/–	–/–/–	–/–/5
pressure	–/–/–	–/–/–	–/–/1	–/–/–	–/–/–	–/–/4	–/–/–	–/–/–	–/–/5
nondiagnostic reduction	–/–/2	–/–/10	–/1/115	–/–/7	–/–/3	–/–/30	–/–/1	–/–/11	–/1/179
core reduction	–/–/1	–/1/–	–/2/15	–/–/2	–/–/–	–/–/–	–/–/–	–/1/1	–/4/19
SW¼ (surface and surface to floor)									
early biface	–/–/–	–/–/–	–/–/1	–/–/–	–/–/–	–/–/–	–/–/–	–/–/–	–/–/1
pressure	–/–/–	–/–/–	–/–/1	–/–/–	–/–/–	–/–/2	–/–/–	–/–/–	–/–/3
nondiagnostic reduction	–/–/–	–/–/6	–/–/71	–/–/7	–/–/2	–/–/14	–/–/–	–/–/–	–/–/100
core reduction	–/–/–	–/–/–	–/2/15	–/–/2	–/–/–	–/–/3	–/–/–	–/2/2	–/4/22
SE ¼ (surface and surface to floor)									
early biface	–/–/–	–/–/–	–/–/4	–/–/–	–/–/–	–/–/–	–/–/–	–/–/–	–/–/4
nondiagnostic reduction	–/–/–	–/–/–	–/–/28	–/–/7	–/–/–	–/–/7	–/–/–	–/1/–	–/¼2
core reduction	–/–/–	–/–/–	–/4/5	–/–/2	–/–/–	–/–/–	–/–/–	–/–/–	–/4/7
Totals	–/–/3	–/1/16	–/9/261	–/–/55	–/–/5	–/–/60	–/–/1	–/4/14	–/14/415

Note: –/–/– denotes numbers of primary (all cortex), secondary (partial cortex), and tertiary (interior) flakes.

Of these, 68 were early stage, and 15 were late stage. Most (n = 71) came from Locus B, with only 12 from House Ring 2 in Locus A. The dominance of early stage biface thinning flakes suggests the possibility that rough bifaces and/or preforms may have occasionally been transported to the site prior to finishing. Measurements of the length and arc of the biface thinning flakes suggest that they were removed from bifaces that were between 10 and 70 mm wide, with most being between 30 and 50 mm.

Fifteen (0.9 percent) pressure flakes were identified, 12 of obsidian and three of chalcedony. This suggests that some bifaces (including projectile points) may have either been completed on the site or more likely were retouched on site.

Discussion

There is a large amount of debitage at the site, interpreted primarily as reflecting core reduction and general reduction. Recall that many projectile points (N = 125), bifaces (N = 57), cores (N = 117), and modified flakes (N = 221) were also found. The paucity of biface thinning flakes indicates that general biface reduction was not a major activity, suggesting that bifaces were brought to the site in relatively finished form (this is also supported by the virtual absence of

Table 22. Debitage by Flake Type and Material from TU-D at CA-KER-769.

Flake Type/Material	Andesite	Basalt	Chalcedony	Chert	Jasper	Obsidian	Quartzite	Rhyolite	Totals
0 to 10 cm									
early biface	–	–	–/–/16	–/–/3	–	–	–	–/–/1	–/–/20
late biface	–	–	–/–/2	–	–	–/–/7	–	–	–/–/9
pressure	–	–	–	–	–	–/–/5	–	–	–/–/5
nondiagnostic reduction	–	–	–/1/101	–/–/47	–	–/–/39	–	–/–/10	–/1/197
core reduction	–	–	–/4/25	–/5/9	–/–/2	–	–/–/2	1/–/4	1/9/42
10 to 20 cm									
early biface	–	–	–/–/6	–/–/11	–	–	–	–	–/–/17
nondiagnostic reduction	–	–	–/2/293	–/–/62	–/–/1	–/–/9	–	–/–/23	–/2/388
core reduction	–/–/1	–/–/9	1/2/23	–/4/19	–	–	–	–/2/5	1/8/57
20 to 30 cm									
early biface	–	–	–/1/7	–	–	–	–	–	–/1/7
late biface	–	–	–	–	–	–/–/2	–	–	–/–/2
pressure	–	–	–/–/1	–	–	–/–/1	–	–	–/–2
nondiagnostic reduction	–	–	–/5/115	–/–/29	–	–/–/28	–	–/–/9	–/5/181
core reduction	–/–/1	–	–/1/15	–/1/8	–	–	–	–	–/2/24
30 to 40 cm									
early biface	–	–	–/–/6	–	–	–	–	–	–/–/6
nondiagnostic reduction	–	–	–/–/15	–/–/14	–	–/–/2	–	–/–/1	–/–/32
core reduction	–	–	–/–/6	–/–/4	–	–	–	–	–/–/10
40 to 50 cm									
early biface	–	–	–/–3	–	–	–	–	–	–/–3
nondiagnostic reduction	–	–/–/2	–/–/33	–/–/8	–	–/–5	–	–/–1	–/–/49
core reduction	–	–	–/1/5	–/2/6	–	–	–	–/1/2	–/4/13
50 to 60 cm (most material from this level is missing)									
late biface	–	–	–	–	–	–/–/1	–	–	–/–/1
nondiagnostic reduction	–	–	–	–	–	–/–/12	–	–	–/–/12
core reduction	–	–	–	–	–	–/–/1	–	–	–/–1
60 to base									
early biface	–	–	–/–/2	–/1/1	–	–	–	–	–/1/3
late biface	–	–	–/–/2	–	–	–	–	–	–/–2
nondiagnostic reduction	–	–	–/1/58	–/–/14	–	–/–6	–	–/–/5	–/1/84
core reduction	–	–	–/3/6	–/–/14	–	–	–/1/2	–/2/–	–/6/22
Totals	–/–/2	–/–/11	1/21/740	–/13/249	–/–/3	–/–/118	–/¼	1/5/61	2/40/1,188

Note: –/–/– denotes numbers of primary (all cortex), secondary (partial cortex), and tertiary (interior) flakes.

cortical flakes). Most of the bifaces were fairly small, perhaps intended to be projectile points. Coupled with the large number of points and the presence of both point tips and midsections, this could indicate that point manufacture was conducted at the site. However, the complete absence of obsidian cores suggests that the obsidian points were either made elsewhere or were made using flakes taken from relatively small bifacial cores or blanks that were expended in antiquity.

The presence of a considerable number of small expended cores and of many modified flakes suggests that the production of small flakes intended for cutting or scraping was also important. No bipolar cores or flakes were identified, although the presence of an "Apache Tear" (lapillus) nodule (see below) implies that some obsidian could have been reduced with that method.

Of some interest is the distribution of debitage by locus. While Locus A had the greater percentage (60 percent) of excavated volume, only 33.8 percent of the excavated debitage was recovered from this locus, with 66.2 percent being from Locus B. More cores came from Locus B (see Table 18), but the disparity is not that great. The meaning of this distribution remains unknown.

The origin of most of the lithic materials could not be definitively ascertained except for the obsidian, which came from the Coso Volcanic Field (Hughes 2010; see below). Most of the chalcedony, chert, and jasper was probably obtained from the Horse Canyon Agate Beds, located several kilometers to the east. No archaeological investigation of that quarry area has been undertaken, making comparisons impossible. The rhyolite likely originated in the Antelope Valley to the south.

The general character of the KER-769 lithic subassemblage is similar to that of nearby sites. For example, obsidian comprised 15 percent of the KER-769 sample (see Table 20), while KER-229 had 12.6 percent (Sutton et al. 2010:Table 11), KER-2357 had 11.8 percent (Ptomey 1991), and KER-230 had 15.7 percent (Allen and Burns 2008:Table 6). Neither biface reduction nor point manufacturing was identified as a major activity at any of these sites.

Modified Bone

One apparent awl fragment (Cat. No. 1700), measuring 7 x 10 mm, was found in Square J. Unfortunately, the piece is missing, and no further information is available. In addition, one bead of an unidentified bone (Cat. No. 603) was found in the 30 cm to floor level of TU-4. The specimen is disk-shaped and measures 6.0 mm in diameter by 1.5 mm thick and has a perforation diameter of 1.9 mm.

Pottery

A total of 71 small fragments (sherds) of pottery (see Table 23) were found at the site, seven of which are missing from the collection. All the extant specimens are brownware typical of the area (e.g., Tizon Brown), made using the paddle and anvil method. Most have a sand temper, are fairly thin, and come in a variety of colors due to discoloration that occurred during firing. Eighteen of the pieces were found on the general surface without locus provenience. Five pieces were found in Locus A and 48 in Locus B. All but one piece were found in the upper 20 cm of the deposit.

Most of the fragments (n = 64) are body sherds, but seven (two of which are missing) are very small rim sherds representing three different rim forms (see Figure 11). Four of the rims (Cat. Nos. 009, 054, 080, 692) are from vessels with wide openings, probably shallow bowls. The other rim (Cat. No. 752) seems to be from the neck of a wide-mouthed jar.

Two of the pieces are decorated, both with red paint. The jar rim (Cat. No. 752) is painted on the top of

Table 23. Provenience and Attributes of Brownware Pottery from CA-KER-769.

Cat. No.	Provenience	Type	Length	Width	Thick	Wt	Comments
General Surface							
099	surface	body	30.0	21.9	6.6	4.3	dark gray
073	surface	body	30.0	24.3	4.3	3.6	painted, two red stripes
074	surface	body	36.0	24.5	4.9	4.5	gray
075	surface	–	55.0	30.0	–	–	missing; gray
080	surface	rim	35.0	17.9	5.2	3.3	burned, probable bowl
081	surface	body	35.0	18.9	7.4	4.9	gray
102	surface	body	34.0	24.5	5.6	5.1	dark gray to brown
103	surface	body	47.0	28.4	4.9	9.3	dark gray to dark brown
104	surface	–	50.0	20	5.0	–	missing; dark gray interior; reddish brown exterior
105	surface	body	25.0	22.7	4.2	2.5	red/brown interior; gray/brown exterior
193	surface	body	37.0	24.1	5.5	6.6	black interior; brown exterior
194	surface	body	22.0	17.7	4.8	2.6	gray interior
195	surface	body	23.0	14.2	3.9	1.7	gray-black interior
196	surface	body	37.0	26.4	6.2	5.0	gray-brown
364	surface	body	30.0	20.3	6.0	4.7	–
366	surface	body	32.0	20.7	6.3	4.6	–
374	surface	body	22.0	21.1	4.6	2.2	–
404	surface	body	32.0	23.8	7.5	6.8	collected by ASA, ca. 1956
Locus A							
007	surface	body	24.0	20.5	3.7	2.2	red exterior, gray interior; some tool marks on both sides
008	surface	body	25.0	17.5	6.0	3.1	convex side is red; gray interior; fine sand temper
009	surface	rim	28.0	25.3	4.6	2.8	gray uneven surface; sand temper
1325	H-3, 10-20	rim	36.0	–	–	–	missing
1326	H-3, 10-20	body	44.0	30.6	4.7	8.1	–
Locus B							
053	surface	body	28.0	25.3	3.4	3.2	smoothed on both sides; exterior tool marks
054	surface	rim	26.0	21.1	4.8	3.7	reddish; interior and exterior tool marks; coarse temper, probable bowl
055	surface	body	43.0	20.0	6.4	6.4	reddish interior; smoothed tool marks; interior rough; sand temper
056	surface	body	24.0	19.4	5.3	2.5	reddish
057	surface	body	45.0	25.4	5.7	8.6	reddish; exterior smoothed with tool marks; interior rough; sand temper
455	TU-2, 0-10	body	23.0	19.2	3.7	2.6	grayish brown surface; red body; interior smoothed
472	TU-2, 10-20	body	23.0	18.4	4.3	2.8	red exterior; rough tan interior; sand temper
473	TU-2, 10-20	body	36.0	27.9	2.4	4.6	red exterior; fire blackened interior
474	TU-2, 10-20	body	32.0	22.9	3.8	4.5	red exterior; rough tan interior; sand temper

Table 23. Continued.

Cat. No.	Provenience	Type	Length	Width	Thick	Wt	Comments
475	TU-2, 10-20	–	10.0	62.0	7.0	–	missing, red exterior; rough tan interior; sand temper
537	TU-4, surface	body	15.0	14.0	4.4	1.0	–
560	TU-4, 0-10	body	22.0	14.4	3.6	1.2	tan exterior, gray interior; fine temper
587	TU-4, 20-30	body	21.0	18.9	4.7	2.7	fire blackened; sand temper
692	TU-C, surface	rim	30.0	16.4	4.4	2.4	blackened interior; reddish exterior, probable bowl
747	TU-C, 0-10	body	41.0	39.6	5.1	6.3	–
748	TU-C, 0-10	body	27.0	20.6	3.6	2.1	–
752	TU-C, 0-10	rim	29.0	26.0	4.6	3.4	top of rim painted red, two red stripes angled on neck, probable jar with recurved neck
827	TU-C, 0-10	body	30.0	17.4	6.6	4.4	–
866	TU-C ,10-20	body	60.0	25.3	5.5	9.1	blackened on one side and reddish on the other
1084	TU-D, 10-20	body	38.0	20.2	6.0	5.4	–
1085	TU-D, 10-20	body	1.6.0	1.6	6.3	2.6	–
1246	TU-F, 10-20	body	24.0	20.6	4.8	1.9	–
1264	TU-F, 10-20	body	17.0	16.8	4.5	1.3	–
1591	Square H	body	36.0	19.7	5.1	4.2	reddish brown exterior, gray interior
1592	Square H	body	29.0	18.6	4.8	2.9	charred brown on exterior
1593	Square H	body	41.0	28.8	5.9	9.8	charred brown on exterior
1680	Square J	body	16.0	13.1	5.5	0.9	–
1683	Square J	body	14.0	12.9	4.6	0.9	–
1685	Square J	body	16.0	11.9	4.1	0.7	–
1762	Square J	body	26.0	19.2	5.5	2.4	–
1763	Square J	body	32.0	28.9	6.0	5.9	–
1764	Square J	body	25.0	13.4	4.7	1.8	–
1801	Square J	body	33.0	11.5	4.6	1.7	–
1765	Square J	body	14.0	11.0	5.3	0.7	–
1767	Square J	body	39.0	30.0	5.4	5.8	–
1615	Square J	body	33.0	27.9	5.1	2.8	–
1616	Square J	body	25.0	21.8	5.3	2.7	–
1617	Square J	body	23.0	17.9	5.0	1.8	–
1678	Square J	body	22.0	13.0	5.0	1.7	–
1679	Square J	body	19.0	18.4	5.5	1.7	–
1681	Square J	body	25.0	22.1	5.0	2.5	grayish
1682	Square J	body	15.0	10.1	5.3	0.8	grayish
1684	Square J	body	21.0	18.8	4.2	1.5	one charred surface
1686	Square J	body	36.0	26.8	5.6	7.0	gray
1687	Square J	body	40.0	28.6	4.9	6.3	–
1688	Square J	rim	57.0	60.0	5.0	–	missing, gray, charred on the outside
1689	Square J	body	7.0	6.0	–	–	missing
1766	Square J	body	35.0	35.0	6.0	–	missing

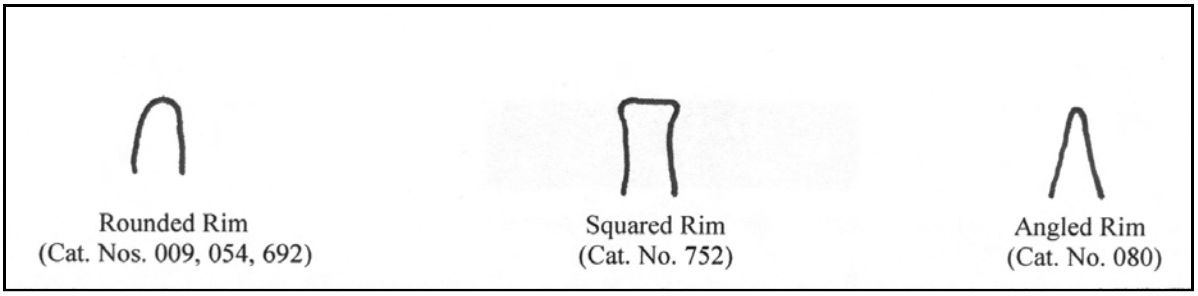

Figure 11. Pottery rim forms at CA-KER-769.

the rim with two small red stripes angled on the neck just below the rim. The other decorated piece (Cat. No. 073) is a body sherd with two small stripes of red paint. Decorated brownware pottery appears to be rare in the southern Sierra Nevada.

Pottery is a common constituent at sites in the southern Sierra Nevada, although usually in small quantities. A relatively large number of specimens (approximately 700) were found at the KER-230 site (Allen and Burns 2008) located just west of KER-769, while other sites in the immediate area contain far fewer specimens (Ptomey 1991; Hinshaw and Rubin 1996; Huerta 2002; Sutton et al. 2010). Robinson (1982) reported the recovery of two pottery vessels in the area of KER-769, both brownware and bowl-like. One of the specimens was decorated with a thin groove around its rim. Zigmond (1986:401) noted that, "In all likelihood pottery-making was never an important industry [among the Kawaiisu]…Pottery may have been traded in, rather than made locally, for example, Owens Valley Brownware." Currently, there is no evidence of pottery being manufactured at the site.

Shell Beads

A total of 349 shell beads were recovered, including 333 of *Olivella*, six of *Mytilus*, five of *Haliotis*, four of unidentified clam, and one of *Dentalium*. Three pieces of unmodified shell were also found. Seventy-seven of the beads were found in Square J.

***Olivella* Beads**

Among the 333 *Olivella biplicata* beads that were recovered, five classes were identified (three specimens could not be classified to type, see Table 24). Each of the classes and types is discussed below.

Five spire-ground *O. biplicata* beads (Class A1a, small spire-lopped) (Bennyhoff and Hughes 1987:118) were found in Locus B (Table 24), three of which came from TU-C. This type has no firm temporal significance, although it is more common in Late Period contexts (Bennyhoff and Hughes 1987:117).

A total of 11 lipped *O. biplicata* beads (Class E) (Bennyhoff and Hughes 1986:127-129) were recovered (Table 25). Ten came from Locus B, and five of those came from TU-C. Of the 11 Class E specimens, six are E1a round thin lipped, two are E1 thin lipped, two are E1b oval thin lipped, and one is E2 thick lipped. Class E beads date late in time, after ca. 500 BP.

Forty-seven *Olivella* saucer beads (Class G) (Bennyhoff and Hughes 1987:132) were identified (Table 26), only one of which came from Locus A. Of the 46 specimens from Locus B, 16 came from TU-C and 12 from Square J. All but one of the Class G beads were G1 tiny saucers, the exception being a G4 ground saucer from TU-D. Seven of the beads (including the G4 specimen) were burned, four of which were from TU-C. Class G beads lack temporal significance.

Table 24. Unclassified and Class A1a *Olivella* Beads from CA-KER-769.

Cat. No.	Provenience	Type	Thickness	Length	Diameter	Perforation Diameter	Comments
Locus B							
894	TU-C, 10-20	unclassified	–	N/A	–	–	fragment, burned
895	TU-C, 10-20	unclassified	0.9	N/A	–	–	fragment, burned
1672	Square J	unclassified	0.8	N/A	–	–	fragment, burned
801	TU-C, 0-10	A1a	N/A	8.9	5.8	1.4	–
951	TU-C, 10-20	A1a	N/A	10.9	6.4	1.8	–
967	TU-C, 10-20	A1a	N/A	4.3	1.5	1.3	–
1075	TU-D, 0-10	A1a	N/A	6.0	4.2	2.5	fragment
1618	Square J	A1a	N/A	8.9	5.5	2.0	–

Notes: Classified following Bennyhoff and Hughes (1987); metrics in millimeters.

Table 25. Class E *Olivella* Beads from CA-KER-769.

Cat. No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter
1359	H-5, 10-20	E1a round thin lipped	9.0	3.8	3.0
492	TU-2, 10-20	E2 thick lipped; conical perforation	10.5	4.3	1.8
713	TU-C, surface	E1b oval thin lipped, conical perforation	9.2	3.6	2.5
774	TU-C, 0-10	E1a round thin lipped, biconical perforation	8.4	3.7	2.2
915	TU-C, 10-20	E1a round thin lipped, conical perforation	6.8	2.9	2.8
996	TU-C, 20-30	E1a round thin lipped, conical perforation	7.1	2.9	2.6
954	TU-C, 10-20	E1 thin lipped, conical perforation (fragment)	9.8	3.3	–
1041	TU-D, 0-10	E1 thin lipped	9.3	4.4	2.3
1090	TU-D, 10-20	E1b oval thin lipped, biconical perforation	10.4	4.6	2.0
1658	Square J	E1a round thin lipped, conical perforation	7.4	4.0	3.0
1620	Square J	E1a round thin lipped, parallel perforation	7.1	3.5	1.6

Notes: Classified following Bennyhoff and Hughes (1987); metrics in millimeters.

A total of 231 *Olivella* Class H disk beads (Bennyhoff and Hughes 1987:135) were also recovered (Tables 27 and 28). Four types of Class H beads are present, including H1a ground disks (n = 9), H1b semi-ground disks (n = 91), H2 rough disks (n = 129), and H3 chipped disks (n = 2). The vast majority (n = 207) of the Class H beads was recovered from Locus B, with 112 of those coming from TU-C (the 0 to 10-cm level of which was screened with 1/16-in mesh). Two of the H1a beads, 20 of the H1b, and 31 of the H2 beads were burned. Class H beads were typically perforated using metal needles, are found primarily in southern California, and date to the Late Mission Period (about AD 1800 to 1816). The perforation diameters of the Class

Table 26. Class G *Olivella* Beads from CA-KER-769.

Cat. No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
Locus A						
438	TU-1, 30-40	G1 Tiny Saucer, parallel perforation	4.2	1.2	1.5	–
Locus B						
101	surface	G1 Tiny Saucer, conical perf. from interior	4.4	1.4	–	missing, burned
590	TU-4, 20-30	G1 Tiny Saucer	3.3	1.9	1.0	–
608	TU-4, 30-floor	G1 Tiny Saucer, biconial perforation	4.3	1.3	1.9	–
609	TU-4, 30-floor	G1 Tiny Saucer, conical perf. from interior	4.0	1.3	1.5	–
718	TU-C, surface	G1 Tiny Saucer, conical perf. from interior	3.7	0.9	1.2	–
780	TU-C, 0-10	G1 Tiny Saucer, conical perf. from exterior	3.9	1.1	1.5	–
784	TU-C, 0-10	G1 Tiny Saucer, conical perf. from interior	4.5	1.6	1.2	–
785	TU-C, 0-10	G1 Tiny Saucer, parallel perforation	4.2	1.3	1.6	–
797	TU-C, 0-10	G1 Tiny Saucer, biconial perforation	3.5	1.1	1.5	–
798	TU-C, 0-10	G1 Tiny Saucer, conical perf. from interior	3.5	1.1	1.5	–
815	TU-C, 0-10	G1 Tiny Saucer; conical perf. from interior	4.5	1.3	1.3	burned
890	TU-C, 10-20	G1 Tiny Saucer, biconial perforation	4.0	1.3	1.5	burned
889	TU-C, 10-20	G1 Tiny Saucer, conical perf. from interior	4.1	1.3	1.4	burned
949	TU-C, 10-20	G1 Tiny Saucer, conical perf. from interior	3.9	1.3	1.0	–
952	TU-C, 10-20	G1 Tiny Saucer, conical perf. from interior	4.2	1.4	1.3	–
964	TU-C, 10-20	G1 Tiny Saucer, conical perf. from interior	4.5	1.3	1.4	–
950	TU-C, 10-20	G1 Tiny Saucer; conical perf. from interior	4.0	1.2	1.4	–
995	TU-C, 20-30	G1 Tiny Saucer, conical perf. from interior	4.1	1.1	1.5	–
1000	TU-C, 20-30	G1 Tiny Saucer	4.3	1.4	1.5	–
1011	TU-C, 30-40	G1 Tiny Saucer, biconial perforation	4.7	1.3	2.5	burned
1079	TU-D, 0-10	G1 Tiny Saucer	3.9	1.2	2.0	–
1080	TU-D, 0-10	G1 Tiny Saucer	3.9	1.4	2.0	–
1081	TU-D, 0-10	G1 Tiny Saucer	4.2	1.2	1.8	–
1039	TU-D, 10-20	G1 Tiny Saucer	4.2	1.1	1.6	–
1040	TU-D, 10-20	G4 Ground Saucer	4.0	0.9	1.3	burned
1093	TU-D, 10-20	G1 Tiny Saucer	3.8	1.3	2.0	–
1212	TU-F, surface	G1 Tiny Saucer, biconial perforation	4.5	1.5	1.5	–
1213	TU-F, surface	G1 Tiny saucer, biconial perforation	3.9	1.5	2.2	–
1215	TU-F, surface	G1 Tiny saucer, biconial perforation	4.4	1.3	1.5	–
1216	TU-F, surface	G1 Tiny Saucer	4.3	1.2	–	fragment
1230	TU-F, 0-10	G1 Tiny Saucer	4.2	1.3	2.1	–
1275	TU-F, 10-20	G1 Tiny Saucer	4.3	1.3	1.3	–

Table 26. Continued.

Cat. No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
1278	TU-F, 10-20	G1 Tiny Saucer	3.8	1.3	1.6	–
1295	TU-F, 20-30	G1 Tiny Saucer	4.4	1.4	1.9	–
1792	Square J	G1 Tiny Saucer, biconial perforation	4.2	1.2	1.6	–
1656	Square J	G1 Tiny Saucer, conical perforation	4.2	1.2	2	–
1659	Square J	G1 Tiny Saucer, conical perforation	4.3	1.4	1.6	–
1666	Square J	G1 Tiny Saucer, conical perforation	4.0	1.4	1.5	–
1791	Square J	G1 Tiny Saucer, conical perforation	4.0	1.2	1.8	–
1793	Square J	G1 Tiny Saucer, conical perforation	4.0	1.2	1.5	–
1794	Square J	G1 Tiny Saucer, conical perforation	3.9	1.4	1.8	–
1795	Square J	G1 Tiny Saucer, conical perforation	3.8	1.2	2.0	–
1655	Square J	G1 Tiny Saucer, conical perforation	5.1	1.4	1.9	burned
1652	Square J	G1 Tiny Saucer, parallel perforation	6.2	1.4	1.5	–
1654	Square J	G1 Tiny Saucer, parallel perforation	4.6	1.4	1.7	–
1665	Square J	G1 Tiny Saucer, parallel perforation	4.2	1.4	1.3	–

Notes: Classified following Bennyhoff and Hughes (1987); metrics in millimeters.

H beads at KER-769 (see Table 27 and 28) are mostly consistent with the use of metal needles. Such beads were probably imported in finished form from the coast.

Thirty-six *Olivella* callus beads (Class K) (Bennyhoff and Hughes 1987:137) were found (Table 29); none was burned. Of these, 23 are K1 cupped, seven are K2 bushings, and six are K3 cylinders. All but one of the Class K beads came from Locus B (the exception being Cat. No. 422), 23 from TU-C alone. This class of bead probably dates after ca. 800 BP.

Mytilus Beads

Six beads made from mussel (*Mytilus* cf.*, californianus*) beads (Table 30) were discovered, all from Locus B. Five of the specimens were disks, and one was a short tube. Both of these types of beads most commonly date after ca. 1,100 BP but continued to be used into historic times (Gibson 1976:34).

Clamshell Disk Beads

Four disk beads made from an unidentified clam were found, all from Locus B (Table 30). These types of beads are relatively uncommon in the southern Sierra Nevada.

Haliotis Disk Beads

Locus B also produced five *Haliotis* cf., *rufescens* disk beads (Table 31). Four of the specimens were nacre disks, but one (Cat. No. 1045) was made from the epidermis of the shell. Beads of *H. rufescens* have a wide distribution throughout California. Harrington (1942:16) reported that red *Haliotis* epidermis beads were often strung with white *Olivella* beads, as well as other shell bead types, to achieve color contrast.

Haliotis disk beads generally date to between 5,000 and 1,600 BP and to part of the historical period

Table 27. Class H1 *Olivella* Beads from CA-KER-769.

Cat No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
General Surface						
387	Surf	H1b Semi-ground disk, parallel perforation	7.5	2.2	1.4	–
390	Surf	H1b Semi-ground disk, parallel perforation	5.5	1.6	1.0	–
389	Surf	H1b Semi-ground disk, parallel perforation	6.7	2.2	1.4	–
Locus A						
1505	Square H	H1b Semi-ground disk, parallel perforation	5.8	1.3	1.3	–
1528	Square H	H1b Semi-ground disk, parallel perforation	6.2	1.6	1.6	–
1849	HR-2, NE ¼	H1b Semi-ground disk, parallel perforation	6.1	1.2	1.2	–
641	TU-A, 20-30	H1b Semi-ground disk, conical perforation	7.4	2.8	1.4	–
Locus B						
058	surface	H1b Semi-ground disk, parallel perforation	5.9	2.2	1.1	–
067	surface	H1b Semi-ground disk, parallel perforation	7.2	2.3	1.5	–
451	TU-2, 0-10	H1b Semi-ground disk, parallel perforation	6.3	1.9	0.9	–
476	TU-2, 10-20	H1a ground disk, parallel perforation	6.0	1.5	1.0	fragment
489	TU-2, 10-20	H1b Semi-ground disk, conical perforation	6.6	1.7	1.2	–
491	TU-2, 10-20	H1b Semi-ground disk, parallel perforation	6.1	1.9	1.0	–
549	TU-4, surface	H1b Semi-ground disk, parallel perforation	5.5	1.0	1.0	–
550	TU-4, surface	H1b Semi-ground disk, conical perforation	6.3	1.7	1.2	–
551	TU-4, surface	H1b Semi-ground disk, parallel perforation	5.0	1.6	1.3	–
567	TU-4, 0-10	H1b Semi-ground disk, parallel perforation	4.5	1.6	1.0	–
568	TU-4, 0-10	H1a ground disk, parallel perforation	5.8	2.0	1.1	–
569	TU-4, 0-10	H1a ground disk, parallel perforation	5.8	1.7	1.0	–
604	TU-4, 30-floor	H1b Semi-ground disk, parallel perforation	5.2	0.9	1.2	burned
605	TU-4, 30-floor	H1b Semi-ground disk, parallel perforation	5.5	1.8	1.0	–
607	TU-4, 30-floor	H1b Semi-ground disk, parallel perforation	5.7	1.6	1.1	–
610	TU-4, 30-floor	H1b Semi-ground disk, parallel perforation	4.3	1.3	1.2	burned
611	TU-4, 30-floor	H1b Semi-ground disk, parallel perforation	3.9	1.2	1.4	burned
706	TU-C, surface	H1b Semi-ground disk, parallel perforation	5.9	1.9	1.0	–
707	TU-C, surface	H1b Semi-ground disk, parallel perforation	6.9	2.2	1.2	–
708	TU-C, surface	H1a ground disk, parallel perforation	6.1	1.8	1.1	–
710	TU-C, surface	H1b Semi-ground disk, parallel perforation	5.7	1.7	1.3	–
712	TU-C, surface	H1b Semi-ground disk, parallel perforation	5.1	1.6	1.0	–
715	TU-C, surface	H1b Semi-ground disk, conical perforation	6.6	1.8	1.2	–
722	TU-C, surface	H1b Semi-ground disk, parallel perforation	5.4	1.8	1.0	burned
723	TU-C, surface	H1b Semi-ground disk, conical perforation	5.6	1.9	1.3	burned

Table 27. Continued.

Cat No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
754	TU-C, 0-10	H1b Semi-ground disk, conical perforation	7.0	2.1	1.1	–
764	TU-C, 0-10	H1a ground disk, parallel perforation	6.5	1.7	1.2	–
767	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	6.4	2.3	1.3	–
768	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	5.8	2.0	1.4	–
771	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	6.1	1.5	1.0	–
772	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	5.6	1.9	1.1	–
778	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	6.8	2.1	1.2	–
779	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	4.9	1	1.0	–
781	TU-C, 0-10	H1b Semi-ground disk, conical perforation	7.5	2.1	1.2	–
782	TU-C, 0-10	H1a ground disk, parallel perforation	4.7	1.3	1.1	–
783	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	6.8	2.6	1.5	–
804	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	6.1	2.1	1.1	burned
805	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	5.8	2.0	1.1	burned
806	TU-C, 0-10	H1a ground disk, parallel perforation	6.6	2.3	1.0	burned
808	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	5.8	2.0	1.1	burned
814	TU-C, 0-10	H1b Semi-ground disk, parallel perforation	5.3	1.3	1.0	fragment
819	TU-C, 0-10	H1b Semi-ground disk	–	1.5	–	fragment
885	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	6.4	2.1	1.6	burned
881	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	5.1	2.0	1.0	–
893	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	6.3	1.1	1.2	fragment
888	TU-C, 10-20	H1a ground disk, parallel perforation	4.8	1.6	1.1	burned
905	TU-C, 10-20	H1b Semi-ground disk, conical perforation	5.3	1.8	1.4	fragment
942	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	6.0	1.8	1.0	–
943	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	5.9	1.9	1.0	–
956	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	6.7	1.9	1.1	burned
957	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	6.2	1.6	1.0	burned
958	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	5.7	2.0	1.1	burned
963	TU-C, 10-20	H1b Semi-ground disk, conical perforation	6.0	2.0	1.4	burned
970	TU-C, 10-20	H1b Semi-ground disk	5.7	1.2	–	fragment
988	TU-C, 10-20	H1b Semi-ground disk, parallel perforation	6.2	1.8	1.6	–
991	TU-C, 20-30	H1b Semi-ground disk, parallel perforation	6.6	1.5	1.3	–
1001	TU-C, 20-30	H1b Semi-ground disk, parallel perforation	7.4	2.5	1.5	burned
1009	TU-C, 30-40	H1b Semi-ground disk, parallel perforation	5.2	1.6	1.0	–
1014	TU-C, 30-40	H1b Semi-ground disk, parallel perforation	6.5	1.8	1.0	burned
1015	TU-C, 30-40	H1b Semi-ground disk, parallel perforation	6.6	1.9	1.1	burned

Table 27. Continued.

Cat No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
1016	TU-C, 30-40	H1b Semi-ground disk, parallel perforation	4.3	1.1	1.3	burned
1076	TU-D, 0-10	H1b Semi-ground disk, conical perforation	7.3	2.1	1.7	–
1078	TU-D, 0-10	H1b Semi-ground disk, conical perforation	6.4	2.3	1.7	–
1082	TU-D, 0-10	H1b Semi-ground disk, parallel perforation	5.5	1.7	0.8	–
1266	TU-F, 10-20	H1b Semi-ground disk, parallel perforation	7.6	2.5	1.2	–
1267	TU-F, 10-20	H1b Semi-ground disk, parallel perforation	6.5	1.8	1.5	–
1269	TU-F, 10-20	H1b Semi-ground disk, parallel perforation	6.9	1.8	1.5	–
1270	TU-F, 10-20	H1b Semi-ground disk, parallel perforation	5.9	1.3	1.9	–
1274	TU-F, 10-20	H1b Semi-ground disk, parallel perforation	6.5	2.1	2.0	–
1282	TU-F, 20-30	H1b Semi-ground disk, parallel perforation	7.0	3.1	1.2	some callus
1293	TU-F, 20-30	H1b Semi-ground disk, parallel perforation	6.0	2.0	1.0	–
1294	TU-F, 20-30	H1b Semi-ground disk, parallel perforation	5.1	1.5	1.0	–
1609	Square J	H1b Semi-ground disk, parallel perforation	6.8	1.7	1.1	–
1621	Square J	H1b Semi-ground disk, parallel perforation	7.1	2.2	1.4	–
1624	Square J	H1b Semi-ground disk, parallel perforation	7.1	2.2	1.5	–
1626	Square J	H1b Semi-ground disk, parallel perforation	6.6	1.6	1.4	–
1629	Square J	H1b Semi-ground disk, parallel perforation	6.9	2.0	1.1	burned
1631	Square J	H1b Semi-ground disk, parallel perforation	5.6	1.8	1.1	–
1632	Square J	H1b Semi-ground disk, parallel perforation	6.2	1.9	1.3	–
1633	Square J	H1b Semi-ground disk, parallel perforation	7.4	1.7	1.2	–
1634	Square J	H1b Semi-ground disk, parallel perforation	6.8	2.2	1.7	some callus
1634a	Square J	H1b Semi-ground disk, parallel perforation	6.2	1.8	1.4	–
1641	Square J	H1b Semi-ground disk, parallel perforation	5.5	1.6	1.5	–
1643	Square J	H1a Semi-ground disk, parallel perforation	4.8	1.5	1.0	–
1644	Square J	H1b Semi-ground disk, parallel perforation	6.5	1.9	1.3	–
1649	Square J	H1b Semi-ground disk, conical perforation	6.6	1.8	1.4	–
1650	Square J	H1b Semi-ground disk, parallel perforation	5.7	2.0	1.0	–
1653	Square J	H1b Semi-ground disk, conical perforation	6.2	2.6	1.6	some callus
1661	Square J	H1b Semi-ground disk, parallel perforation	5.7	1.9	1.0	burned
1662	Square J	H1b Semi-ground disk, parallel perforation	6.4	1.9	1.2	burned
1670	Square J	H1b Semi-ground disk, conical perforation	4.3	1.3	1.7	–
1671	Square J	H1b Semi-ground disk	5.5	1.1	0.9	fragment
1790	Square J	H1b Semi-ground disk, parallel perforation	5.5	1.5	1.5	–

Notes: Classified following Bennyhoff and Hughes (1987); metrics in millimeters.

Table 28. Class H2 and H3 *Olivella* Beads from CA-KER-769.

Cat. No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
General Surface						
249	surface	H2 rough disk, parallel perforation	6.0	1.8	1.0	–
391	surface	H2 rough disk, parallel perforation	5.7	1.5	1.0	–
245	surface	H2 rough disk, biconial perforation	6.5	2.0	1.2	–
Locus A						
629	TU-A, 10-20	H2 rough disk, parallel perforation	6.3	1.9	1.2	–
632	TU-A, surface	H2 rough disk; conical perforation	6.2	2.2	1.5	–
1444	H-9	H2 rough disk, parallel perforation	4.6	1.1	1.4	burned
Locus B						
485	TU-2, 10-20	H2 rough disk, parallel perforation	8.5	2.1	1.2	–
490	TU-2, 10-20	H2 rough disk, parallel perforation	5.0	1.2	1.0	–
494	TU-2, 20-30	H2 rough disk, parallel perforation	6.5	1.5	1.1	–
510	TU-2, 30-base	H2 rough disk, conical perforation	5.2	1.4	1.0	–
516	TU-2, 30-base	H2 rough disk, parallel perforation	5.0	1.5	1.0	–
541	TU-4, surface	H2 rough disk, parallel perforation	6.7	1.9	1.3	–
547	TU-4, surface	H2 rough disk, conical perforation	4.2	1.5	1.2	–
548	TU-4, surface	H2 rough disk, biconical perforation	7.2	2.1	1.4	–
558	TU-4, 0-10	H2 rough disk, parallel perforation	6.5	1.4	0.8	–
566	TU-4, 0-10	H2 rough disk, parallel perforation	7.0	1.8	1.1	–
574	TU-4, 10-20	H2 rough disk, parallel perforation	8.0	2.4	1.3	burned
583	TU-4, 20-30	H2 rough disk, conical perforation	6.4	2.1	1.2	–
596	TU-4, 30-floor	H2 rough disk, parallel perforation	5.4	1.8	1.5	–
668	TU-B, surface	H2 rough disk, parallel perforation	5.5	1.7	1.0	–
699	TU-C, surface	H2 rough disk, conical perforation	6.2	2.0	1.7	–
705	TU-C, surface	H2 rough disk, parallel perforation	7.3	2.3	1.2	–
709	TU-C, surface	H2 rough disk, parallel perforation	5.9	1.5	1.2	–
711	TU-C, surface	H2 rough disk, parallel perforation	5.4	1.4	1.0	–
714	TU-C, surface	H2 rough disk, parallel perforation	7.0.	2.1	1.3	–
716	TU-C, surface	H2 rough disk, parallel perforation	6.0	1.4	1.0	–
717	TU-C, surface	H2 rough disk, parallel perforation	5.2	1.6	1.0	–
719	TU-C, surface	H2 rough disk, parallel perforation	5.6	2.0	1.0	burned
720	TU-C, surface	H2 rough disk, parallel perforation	5.9	1.4	0.9	burned
721	TU-C, surface	H2 rough disk, parallel perforation	5.3	1.5	1.0	burned
763	TU-C, 0-10	H2 rough disk, conical perforation	7.2	2.2	1.3	–
765	TU-C, 0-10	H2 rough disk, parallel perforation	6.7	1.9	1.1	–

Table 28. Continued

Cat. No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
766	TU-C, 0-10	H2 rough disk, parallel perforation	5.7	1.7	1.1	–
769	TU-C, 0-10	H2 rough disk, parallel perforation	6.9	1.5	1.5	–
770	TU-C, 0-10	H2 rough disk, parallel perforation	5.2	1.8	1.1	–
773	TU-C, 0-10	H2 rough disk, conical perforation	6.3	1.7	1.4	–
775	TU-C, 0-10	H2 rough disk, conical perforation	6.5	2.2	1.4	–
776	TU-C, 0-10	H2 rough disk, parallel perforation	5.9	1.7	1.3	–
777	TU-C, 0-10	H2 rough disk, parallel perforation	6.5	1.4	1.1	–
786	TU-C, 0-10	H2 rough disk; parallel perforation	4.4	1.3	1.0	–
787	TU-C, 0-10	H2 rough disk, parallel perforation	6.4	2.4	1.7	–
802	TU-C, 0-10	H2 rough disk	5.8	1.4	–	burned fragment
803	TU-C, 0-10	H2 rough disk, parallel perforation	6.0	1.8	1.0	burned
807	TU-C, 0-10	H2 rough disk, parallel perforation	6.1	1.7	1.2	burned
809	TU-C, 0-10	H2 rough disk, parallel perforation	6.0	2.0	1.0	burned
810	TU-C, 0-10	H2 rough disk; parallel perforation	5.1	1.4	1.0	burned
811	TU-C, 0-10	H2 rough disk, parallel perforation	6.2	1.8	1.1	burned
812	TU-C, 0-10	H2 rough disk, parallel perforation	6.7	2.3	1.2	burned
813	TU-C, 0-10	H2 rough disk, parallel perforation	5.5	1.7	1.0	burned
816	TU-C, 0-10	H2 rough disk, parallel perforation	–	1.5	–	fragment
817	TU-C, 0-10	H2 rough disk	–	1.5	–	burned fragment
818	TU-C, 0-10	H2 rough disk	–	1.8	–	burned fragment
868	TU-C, 10-20	H2 rough disk, conical perforation	6.5	2.4	1.2	–
878	TU-C, 10-20	H2 rough disk, parallel perforation	6.8	2.2	1.0	–
879	TU-C, 10-20	H2 rough disk, parallel perforation	5.9	1.7	1.0	–
880	TU-C, 10-20	H2 rough disk, parallel perforation	5.1	1.7	1.0	–
882	TU-C, 10-20	H2 rough disk, parallel perforation	5.6	15	1.2	–
883	TU-C, 10-20	H2 rough disk, parallel perforation	6.9	2.0	1.4	burned
884	TU-C, 10-20	H2 rough disk, parallel perforation	5.8	2.0	1.1	burned
886	TU-C, 10-20	H2 rough disk, parallel perforation	5.6	1.9	1.0	burned
887	TU-C, 10-20	H2 rough disk, parallel perforation	5.4	1.6	0.9	burned
906	TU-C, 10-20	H2 rough disk; parallel perforation	5.5	1.4	1.3	–
925	TU-C, 10-20	H3 chipped disk, parallel perforation	8.3	2.3	1.4	–
941	TU-C, 10-20	H2 rough disk, biconial perforation	7.2	1.9	1.5	–
944	TU-C, 10-20	H2 rough disk, conical perforation	5.8	1.7	1.1	–
945	TU-C, 10-20	H2 rough disk, parallel perforation	6.9	1.6	1.3	–
946	TU-C, 10-20	H2 rough disk, conical perforation	6.7	2.2	1.3	–

Table 28. Continued

Cat. No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
947	TU-C, 10-20	H2 rough disk, parallel perforation	5.3	1.8	1.0	–
948	TU-C, 10-20	H2 rough disk, conical perforation	5.1	1.4	1.3	–
955	TU-C, 10-20	H2 rough disk, parallel perforation	6.5	2.1	1.5	burned
959	TU-C, 10-20	H2 rough disk, parallel perforation	5.3	1.7	1.0	burned
960	TU-C, 10-20	H2 rough disk, parallel perforation	5.6	1.9	1.0	burned
961	TU-C, 10-20	H2 rough disk, parallel perforation	5.6	1.6	1.1	burned
962	TU-C, 10-20	H2 rough disk, parallel perforation	6.2	2.3	1.2	burned
966	TU-C, 10-20	H2 rough disk, parallel perforation	4.3	1.4	1.0	–
968	TU-C, 10-20	H2 rough disk, parallel perforation	6.8	1.2	–	burned fragment
969	TU-C, 10-20	H2 rough disk, parallel perforation	5.7	1.5	–	fragment
1002A	TU-C, 20-30	H2 rough disk, parallel perforation	6.3	1.2	–	–
980	TU-C, 20-30	H2 rough disk, conical perforation	6.4	1.8	1.4	–
987	TU-C, 20-30	H2 rough disk, parallel perforation	7.4	2.2	1.3	–
989	TU-C, 20-30	H2 rough disk, parallel perforation	5.7	1.8	1.0	–
990	TU-C, 20-30	H2 rough disk, parallel perforation	6.1	1.6	1.2	–
992	TU-C, 20-30	H2 rough disk, parallel perforation	6.0	1.6	1.2	–
993	TU-C, 20-30	H2 rough disk, biconial perforation	6.1	1.8	1.0	–
994	TU-C, 20-30	H2 rough disk, parallel perforation	5.6	1.4	1.2	–
999	TU-C, 20-30	H2 rough disk, parallel perforation	6.2	2.0	1.2	burned
1012	TU-C, 30-40	H2 rough disk	5.9	1.6	1.2	burned
1013	TU-C, 30-40	H2 rough disk	5.9	1.6	1.0	burned
1037	TU-D, 10-20	H2 rough disk, parallel perforation	7.4	2.3	1.5	–
1038	TU-D, 10-20	H2 rough disk, parallel perforation	6.8	1.5	1.0	–
1116	TU-D, 20-30	H2 rough disk, biconial perforation	6.4	2.3	1.2	–
1113	TU-D, 30-40	H2 rough disk, parallel perforation	7.4	2.1	1.5	–
1204	TU-F, surface	H2 rough disk, biconical perforation	6.5	2.0	1.5	–
1210	TU-F, surface	H2 rough disk, parallel perforation	6.3	2.0	1.1	–
1211	TU-F, surface	H2 rough disk, parallel perforation	6.3	1.9	1.3	–
1243	TU-F, 10-20	H2 rough disk, parallel perforation	5.9	1.6	1.0	–
1265	TU-F, 10-20	H2 rough disk, parallel perforation	6.0	1.7	1.3	–
1268	TU-F, 10-20	H2 rough disk, parallel perforation	5.6	1.3	1.1	–
1271	TU-F, 10-20	H2 rough disk, parallel perforation	5.9	1.0	1.5	–
1272	TU-F, 10-20	H2 rough disk, parallel perforation	5.4	1.5	1.0	–
1273	TU-F, 10-20	H2 rough disk, parallel perforation	5.3	1.3	1.0	–
1291	TU-F, 20-30	H2 rough disk, parallel perforation	5.9	0.6	1.1	–

Table 28. Continued

Cat. No.	Provenience	Type and Attributes	Diameter	Thickness	Perforation Diameter	Comments
1292	TU-F, 20-30	H2 rough disk, parallel perforation	6.8	1.8	1.5	–
1296	TU-F, 20-30	H2 rough disk, parallel perforation	5.5	1.4	1.5	–
1619	Square J	H2 rough disk, parallel perforation	7.0	2.0	1.3	–
1622	Square J	H2 rough disk, parallel perforation	6.0	2.3	1.7	some callus
1623	Square J	H3 chipped disk, conical perforation	8.1	2.6	1.8	–
1625	Square J	H2 rough disk, parallel perforation	7.1	2.1	1.5	–
1627	Square J	H2 rough disk, parallel perforation	6.2	1.9	1.0	–
1628	Square J	H2 rough disk, parallel perforation	6.8	2.5	1.3	–
1630	Square J	H2 rough disk, parallel perforation	6.5	2.4	1.6	some callus
1635	Square J	H2 rough disk, parallel perforation	6.9	1.9	1.4	–
1636	Square J	H2 rough disk, parallel perforation	6.7	2.0	1.3	–
1637	Square J	H2 rough disk, conical perforation	6.3	1.9	1.7	–
1638	Square J	H2 rough disk, parallel perforation	6.4	2.0	1.4	–
1639	Square J	H2 rough disk, parallel perforation	6.3	2.0	1.3	–
1640	Square J	H2 rough disk, parallel perforation	6.7	2.1	0.9	–
1642	Square J	H2 rough disk, parallel perforation	6.5	1.6	1.4	–
1645	Square J	H2 rough disk, parallel perforation	6.9	2.1	1.6	–
1646	Square J	H2 rough disk, parallel perforation	6.3	1.9	1.5	–
1647	Square J	H2 rough disk, parallel perforation	5.7	1.7	1.5	–
1648	Square J	H2 rough disk, parallel perforation	7.3	2.7	1.2	–
1651	Square J	H2 rough disk, biconial perforation	6.1	2.0	1.5	–
1657	Square J	H2 rough disk, parallel perforation	5.9	2.3	0.8	–
1660	Square J	H2 rough disk, conical perforation	6.0	1.7	1.5	burned
1663	Square J	H2 rough disk, parallel perforation	6.7	1.9	1.2	burned
1664	Square J	H2 rough disk, parallel perforation	5.5	1.6	1.3	burned
1781	Square J	H2 rough disk, parallel perforation	6.9	2.3	1.5	–
1785	Square J	H2 rough disk, parallel perforation	6.0	1.6	1.6	–
1788	Square J	H2 rough disk, parallel perforation	6.2	1.9	1.2	–
1789	Square J	H2 rough disk, parallel perforation	6.3	1.4	1.2	–

Notes: Classified following Bennyhoff and Hughes (1987); metrics in millimeters.

Table 29. Class K Olivella Beads from CA-KER-769.

Cat. No.	Provenience	Type	Diameter	Thickness	Perforation Diameter
422	TU-1, 20-30	K1 cupped	4.0	1.4	1.5
499	TU-2, 20-30	K1 cupped	3.2	1.8	1.4
606	TU-4, 30-floor	K1 cupped	3.0	1.9	1.4
685	TU-B, 20-30	K2 bushing	4.0	1.5	1.8
724	TU-C, surface	K1 cupped	3.2	1.7	1.3
725	TU-C, surface	K1 cupped	3.5	1.7	1.2
726	TU-C, surface	K1 cupped	3.4	1.9	1.4
727	TU-C, Surf	K3 cylinder	2.9	0.9	1.3
788	TU-C, 0-10	K1 cupped	3.4	1.8	1.3
789	TU-C, 0-10	K2 bushing	3.3	1.4	1.4
790	TU-C, 0-10	K1 cupped	3.2	1.2	1.1
791	TU-C, 0-10	K1 cupped	2.9	1.8	1.3
792	TU-C, 0-10	K1 cupped	3.4	2.0	1.5
793	TU-C, 0-10	K1 cupped	3.1	1.9	1.3
794	TU-C, 0-10	K1 cupped	3.4	1.8	1.1
795	TU-C, 0-10	K2 bushing	3.7	1.8	2.3
796	TU-C, 0-10	K3 cylinder	2.1	0.9	1.0
799	TU-C, 0-10	K3 cylinder	2.3	0.9	0.9
800	TU-C, 0-10	K1 cupped	3.4	1.4	1.7
820	TU-C, 0-10	K2 bushing	2.8	1.1	1.2
891	TU-C, 10-20	K3 cylinder	2.3	1.0	1.0
892	TU-C, 10-20	K2 bushing	2.8	2.3	1.5
953	TU-C, 10-20	K2 bushing	3.3	2.3	1.6
965	TU-C, 10-20	K3 cylinder	2.2	0.9	1.0
971	TU-C, 10-20	K1 cupped	3.7	2.0	–
997	TU-C, 20-30	K1 cupped	3.3	2.0	1.5
998	TU-C, 20-30	K1 cupped	4.0	1.6	1.4
1077	TU-D, 0-10	K1 cupped	5.9	3.1	2.5
1214	TU-F, surface	K1 cupped	3.2	1.8	1.6
1276	TU-F, 10-20	K1 cupped	4.0	1.8	2.2
1277	TU-F, 10-20	K1 cupped	2.5	1.9	1.9
1297	TU-F, 20-30	K3 cylinder	2.5	0.8	1.1
1667	Square J	K2 bushing	3.8	1.5	1.7
1668	Square J	K1 cupped	3.9	1.4	1.8
1669	Square J	K1 cupped	3.8	1.6	2.0
1677	Square J	K1 cupped	3.2	2.3	1.8

Notes: Classified following Bennyhoff and Hughes (1987); metrics in millimeters.

Table 30. *Mytilus* and Clamshell Disk and Tube Beads from Locus B at CA-KER-769.

Cat. No.	Provenience	Diameter	Thickness	Perforation Diameter	Comments
729	TU-C, surface	5.2	1.8	1.8	clam disk
821	TU-C, 0-10	2.2	1.7	1.3	*Mytilus* disk
1010	TU-C, 30-40	4.0	1.7	1.8	*Mytilus* disk
1083	TU-D, 0-10	2.8	–	1.9	*Mytilus,* tube, 3.4 mm long
1091	TU-D, 10-20	4.6	2.2	1.7	*Mytilus* disk, burned
1155	TU-D, 50-60	5.2	1.4	1.5	clam disk
1676	Square J	5.2	2.4	1.4	clam disk
1786	Square J	4.5	2.3	2.0	*Mytilus* disk
1787	Square J	4.3	2.3	2.0	*Mytilus* disk
1796	Square J	5.5	1.8	1.0	clam disk

Note: Metrics in millimeters.

Table 31. *Haliotis* Disk Beads from Locus B at CA-KER-769.

Cat. No.	Provenience	Diameter	Thickness	PerforationDiameter
484	TU-2, 10-20	6.8	2.5	1.4
559	TU-4, 10-20	5.7	2.2	1.1
822	TU-C, 10-20	6.4	1.6	1.2
823	TU-C, 10-20	5.3	1.8	1.3
1045	TU-D, 0-10	5.1	3.0	3.0

Note: Metrics in millimeters.

(ca. AD 1650 to 1782). Graesch (2001) reported that perforation diameter measurements equal to or less than 1.1 mm and with relatively straight bore holes were drilled using metal needles. One of the beads from KER-769 (Cat. No. 559) fits those criteria and so may post-date AD 1650.

Dentalium Bead

One bead of *Dentalium* sp. (Cat. No. 1092) was found in the 20 to 30-cm level of TU-D. The specimen is 7.0 mm long with a diameter of 2.3 mm. These beads are very uncommon but have been found at a few sites in the western Mojave Desert (Sutton 1988).

Other Shell Materials

Several pieces of shell not identified as artifacts were recovered, all from Locus B. One piece (Cat. No. 598), now missing from the collection, was found in the 30 cm to floor level of TU-4; it measured 12.0 x 7.0 mm and is unidentified as to its function or form. A large fragment of unmodified *Mytilus* shell (Cat. No. 828) was found in the 0 to 10-cm level of TU-C, measures 29.0 x 16.1 x 3.1 mm, weighs 2.6 g, and may have been intended for fashioning into some type of shell ornament. Finally, two small fragments of unmodified *Haliotis* shell (Cat. No.1227) were found in the 0 to 10-cm level of TU-F, together weighing 0.1 g.

It seems likely that at least the latter two specimens had been parts of ornaments.

Discussion

The vast majority (332; 95 percent) of the shell beads came from Locus B (see Table 32), with 168 (48 percent) from TU-C (recall that the 0 to 10-cm level of this unit was screened with 1/16-in mesh). Of the 349 shell beads, 62 (18 percent) were burned, with G1 (n = 31) and H1b (n = 20) comprising most of those specimens. It is not clear why these beads were burned (a few glass beads were also burned; see below), but as no human remains were identified at the site, they could not be associated with human cremations. It could be the result of brush fires, although the burning of the glass beads would require temperatures higher than those generated by burning brush.

Glass Beads

A total of 37 glass beads were recovered from the site (Table 33). Twenty-one specimens were missing from the collection and unclassified. One extant specimen could not be classified. Following Gibson (1976), 15 were classified, all being small Class C (mostly C1a) beads of blue, green, and clear color. These beads generally date between AD 1770 and 1816 (Gibson 1976:122). Conspicuously absent were the F1 blue, short cane, hexagonal, plain ground faceted bead and the C6 "Cornaline d'Aleppo" bead, both of which are usually found in high frequencies in southern California (Woodward 1965; Sutton et al. 2010).

All the glass beads were discovered within Locus B. The absence of glass beads at Locus A suggests the locus saw little use after AD 1770. By comparison, at least 153 glass beads of 18 types have been identified in the collection from nearby KER-230 (Allen and Burns 2008:Table 9).

Historic Artifacts

Aside from the glass beads, only nine historic artifacts were found, mostly on the surface. These included two shotgun shells, two small pieces of glass, one .22 casing, one spent bullet, one shotgun pellet, one grommet, and one blue ceramic bead, all seemingly dating from the twentieth century (after Native occupation). One of the shotgun shells was found in the lower portion of the NE¼ of HR-2, suggesting some bioturbation of the deposit in that area. The ceramic bead (Cat. No. 761) was found in the 0 to 10-cm level of TU-C but is now missing.

Miscellaneous Materials

Several miscellaneous items were collected. One is a small piece of fossilized bone (Cat. No. 308) found on the surface, measuring 24.0 x 13.1 x 4.4 mm and weighing 0.8 g. A small (0.1 g) fragment of a quartz crystal (Cat. No. 1100) was found in the 10 to 20-cm level of TU-D. Near the floor of the NE¼ of HR-2 was a small geode in two pieces (Cat. No. 1871). A small piece of ochre (Cat. No. 1605) was found in Square H, not surprising given the presence of red stains on several of the slate ornament fragments. Finally, a complete obsidian "Apache Tear" (lapillus) nodule was found on the surface. This specimen (Cat. No. 109) measures 18.0 x 16.3 x 14.4 mm and weighs 4.6 g. Geochemical analysis failed to identify its source (Hughes 2010). All these items are assumed to have been transported to KER-769 in prehistoric or early historic times. Quartz crystals and ochre are both known to have been employed in rituals by California Indian people.

Faunal Remains

A relatively large number of faunal remains were recovered from the site (NISP = 4,225; total weight 532.9 g), but some pieces are missing from the collection. The remains are mostly from vertebrates, but

Table 32. Shell Beads by Provenience and Class at CA-KER-769.

Provenience	*Olivella* (by class)						*Mytilus*	Clam	*Haliotis*	*Dentalium*	Totals
	A	E	G	H	K	Unident					
General Surface											
surface	–	–	1	6	–	–	–	–	–	–	7
Locus A											
surface	–	–	–	–	–	–	–	–	–	–	–
Square H	–	1	–	3	–	–	–	–	–	–	4
HR-2	–	–	–	1	–	–	–	–	–	–	1
TU-1	–	–	1	–	1	–	–	–	–	–	2
TU-A	–	–	–	3	–	–	–	–	–	–	3
Subtotals	–	1	1	7	1	–	–	–	–	–	10
Locus B											
surface	–	–	–	2	–	–	–	–	–	–	2
TU-2	–	1	–	9	1	–	–	–	1	–	12
TU-3	–	–	–	–	–	–	–	–	–	–	–
TU-4	–	–	3	19	1	–	–	–	1	–	24
TU-B	–	–	–	1	1	–	–	–	–	–	2
TU-C	3	5	16	112	23	2	2	1	2	–	166
TU-D	1	2	6	7	1	–	2	1	1	1	22
TU-E	–	–	–	–	–	–	–	–	–	–	–
TU-F	–	–	8	20	4	–	–	–	–	–	32
Square J	1	2	12	48	4	1	2	2	–	–	72
Subtotals	5	10	45	218	35	3	6	4	5	1	332
Totals	5	11	47	231	36	3	6	4	5	1	349

Note: Classified following Bennyhoff and Hughes (1987).

a few fragments of shell were also found. A sample of the recovered remains was analyzed in detail and included all the faunal remains from HR-2 (Table 34) and TU-1 (Table 35) in Locus A and from TU-D (Table 36) in Locus B. In addition, all the remains were briefly examined to identify any unusual specimens (see Table 37). Each of the analyzed specimens was examined for diagnostic traits, and those that contained such traits were identified to the closest possible taxon.

Invertebrate Remains

Two small (0.1 g) fragments of freshwater shell (cf., *Anodonta* sp.) constituted the invertebrate faunal remains from the site. The pieces (Cat. No. 1227) came from the 0 to 10-cm level of TU-F in Locus B. Freshwater shell does not occur in the southern Sierra Nevada, so the pieces must have come from another location, such as the southern San Joaquin Valley.

Table 33. Provenience and Attributes of Glass Beads from Locus B at CA-KER-769.

Cat. No.	Provenience	Type	Comments
Locus B			
450	TU-2, 0 to 10	unclassified	missing
518	TU-3, Surface	unclassified, blue	missing
543	TU-4, Surface	unclassified, blue	missing
573	TU-4, 10 to 20	unclassified, blue	missing
581	TU-4, 10 to 20	C1a	light blue, 3.0 mm diameter, 1.5 mm thick
582	TU-4, 20 to 30	C1a	light blue, 3.0 mm diameter, 1.5 mm thick
597	TU-4, 30 to floor	unclassified, blue	missing
693	TU-C, surface	C1c	blue, 4.8 mm diameter
694	TU-C, surface	C1c	blue, 2.9 mm diameter
695	TU-C, surface	unclassified, blue	missing
696	TU-C, surface	unclassified, blue	missing
697	TU-C, surface	C5a	clear, 3.4 mm diameter
698	TU-C, surface	unclassified, green	missing
755	TU-C, 0 to 10	C1a	light blue, 2.2 mm diameter
756	TU-C, 0 to 10	C1a	light blue, 2.8 mm diameter
757	TU-C, 0 to 10	unclassified	dark blue oval, ½ bead, 5.6 mm diameter
758	TU-C, 0 to 10	C1a	light blue, 3.9 mm diameter
759	TU-C, 0 to 10	C3a	green, 3.7 mm diameter
760	TU-C, 0 to 10	C4a	white, 4.5 mm diameter
865	TU-C, 10 to 20	C3a	green, 2.9 mm diameter
904	TU-C, 10 to 20	unclassified, blue white	missing
926	TU-C, 10 to 20	unclassified	missing, melted glass, probable bead
927	TU-C, 10 to 20	unclassified, green	missing
928	TU-C, 10 to 20	unclassified, green	missing
929	TU-C, 10 to 20	C1a	light blue, 2.5 mm diameter
930	TU-C, 10 to 20	unclassified, white	missing, small
931	TU-C, 10 to 20	unclassified, blue	missing, large
981	TU-C, 20 to 30	unclassified	missing
1042	TU-D, 0 to 10	C1c	blue, 2.0 mm diameter
1209	TU-F, Surface	unclassified, blue	missing
1219	TU-F, 0 to 10	C1a	light blue, 2.0 mm diameter
1244	TU-F, 10 to 20	unclassified, blue	missing, 3.0 mm long
1608a	Square J	unclassified, blue	missing
1608b	Square J	unclassified, blue	missing
1608c	Square J	unclassified, blue	missing
1783a	Square J	unclassified, blue	missing
1783b	Square J	C1c	blue, 3.8 mm diameter

Notes: Metrics in millimeters; specimens classified following the typology of Gibson (1976).

Table 34. Faunal Remains (NISP) from House Ring 2, Locus A, at CA-KER-769.

Taxa/Provenience	NE ¼, to floor	SW ¼, to floor	SE ¼, to floor	Totals
unidentified lagomorph	1 radius shaft (b) 1 fragment (b) 1 fragment	–	–	3
unidentified lagomorph-sized	2 fragments (b)	4 fragments	2 fragments (b)	8
unidentified rodent-sized	6 fragments	–	–	6
artiodactyl	–		1 proximal ulna (b)	1
unidentified medium mammal	–	1 fragment (b) 2 fragments 1 rib fragment (b)	1 fragment 1 distal rib	6
unidentified large mammal	1 fragment (b) 2 fragments	–	–	3
unidentified mammal	1 fragment	–	–	1
Totals	15	8	5	28

Notes: NISP = number of identified specimens; (b) = burned.

Table 35. Faunal Remains (NISP) from TU-1, Locus A, at CA-KER-769.

Taxa/Provenience	Surface	0-10 cm	10-20 cm	20-30 cm	30-40 cm	Totals
unidentified lagomorph	–	–	2 rib midsections	1 femur shaft (b)	I maxilla fragment 1 radius shaft 1 pox. humerus	6
unidentified lagomorph-sized	7 fragments	1 fragment	8 fragments	16 fragments	8 fragments	40
Antilocapra americana	–	–	–	–	1 left ubis fragment	1
Totals	7	1	10	17	12	47

Notes: NISP = number of identified specimens; (b) = burned.

Vertebrate Remains

A total of 4,231 vertebrate elements were recovered, and those from House Ring 2, TU-1, and TU-D were analyzed in detail. In addition, noteworthy specimens from across the site were identified and are also discussed below. Most of the specimens represent lagomorphs, although a number of artiodactyls, including pronghorn and deer, were identified. No birds were found in the faunal materials.

The Faunal Sample from House Ring 2

As HR-2 was generally interpreted as a domestic structure, it was hoped that the faunal remains from that structure would provide some insight as to its function and season of use. However, only 28 faunal specimens were found in HR-2 (Table 34), with some lagomorph bones and one burned artiodactyl bone being identified. The low numbers and diversity of the faunal sample from HR-2 contribute little to an understanding of this feature.

Table 36. Faunal Remains (NISP) from TU-D, Locus B, at CA-KER-769.

Taxa/Provenience	0-10 cm	10-20 cm	20-30 cm	30-40 cm	40-50 cm	50-60 cm	Totals
Aspidoscelis tigris	–	–	–	–	–	1 left dentary	1
Lepus sp.	1 precaudal vertebral fragment 1 left proximal scapula	1 calcaneus	1 distal tibia (b) 1 right proximal scapula (b) 1 left proximal ilium (b)	–	–	1 distal tibia	7
unidentified lagomorph	1 skull fragment 4 maxillary fragments 1 proximal scapula (b) 1 proximal scapula 1 distal humerus 1 proximal ulna 2 radius shafts (b) 1 juvenile distal tibia 2 phalanges (b) 2 phalanges 1 juvenile prox phalanx (b)	1 skull fragment 1 zygomat 2 teeth 1 precaudal vertebral fragment 2 maxilla fragments (b) 7 maxilla fragments 1 distal juvenile humerus 2 radius shafts (b) 2 proximal ribs	1 right mandible fragment	1 pelvis fragment 1 juvenile distal tibia fragment 1 fragment (b) 5 fragments	2 skull fragments 1 scapula fragment 3 proximal ribs 1 radius shaft 1 proximal ulna (b) 1 tibia shaft	–	54
unidentified lagomorph-sized	1 mandible fragment 1 scapula fragment 1 distal humerus 1 proximal metapodial (b) 20 fragments (b) 68 fragments	2 phalanges 1 distal phalange 1 phalanx shaft (b) 1 proximal phalanx 53 fragments (b) 264 fragments	9 maxilla fragments 2 zygomat fragments 1 tooth fragment (b) 5 tooth fragments 1 rib fragment 1 radius shaft fragment 1 proximal metapodial fragment (b) 1 phalanx fragment 2 juvenile phalanges (fragments) 15 fragments (b) 79 fragments	–	1 fragment (b) 13 fragments	1 maxilla fragment 4 tooth fragments 1 radius shaft 1 juvenile proximal tibia (epiphysis) 9 fragments (b) 25 fragments	586
unidentified rodent-size	1 maxilla fragment 1 proximal tibia 1 distal metapodial 1 proximal phalanx	1 maxilla fragment (b) 1 mandible fragment 2 tibia shafts 1 calcaneus	1 mandible fragment 1 fragment (b)	1 femur	1 tooth fragment 1 femur shaft	2 maxilla fragments	16

Table 36. Continued

Taxa/Provenience	0-10 cm	10-20 cm	20-30 cm	30-40 cm	40-50 cm	50-60 cm	Totals
unidentified squirrel-size	1 pelvis fragment 1 juvenile distal tibia (b)	1 skull fragment 1 tooth fragment 1 proximal medipodial (b) 2 proximal metapodials 1 calcaneus fragment 1 phalanx 2 proximal phalanges	–	–	–	–	11
Taxidea taxus	1 navicular-cuboid (b)	–	–	–	–	–	1
Lynx rufus	–	–	1 right mandibular ramus	–	–	–	1
Odocoileus hemionus	–	–	1 left distal radius (b)	–	–	–	1
Antilocapra americana	–	1 right proximal ilium	–	–	1 left femur shaft	–	2
unidentified artiodactyl	2 enamel fragments 1 phalanx fragment	12 enamel fragments	2 enamel fragments	–	–	–	17
unidentified med. mammal	–	–	–	–	4 fragments (b) 3 fragments	–	7
unidentified lg. mammal	12 fragments (b) 5 fragments	8 fragments (b) 3 fragments	5 fragments (b) 8 fragments (1 juvenile)	2 fragments	1 scapula fragment	–	44
unidentified mammal	–	6 fragments	–	–	–	–	6
Totals	138	386	140	11	34	45	754

Notes: NISP = number of identified specimens; (b) = burned.

Table 37. Other Noteworthy Faunal Remains (NISP) from CA-KER-769.

Taxa	Provenience (cm)	Element	Condition	Totals
badger (*Taxidea taxus*)	surface	1 scapula	fragment, burned	1
pronghorn (*Antilocapra americana*)	Locus B, TU-D, 10-20	1 tooth	–	6
	Locus A, H-1, 20-30	1 occipital	burned	
	Locus B, TU-C, 10-20	1 parietal orbit	fragment, right	
	Locus B, TU-C, 20-30	1 parietal orbit	fragment, left	
	Locus B, TU-3, 10-20	1 humerus	fragment, burned	
	Locus B, TU-4, surface	1 tooth	molar/premolar	
deer (*Odocoileus hemionus*)	Locus B, TU-C, 20-30	2 teeth	–	10
	Locus A, H-9, 40-50	1 trapezoid	–	
	Locus B, TU-B, 10-20	3 teeth	molar/premolar	
	Locus B, TU-C, 0-10	2 sternebrae	fragments	
	Locus B, TU-C, 0-10	1 upper rib	–	
	Locus B, TU-C, 10-20	1 lunar	burned, adult	
cf., bovid	Locus A, Square H, surface scrape	1 tooth enamel	fragment	1
artiodactyl	Loci A and B, various	25 tooth enamel	fragments	33
	surface	1 cranial	fragment, burned	
	surface	1 cervical vertebra	fragment, burned	
	Locus B, TU-2, 10-20	2 lumbar vertebrae	fragments	
	Locus B, TU-C, 0-10	1 vertebral centrum	fragment	
	Locus B, TU-3, 0-10	1 rib	fragment, burned, deer?	
	Locus B, TU-C, surface	1 petrosa	–	
	Locus B, Square J, surface scrape	1 metapodial	burned	

Note: NISP = number of identified specimens.

The Faunal Sample from TU-1

Test Unit 1, located in Locus A, was chosen for analysis in order to have a sample from the general midden in that area. Only 47 faunal elements were recovered from TU-1 (Table 35), mostly lagomorphs but including one pronghorn (*Antilocapra americana*) element. As with HR-2, the number and diversity of remains from TU-1 was low. This 1 x 1-m unit was excavated to a depth of 40 cm (0.4 m^3), so it was estimated to have a faunal density of 117.5 elements per cubic meter.

The Faunal Sample from TU-D

Test Unit D was chosen to provide a sample from the general midden at Locus B. A total of 754 elements were recovered (Table 36), representing a faunal density of 235.6 elements per cubic meter, twice that of TU-1 in Locus A. In addition, the diversity of taxa found in TU-D is much greater than the samples from Locus A. Lagomorphs and lagomorph-sized elements made up the vast majority of the remains, with deer (*Odocoileus* cf., *hemionus*), pronghorn, unidentified artiodactyls, and unidentified large mammals also being represented. Several elements from a badger (*Taxidea taxus*) and a bobcat (*Lynx rufus*) were also found. Some squirrel remains (n = 11) were found, but not below 20 cm (and only one burned element), so these are considered natural occurrences.

Other Noteworthy Faunal Specimens

In addition to the samples from the units, the faunal collection was searched for unusual specimens. As a result, an additional badger element, six pronghorn elements, 10 deer elements, and 33 artiodactyl elements were identified (see Table 37). One fragment of tooth enamel may belong to a member of the bovid family (e.g., domestic cattle).

Species Accounts

Class Reptilia

A single dentary of a western whiptail lizard (*Aspidoscelis tigris*) was identified. These small spiny lizards, common in western North America, are swift runners who often locomote on only their hind legs. The western whiptail is found in a number of natural settings, and the dentary is considered a natural occurrence.

Class Mammalia

Mammalian remains comprise the remainder of the faunal specimens from KER-769. Hares, rabbits, deer, and pronghorn seem to have had the greatest economic significance.

Order Lagomorpha: Rabbits, Hares, and Pikas

Most of the vertebrate faunal remains from the site were identified as lagomorph (see Tables 34 through 36) or at least lagomorph-sized. Relatively few elements were specifically identified as hare (*Lepus* sp.) due to fragmentation of the remains. Also of interest is the absence of any identified cottontail (*Sylvilagus* sp.) elements, although they might be present in the unidentified lagomorph remains. The lagomorph remains are highly fragmented, an indication, possibly, that they had been smashed and boiled for marrow and other nutrients.

The black-tailed hare (*Lepus californicus*), popularly referred to as the jackrabbit, is among the most commonly observed mammals in southern California. Ranging throughout most of the western United States, this large lagomorph is most active during the early morning and evening, at which times it feeds on various forbs and herbs. Hares are usually found in open areas along foothills and on valley floors, including flat places within Sand Canyon and the Tehachapi Valley.

Hares were an important food source to the Kawaiisu (Zigmond 1986) and have been found in a number of sites in the Sand Canyon area (e.g., Sutton et al. 2010) and in Kawaiisu territory in the western Mojave Desert (Sutton 1991; Sutton et al. 2009). The seasonality of any potential rabbit drives at KER-769 is difficult to determine. In California, jackrabbits generally breed from January to August, although breeding can take place at other times of the year (Dunn et al. 1982). Given the mean gestation period of 43 days for black-tailed hares in California (Haskell and Reynolds 1947), KER-769 could have been used anytime between January and October. However, ethnographic accounts suggest the fall season as being the best time of the year to capture rabbits because of their desired winter fur (Steward 1938).

Order Rodentia: Mice, Squirrels, and Allies

Very few rodents or rodent-sized animals were recovered (Tables 34 and 36), and there is no indication that they were consumed. Thus, it appears that there was no focus on very small animals, suggesting that the people at KER-769 were not under food stress.

Order Carnivora

Two elements identified as badger (*Taxidea taxus*) were recovered (Tables 36 and 37). Badgers are found in the southern Sierra Nevada (Zeveloff 1988) and live in burrows. The two elements, a scapula fragment and a navicular-cuboid (foot bone), were both burned, suggesting a cultural origin. On the other hand, Zigmond (1986) did not mention badgers as being either used or avoided by the Kawaiisu, so the meaning of these elements is unclear.

A single element identified as bobcat *(Lynx rufus)* was found in TU-D (Table 36). Bobcats are indigenous to the southern Sierra Nevada (Zeveloff 1988) and are generally solitary animals. The element is the unburned ramus of a right mandible. Zigmond (1986) did not mention the use or avoidance of bobcats by the Kawaiisu, and so any interpretation of this element is unclear.

Order Artiodactyla: Even-Toed Ungulates

Both deer (*Odocoileus* sp.) and pronghorn (*Antilocapra americana*) were identified in the faunal collection. In addition, an unidentified bovid and a number of unidentified artiodactyls were also found.

At least 11 elements of deer (*Odocoileus* sp.) were found (Tables 36 and 37), and the common species in the southern Sierra Nevada is mule deer (*O. hemionus*) (Zegeloff 1988). Deer are fairly large animals; the males are solitary, and females generally give birth in May or June. Mule deer typically do not form large herds, although they may congregate, or "yard up," in the winter.

Deer were a favorite food of the Kawaiisu (Zigmond 1986) and were certainly available in the immediate area. Deer bones could be used for tools (e.g., awls) and were sometimes broken to extract the marrow (e.g., Drucker 1937). Hides were tanned and fashioned into clothing and cordage.

The deer elements found at KER-769 come from various portions of the body, including the axial and appendicular skeleton. The deer bone could represent a single animal, and only two elements were burned. It is possible that additional elements were processed into small fragments and were classified only as unidentified large mammal. The presence of different skeletal elements suggests that deer were obtained close to the site and were brought back whole.

Nine pronghorn (*Antilocapra americana*) elements were identified (Tables 35, 36, and 37), only two of which were burned. Pronghorn were present in the southern San Joaquin Valley to the west, the Antelope Valley to the south (e.g., Yohe 1984), perhaps some desert valleys to the east, and even in the Tehachapi Valley several miles to the south (Zeveloff 1988). Zigmond (1986:399) reported that the Kawaiisu hunted pronghorn in the San Joaquin Valley and in the desert (also see Garfinkel and Williams 2011:79).

Pronghorn elements include those from the head, leg, and pelvic areas, suggesting that at least one complete individual was brought to the site, and it is possible that the bones represent a single animal. Additional elements may have been processed into small fragments and classified only as unidentified large mammal. As with the deer elements, this suggests that pronghorn were acquired near the site and were brought back whole.

In addition to the deer and pronghorn, a number of elements identified only as artiodactyl were recovered (Tables 34, 36, and 37). It is most likely that these elements are either deer or pronghorn, but it is possible that they belong to a domestic bovid species (e.g., cow, sheep, or goat).

One element (tooth enamel) of an unidentified bovid (Family Bovidae; cattle, sheep, Old World antelope, and goats) was found (Table 37). It is possible that this element belonged to a bighorn sheep (e.g., *Ovis* *canadensis*), but it could also be a domestic sheep (*O. aries*), domestic cow (*Bos* sp.), or even a domestic goat (cf., *Capra aegagrus*), all of which probably grazed in the area during historic times.

Unidentified Mammal

Sixty bone fragments (28 of which were burned) from HR-2 and TU-D could not be identified beyond medium or large mammal (Tables 34 and 36). It seems likely that the majority of these represent artiodactyls.

Discussion

Most of the animal bones represent lagomorphs and large mammals, although a few rodents are also present. No birds were identified. The faunal data suggest that black-tailed jackrabbits were a major source of protein and that both deer and pronghorn were hunted. No focus on small animals (e.g., rodents) is evident.

Botanical Remains

A number of botanical remains were recovered (Table 38), mostly charcoal found in the excavation units. Of the 91 seeds, 16 were identified as juniper (*Juniperus* sp.), nine were from an unidentified unburned melon (all from the same provenience, perhaps intrusive), and 66 could not be identified (all unburned). Few (if any) of the seeds can be directly associated with the human occupation, with the possible exception of the juniper.

Juniper currently grows on the site and was likely used for a variety of purposes prehistorically, including as structural posts and firewood. Zigmond (1981:35) reported that juniper was an "important source of food and manufactured items," including bows and foreshafts.

Obsidian Studies

Twenty-seven obsidian samples (two bifaces, one Cottonwood point, the "Apache Tear," and 23 flakes) were submitted for sourcing and hydration analyses (Table 39). Some of the specimens were chosen because they were diagnostic artifacts and others because they were large flakes. For comparative purposes, samples were also selected from HR-2 and each of the levels from TU-1 (in Locus A) and TU-D (in Locus B).

The sourcing work (Hughes 2010) demonstrated that 26 of the specimens were derived from the Coso Volcanic Field (CVF); twenty-five were from West Sugarloaf, and one was from Joshua Ridge. The source of the "Apache Tear" could not be determined. The CVF is located some 100 km northeast of the site. It seems likely that the "Apache Tear" originated from one of the many source localities in the eastern Mojave Desert.

Virtually identical sourcing results have been obtained from nearby sites. All 11 sourced specimens from KER-2357 were from the CVF (Ptomey 1991: Table 16), as were each of the four samples from KER-229 (Sutton et al. 2010:Table 22) and each of the six samples from KER-230 (Allen and Burns 2008). All but one of those specimens came from West Sugarloaf, the exception being one specimen from KER-2357 that was sourced simply to Sugarloaf. These results suggest a longstanding and stable supply relationship.

A total of 46 mean hydration measurements were obtained from 26 artifacts (Carpenter 2011), ranging between 1.51 µm and 11.75 µm (see Table 39). The "Apache Tear" lacked any obvious cultural modification and did not have any cultural surfaces to measure, although a surface fracture had a "faint residual rim" ranging from 8.5 µm to 9.5 µm (Carpenter 2011:1). Most of the hydration bands were between 2 µm and 6 µm, suggesting that the site was occupied primarily during that general time frame (roughly the Sawtooth and Chimney phases), although two specimens had rims of about 8 µm. Ten of the flakes contained multiple hydration bands,

Table 38. Botanical Remains from CA-KER-769.

Cat. No.	Provenience	Description	Identification	N	Wt
1594	Square H	charcoal	not identified	–	0.7
1315	H-1, 10-20	charcoal	not identified	–	9.1
1321	H-1, 20-30	charcoal	not identified	–	0.4
1335	H-3, 10-20	charcoal	not identified	–	11.5
1340	H-3, 20-30	charcoal	not identified	–	3.0
1346	H-5, 0-10	charcoal	not identified	–	1.4
1358	H-5, 10-20	charcoal	not identified	–	15.3
1370	H-5, 20-30	charcoal	not identified	–	8.2
1379	H-5, 30-40	charcoal	not identified	–	5.1
1387	H-5, 40-50	charcoal	not identified	–	0.7
1392	H-6, 50-60	charcoal	not identified	–	0.5
1403	H-6, 60-70	charcoal	not identified	–	0.6
1422	H-7, 20-30	charcoal	not identified	–	0.2
1426	H-7, 30-40	charcoal	not identified	–	0.3
1431	H-7, 40-50	charcoal	not identified	–	0.1
1436	H-7, 50-60	charcoal	not identified	–	0.9
1445	H-9, 0-10	charcoal	not identified	–	0.7
1451	H-9, 10-20	charcoal	not identified	–	0.1
1458	H-9, 20-30	charcoal	not identified	–	1.1
1464	H-9, 40-50	charcoal	not identified	–	0.1
1802	HR-2, NE ¼, surface	seeds	unidentified	9	0.2
1803	HR-2, NE ¼, surface	charcoal	not identified	–	0.1
1814	HR-2, NE ¼, surface	charcoal	not identified	–	1.0
1824	HR-2, SW ¼, surface to floor	charcoal	not identified	–	2.2
1834	HR-2, SW ¼, surface to floor	charcoal	not identified	–	6.8
1845	HR-2, NE ¼, to floor	charcoal	not identified	–	6.1
1847	HR-2, NE ¼, to floor	seeds	unidentified	14	0.4
1860	HR-2, SE ¼, to floor	charcoal	not identified	–	1.5
1865	HR-2, SE ¼, surface	charcoal	not identified	–	0.2
1881	HR-2, NE ¼, to floor	charcoal	not identified	–	4.1
631	TU-A, 20-30	charcoal	not identified	–	0.2
644	TU-A, 30-40	charcoal	not identified	–	3.9
647	TU-A, 30-40	seeds, burned	*Juniperus* sp.	5	0.3
653	TU-A, 40-50	charcoal	not identified	–	2.0
657	TU-A, 50-60	charcoal	not identified	–	1.3
660	TU-A, 60-70	charcoal	not identified	–	1.9
444	TU-2, surface	seeds	not identified (missing)	27	–

Table 38. Continued.

Cat. No.	Provenience	Description	Identification	N	Wt
452	TU-2, 0-10	seeds, burned	*Juniperus* sp. (missing)	2	–
481	TU-2, 10-20	charcoal	not identified	–	2.1
493	TU-2, 20-30	charcoal	not identified	–	1.1
520	TU-3, surface	seeds	not identified (missing)	7	–
527	TU-3, 0-10	seeds	*Juniperus* sp.	3	0.2
544	TU-4, surface	seeds	unidentified	6	0.4
562	TU-4, 0-10	wood, burned	not identified	1	0.1
584	TU-4, 20-30	charcoal	not identified	–	1.0
666	TU-B, surface	charcoal	not identified	–	2.1
672	TU-B, 0-10	charcoal	not identified	–	0.7
681	TU-B, 10-20	charcoal	not identified	–	0.5
688	TU-B, 20-30	charcoal	not identified	–	1.5
732	TU-C, surface	charcoal	not identified	–	12.3
746	TU-C, 0-10	charcoal	not identified	–	89.2
863	TU-C, 10-20	charcoal	not identified	–	42.9
979	TU-C, 20-30	charcoal	not identified	–	81.8
1002	TU-C, 30-40	charcoal	not identified	–	52.4
1022	TU-D, 10-20	charcoal	not identified	–	43.1
1046	TU-D, 0-10	seed	unidentified	1	0.1
1050	TU-D, 0-10	charcoal	not identified	–	17.4
1118	TU-D, 20-30	charcoal	not identified	–	18.7
1133	TU-D, 30-40	charcoal	not identified	–	5.6
1140	TU-D, 40-50	charcoal	not identified	–	1.4
1156	TU-D, 50-60	charcoal	not identified	–	4.0
1185	TU-E, surface	seed	unidentified	1	0.1
1192	TU-E, 0-10	seed	unidentified	1	0.1
1194	TU-E, 0-10	charcoal	not identified	–	0.3
1203	TU-F, surface	charcoal	not identified	–	1.7
1223	TU-F, 0-10	charcoal	not identified	–	0.2
1229	TU-F, 0-10.	charcoal	not identified	–	3.5
1237	TU-F, 10-20	charcoal	not identified	–	13.8
1254	TU-F, 10-20	charcoal	not identified	–	0.2
1287	TU-F, 20-30	charcoal	not identified	–	11.4
1303	TU-F, in krotovina	charcoal	not identified	–	0.5
1698	Square J	charcoal	not identified	–	4.5
1699	Square J	seeds	*Juniperus* sp.	6	0.5
1708	Square J	seeds	unidentified melon	9	0.3

Table 39. Results of Obsidian Studies at CA-KER-769.

Cat. No.	Artifact	Provenience	Mean Micron Readings					Source (Coso)
			1	2	3	4	5	
General Surface								
108a	flake	surface	4.01 ± 0.03	–	–	–	–	West Sugarloaf
109	"Apache Tear"	surface	N/A	–	–	–	–	Unknown
125	biface	surface	2.99 ± 0.02	–	–	–	–	West Sugarloaf
174a	flake	surface	4.35 ± 0.03	–	–	–	–	West Sugarloaf
202a	flake	surface	3.96 ± 0.05	4.69 ± 0.03	–	–	–	West Sugarloaf
Locus A								
408	flake	TU-1, surface	4.02 ± 0.02	4.77 ± 0.02	–	–	–	West Sugarloaf
413	flake	TU-1, 0-10	1.51 ± 0.02	5.27 ± 0.03	4.99 ± 0.02	–	–	West Sugarloaf
417a	flake	TU-1, 10-20	3.99 ± 0.03	–	–	–	–	West Sugarloaf
430a	flake	TU-1, 20-30	2.05 ± 0.01	–	–	–	–	West Sugarloaf
439a	flake	TU-1, 30-40	4.00 ± 0.02	–	–	–	–	West Sugarloaf
1344	Cottonwood pt	H-5, 0-10	2.93 ± 0.04	–	–	–	–	West Sugarloaf
1804a	flake	HR-2, NE ¼, surface	5.05 ± 0.02	2.75 ± 0.03	4.99 ± 0.02	5.71 ± 0.02	–	West Sugarloaf
1822a	flake	HR-2, SW ¼, to floor	3.77 ± 0.05	–	–	–	–	West Sugarloaf
1836a	flake	HR-2, SW ¼, to floor	5.58 ± 0.03	–	–	–	–	West Sugarloaf
1854a	flake	HR-2, NE ¼, surface	2.94 ± 0.02	3.99 ± 0.05	–	–	–	West Sugarloaf
1862a	flake	HR-2, NE ¼, to floor	3.00 ± 0.03	4.98 ± 0.03	4.98 ± 0.02	4.97 ± 0.04	–	West Sugarloaf
1867a	flake	HR-2, SE ¼, surface	3.55 ± 0.02	4.03 ± 0.04	3.56 ± 0.02	11.71 ± 0.05	11.75 ± 0.05	West Sugarloaf
1872	flake	HR-2, NE ¼, to floor	3.56 ± 0.01	–	–	–	–	Joshua Ridge
1874a	flake	HR-2, NE ¼, to floor	5.00 ± 0.04					West Sugarloaf
Locus B								
924	biface	TU-C, 10-20	2.30 ± 0.03	–	–	–	–	West Sugarloaf
1043a	flake	TU-D, 0-10	3.74 ± 0.04	4.23 ± 0.02	–	–	–	West Sugarloaf
1027a	flake	TU-D, 10-20	5.04 ± 0.03	–	–	–	–	West Sugarloaf
1119a	flake	TU-D, 20-30	5.75 ± 0.03	6.16 ± 0.03	–	–	–	West Sugarloaf
1131a	flake	TU-D, 30-40	2.96 ± 0.01	–	–	–	–	West Sugarloaf
1143a	flake	TU-D, 40-50	4.39 ± 0.05	8.01 ± 0.04	–	–	–	West Sugarloaf
1150a	flake	TU-D, 50-60	3.01 ± 0.04	–	–	–	–	West Sugarloaf
1170a	flake	TU-D, 60-base	7.83 ± 0.21	4.75 ± 0.03	–	–	–	West Sugarloaf

Note: The sourcing was conducted by Richard E. Hughes (2010), and the hydration readings were made by Tim Carpenter (2011).

indicating that they had been modified at different times, such as an "old" artifact being broken, discarded, and later recovered and rejuvenated. Two rims of about 11.7 µm were obtained on one flake (which also had 3 µm and 4 µm rims), indicating that in this one instance a very early artifact had been acquired and reused.

Dating

The dating of KER-769 relies on temporally diagnostic artifacts (projectile points, beads, worked historic glass, and pottery) and obsidian hydration data. No radiocarbon assays were obtained from the site.

The distribution of projectile point types (Table 13) suggests that there was not a significant difference in the time of occupation between Locus A and B and that both contain Sawtooth and Chimney phase occupations, although all three of the DSN points came from Locus A. The presence of three dart points is suggestive of an earlier (Canebrake Phase) occupation or presence.

The beads include specimens of stone, bone, shell, and glass. Some of the shell beads are not temporally sensitive, but many were Class H *Olivella* types that generally date between about AD 1800 and 1816 (Bennyhoff and Hughes 1987:135). The glass beads date after about AD 1770, and the pottery dates within the last 1,000 years or so.

The obsidian hydration data suggest that the site was occupied to some extent during the Canebrake Phase (ca. 5 µm to 7 µm) but that use of the site increased during the subsequent Sawtooth Phase (ca. 3 µm to 5 µm), continuing into the Chimney Phase (e.g., 1 µm to 3 µm). The two large hydration rims (≈ 11 µm, both from the same flake) indicate either an earlier occupation or a reuse of earlier materials. Given the lack of other evidence of a pre-Canebrake Phase occupation, the latter hypothesis is favored.

In sum, the data from KER-769 suggest that the site was used on an ephemeral basis during the Canebrake Phase and that sometime during the Sawtooth Phase, perhaps as early as 1,800 BP, and throughout the Chimney Phase, site occupation increased. By the time of contact (ca. AD 1770), people were living at KER-769 for extended periods (as seen by development of the midden).

Interpretations

The data recovered from KER-769 allow varying levels of interpretation regarding material culture, dating, site function, social structure, ethnicity, interaction and trade, seasonality, subsistence, and settlement. Each of these subjects is discussed below.

Material Culture

The material culture from the site is diverse and includes most of the artifact types associated with a general habitation site (see Table 6). Technology related to food procurement (projectile points), food processing (milling equipment and faunal remains), domestic activities (pottery, beads, and ornaments), and residences (structures) is well represented. In addition, the presence of rock art, a quartz crystal, and ochre indicate that ceremonial behavior occurred at KER-769.

Flaked stone materials are abundant at the site. While there is evidence of some biface reduction, the majority of stone working appears to have involved core reduction and perhaps the production of cutting flakes. The presence of mostly finished obsidian tools, an absence of obsidian cores, and the considerable quantity of obsidian debitage suggest that obsidian tools arrived at the site in mostly finished form and were reworked as needed.

Dating

Although no chronometric dates are available, the material culture of the Sawtooth and Chimney phases of the southern Sierra Nevada are a good match for the materials recovered from KER-769. The presence of the few dart points and some obsidian hydration data indicate that the site was initially occupied, although not intensively, during the Canebrake Phase. The intensity of site use appears to have increased during the Sawtooth Phase and into the Chimney Phase, with occupation continuing to ethnohistoric times.

There may be some horizontal stratigraphy at the site. It appears that Locus A may have been first occupied a bit later than Locus B. Locus A contained all the DSN points, very few stone beads, and few tabular stone ornaments, suggesting that the Sawtooth Phase occupation was not as significant as that of the Chimney Phase. Locus B had a deeper deposit and contained most of the stone beads and ornaments, more indicative of a Sawtooth Phase occupation. Locus B also contained a significant Chimney Phase occupation as witnessed by the presence of most of the pottery and shell beads and all the glass beads.

Site Function

During the Canebrake Phase, the function of KER-769 is unclear, given the relatively paucity of materials that can be attributed to that time. Depending on the dating of the petroglyph panel, it is possible that the site functioned as a "shrine" (e.g., Lee 1999:3) during the Canebrake Phase. Later, during the Sawtooth and Chimney phases, the site was probably a habitation locality occupied by perhaps one or two families. There were house rings, milling stations, and a diversity of material culture, including milling equipment, artifacts related to lithic reduction and tool manufacture (points, bifaces, cores, hammerstones, and debitage), and faunal remains from domestic activities.

Social Structure

The existence of the apparent domestic structures at KER-769 suggests the presence of small social units, perhaps one or two families at a time. The overall assemblage of material culture at KER-769 is quite similar to that of the other two nearby small "villages" (see Table 40), where a diversity of artifacts were found in comparable frequencies. This suggests that these three sites (KER-769, -229, and -2357) were occupied by similar social units doing similar things. It seems likely that the people at KER-769 were associated with the people at the larger KER-230 site located just to the west.

Ethnicity

The KER-769 sites lies within the core territory claimed by the Kawaiisu (e.g., Zigmond 1986), and there is little doubt that the later inhabitants of the site were Kawaiisu. Given that the prehistory of the Kawaiisu is poorly understood, however, the ethnicity of the site occupants prior to the Chimney Phase is uncertain.

Interaction and Trade

Clearly, the inhabitants of KER-769 were engaged in trade involving shell beads from the Pacific coast, obsidian from the Coso Volcanic Field to the northeast, and steatite from the coast (e.g., Santa Catalina) or the southern Antelope Valley (e.g., the Sierra Pelona) (see Rosenthal and Williams 1992). It seems likely that both chalcedony and chert were obtained locally. Later, glass beads were acquired. Other than the glass beads, the paucity of historical materials used by Native peoples at the site suggests little contact with Euroamericans.

It is not clear what commodities (if any) were being exported in exchange for the goods obtained. Possible outgoing commodities might have included siliceous stone for tool manufacture, important plant products, or animal products such as rabbit skins (e.g., Sample 1950).

Table 40. Comparison of Prehistoric Material Culture Among CA-KER-769, CA-KER-2357, and CA-KER-229.

Artifact Type/Site	KER-769		KER-2357		KER-229	
	Number	Percent	Number	Percent	Number	Percent
metates	25	2.1	4	1.7	12	1.9
manos	49	4.3	22	9.3	57	9.2
bowls	2	0.2	–	–	2	0.3
pestles	5	0.4	9	3.8	8	1.4
unidentified ground stone	5	0.4	–	–	–	–
pigment grinder	–	–	–	–	1	0.2
shaft straightener	–	–	–	–	1	0.2
stone ornaments	16	1.4	3	1.3	4	0.7
pointed tool	–	–	–	–	1	0.2
stone beads	26	2.3	1	0.4	4	0.7
projectile points	125	11.1	23	9.7	51	8.3
bifaces	57	5.0	17	7.2	30	4.9
drills	6	0.5	–	–	1	0.2
scrapers	11	1.0	1	0.4	13	2.1
chopper	–	–	1	0.4	–	–
cores	117	10.3	99	41.9	29	4.7
hammerstones	6	0.5	6	2.6	3	0.5
modified flakes	221	19.6	43	18.2	149	24.1
modified bone	1	0.1	–	–	2	0.3
pottery	71	6.3	2	0.9	70	11.4
shell beads	349	30.8	–	–	88	14.3
bone bead	1	0.1	–	–	–	–
glass beads	37	3.3	5	2.2	89	14.4
miscellaneous materials	4	0.3	–	–	–	–
Total Artifacts	1,134	100	236	100	615	100
(debitage)	(12,268)		(2,217)		(12,919)	

Note: The data for CA-KER-2357 were taken from Ptomey (1991:Table 1), and those for CA-KER-229 were taken from Sutton et al. (2010:Table 23).

Seasonality

There is no direct evidence of the seasonality of site use. The presence of structures suggests the possibility that the site was occupied at least during the winter. Indeed, the Kawaiisu name for the general area is Tomo Kahni, or Winter House (Zigmond 1986:401). At the nearby KER-230 site, considered a "primary village," several outcroppings of bedrock mortars are enclosed by rock rings, suggesting that they were used in the winter.

Subsistence

The people at KER-769 consumed a variety of resources. Animals included hares, deer, and pronghorn. The presence of millingstones indicates the processing of resources such as plants and animals, while manos and metates suggest the milling of seeds and possibly animal resources (e.g., bone processing). The pestles probably reflect the processing of acorns.

Settlement Systems

The KER-769 site appears to have been a small habitation locality (or "village") for perhaps a few families, with some associated but separate milling and lithic work areas. It is one of several habitation sites included within the NSSC (see Table 1). A brief description of the other habitation sites within the NSSC is useful here for comparative purposes. The largest of the sites, KER-230, is located adjacent to Nettle Spring and consists of many rock rings (houses?), some 400 bedrock mortars (see Barras 1984:45), an extensive midden, rock art, and an array of material culture. This site appears to have been a large village occupied until ethnohistoric times. Excavations were undertaken at KER-230 by ASA in the mid-1950s and by AVC in 1970-1971, although no report on that work has ever been completed (but see Allen and Burns [2008]; also see Garfinkel and Williams [2011:114-115]). No human remains have been identified at KER-230, but a cremation site (CA-KER-4168/H) (Siefkin and Sutton 1995) was documented nearby.

Also located near the KER-230 site are a series of smaller "villages" that also contain house rings, milling features, and midden. The first, KER-2357 (Ptomey 1991), is located about 1.6 km to the north of KER-230. That site contained two house rings, 13 bedrock mortar features, and a small but diverse artifact assemblage. Excavation of the two house rings revealed many historic artifacts, suggesting that the site was occupied very late in time. A second small "village" is known at KER-229, located some 400 m north of KER-230. This site contained four house rings, milling features, midden, lithic scatter areas, and a diverse artifact assemblage, but only a few historic artifacts (see Sutton et al. 2010). Excavations revealed a late occupation that was likely home to one or two families and was probably associated with KER-230. Finally, as reported herein, KER-769 is also a small "village" that is located some 100 m east of KER-230. Each of these sites contained similar material assemblages (see Table 40).

The "village" sites described above contained materials (e.g., Rose Spring and Cottonwood points, pottery, and glass beads) that indicate an occupation beginning in the Sawtooth Phase (or even earlier) and lasting through ethnohistoric times. This suggests that KER-230 was a large primary village surrounded by a series of associated smaller outlier villages occupied contemporaneously during the Sawtooth and Chimney phases. However, subsequent to about AD 1770, after the introduction of glass beads, the smaller sites appear to have been sequentially abandoned. The KER-769 site (this report) contained glass beads but no other historical artifacts, KER-229 (Sutton et al. 2010) had glass beads and a few historical artifacts, and KER-2357 (Ptomey 1991) contained a large number and variety of historical materials. The larger KER-230 site also contained a number of historical materials apparently used by Native peoples (Allen and Burns 2008).

Other than obsidian from the CVF, there is little to connect the NSSC to the Mojave Desert to the east. A Kawaiisu presence in the northwestern Mojave Desert late in time seems clear (e.g., Sutton et al. 2009), but direct archaeological links between late Kawaiisu populations in the desert and mountains are currently lacking. One possible interpretation of the data is the idea of a separate Desert Kawaiisu (see Underwood 2006).

A Settlement Model for the Nettle Spring Site Complex

Based on the data outlined above, the following settlement model for the NSSC is proposed. Although the intensity is unclear, the area seems to have been used during the Canebrake Phase when Elko and Gypsum points would have been used in hunting. The primary habitation sites (KER-230, -769, -229, and -2357) witnessed their first major occupations (of unclear season or duration) during the early Sawtooth Phase, as seen by the presence of Rose Spring points at each of the sites. People continued to occupy the area throughout the Chimney Phase, and after about AD 1770, they obtained glass beads. Sometime before AD 1816 (based on glass bead dating), KER-769 was abandoned prior to the adoption of Euroamerican material culture, but the other village sites continued to be occupied. Not long after, people at KER-229 and -2357 began to acquire some Euroamerican materials, such as pane glass with which to make cutting tools (see Sutton et al. 2010:54). Soon afterward, KER-229 was abandoned, but both KER-230 and -2357 continued to be occupied. By the 1850s, considerable Euroamerican material culture was available locally, and many items were adopted by the people at the two remaining villages. Sometime in the latter part of the nineteenth century, both of these sites were abandoned.

While this model outlines site distribution and dating for the NSSC, the functional aspects of the sites are quite unclear. Certainly, KER-230 can be viewed as a primary village, but the function of the outlier "villages" is not as obvious. Each contains houses, milling stations, middens, and diverse material culture, was probably home to one or two families, and could have functioned independently of KER-230. They seem much too close to have been seasonal camps of a primary village and are not specialized enough to have been associated with task groups (e.g., acorn processing) or other specialized activities (e.g., menstrual localities). Perhaps the sites were the "homes" for separate social units, such as related families that wanted to maintain some distance from each other. It is also possible that they functioned as the seasonal homes of visitors to the KER-230 area.

One other observation is worthy of some speculation. The later in time that a small village was abandoned, the fewer house rings it had (see Table 1). This proposed pattern, if real, could indicate that the size of the social units occupying those sites was becoming smaller through time. Another possibility is that the three sites were not contemporaneously occupied late in time but that as social units became smaller, they changed residential localities sequentially from site to site. Given the evidence of occupation from Sawtooth times at each of the sites, it may be that the use of rock rings dates late in time; that is, the group that built eight rings at KER-769 needed only four when they moved to KER-229 and only two when they moved to KER-2357. If rock rings are late and served as foundations to winter dwellings (*tomo kahni*), it is possible that the occupation of the area during the winter was also late and that the earlier (e.g., Sawtooth Phase) occupation was not during the winter. Obviously, these musings remain to be demonstrated.

Regional Settlement Systems

Based on numerous excavations over the past 25 years, a model of settlement system changes over the past several thousand years in the western Mojave Desert and southern Sierra Nevada was developed (see Sutton 1996:243-244; Sutton et al. 2007:243). It was proposed that during Gypsum (Canebrake) times, the western Mojave Desert was relatively warm and dry and that human populations based themselves in the southern Sierra Nevada, using the desert on an ephemeral basis. As the climate became cooler and wetter during Rose Spring (Sawtooth) times, people moved into the desert on a full-time basis and used the mountains on a transitory basis. After about 1,000 BP, the climate became warmer and drier once again (the MCA) (Gardner 2007), and the settlement pattern switched back to the original pattern, with the mountains being occupied on a permanent basis while the desert was used on a transitory basis.

If this model is accurate, one would expect to see a pattern of occupation in the NSSC as being relatively intense during the Canebrake Phase, less intense in the Sawtooth Phase, and more intense again in the Chimney Phase. This is not the pattern seen within the NSSC, where Canebrake occupation seems to have been relatively small, increasing significantly during the Sawtooth Phase, and increasing still further in the Chimney Phase. Thus, the model is not presently supported by the data from the NSSC.

Nevertheless, there is little argument that the Kawaiisu utilized portions of the western Mojave Desert, even if only on a temporary basis. As such, it seems reasonable to propose that late sites in that region could be associated with the Kawaiisu and the NSSC. Such sites could include Cantil (CA-KER-2211) (Sutton 1991) and the Red Rock Canyon Rockshelter (CA-KER-147) (Sutton et al. 2009). The timing and intensity of such a linkage are unclear, and the implications on regional settlement patterns are unknown.

Of interest is the concept of a "Desert" Kawaiisu (Underwood 2006). In this model, at least during the Late Prehistoric, the Desert Kawaiisu would have been a separate sociopolitical unit occupying the northwestern Mojave Desert, while the occupants of the NSSC would have been part of the Kawaiisu that resided in the mountains. If this idea is correct, one would expect separate settlement patterns for the two groups. To date, there are too few data to evaluate either the ethnographic or archaeological implications of this model.

Another possibility exists regarding Kawaiisu settlement patterns and shifts. It has generally been accepted that the Kawaiisu had occupied their territory for at least the last several thousand years, as they are one of the "mother" Numic languages thought to have had a homeland in the southern Sierra Nevada and/or the western Mojave Desert (e.g., Fowler 1972, 1983; Nichols 1981). However, Kroeber (1925:601) suggested that Kawaiisu had moved into the southern Sierra Nevada only about 500 years ago, presumably from the western Mojave Desert. Further, it has recently been proposed (Manaster Ramer 1992; Hill 2007) that Tubatulabal was actually a Takic language. Following this, Sutton (2010) suggested that Takic Tubatulabal had been contiguous with the Takic Kitanemuk in the southern Sierra Nevada and Tehachapi Mountains until fairly late in time. Sometime about 1,000 BP, it was argued (Sutton 2010), the Numic Kawaiisu entered the southern Sierra Nevada and took territory from the Tubatulabal and/or the Kitanemuk, splitting them and "isolating" the Tubatulabal in the southern Sierra Nevada. If the Kawaiisu had only recently moved into the southern Sierra Nevada, the Desert Kawaiisu (Underwood 2006) would likely have been the source of that population movement.

If this model is correct, then the Kawaiisu would have only recently moved west into the southern Sierra Nevada from the western Mojave Desert. If so, only the Chimney Phase in the NSSC would theoretically be "Numic Kawaiisu," with the preceding Sawtooh Phase being either Takic Kitanemuk or Tubatulabal.

Given that the most intensive occupation of the NSSC area seems to be very late, this model may have some merit; it remains to be fully developed and tested.

Conclusions

The KER-769 site is interpreted as one of a number of small ancillary village sites to the primary village at KER-230, both part of the NSSC. The primary occupation of the site began sometime about 1,500 years ago and lasted until just after the time of contact (ca. AD 1800) but prior to the arrival of Euroamericans in the local area. It appears that one or two families lived at the site, almost certainly Kawaiisu people associated with others living at KER-230.

Living in small houses, the people at KER-769 hunted game and gathered plant foods to be processed and consumed at the site. They were involved in regional trade, with shell beads, glass beads, and obsidian ultimately being obtained from considerable distances. It seems that at about the time of contact the lives of the people at KER-769 were changed and the site was abandoned.

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