

FROM SHORELINE TO MESQUITE DUNE: CHANGING SUBSISTENCE STRATEGIES AT CA-RIV-4754, LA QUINTA

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ABSTRACT

CA-RIV-4754 was investigated during the summer of 1997 as part of the City of La Quinta's Adams Street widening project. This well-stratified sand dune deposit was initially an encampment associated with the exploitation of fish during the last stand of ancient Lake Cahuilla. With the desiccation of the lake the site remained in use sporadically and exhibited a change in subsistence practices reflecting a switch from a lakeside to an arid mesquite thicket environment.

INTRODUCTION

This paper presents the results of an archaeological data recovery program conducted by Archaeological Advisory Group at the Burning Dune Site (CA-RIV-4754). The site was located in a large mesquite-covered, aeolian sand dune on the eastern side of Adams Street north of Avenue 48 in the City of La Quinta, California. The research was conducted for the City of La Quinta. Subsequent widening of Adams Street impacted what remained of the site. The site is fully reported on in a recent CRM report (Brock, Smith, and Wake 1998).

Analysis of the site indicated two phases of early use. The first phase, associated with a radiocarbon date of 340 +/- 50 BP (cal AD 1450-1660, 2 sigma, 95% probability; Beta-108593) is related to fishing activities during what was probably the final high stand of ancient freshwater Lake Cahuilla. Presumably because of its deep stratification, the site produced the best preserved collection of fish bone ever recovered from a Lake Cahuilla site, with a remarkably high number of head bones present. This site also has the second most heavily dominated fish bone collection in the Salton Basin. The second phase of use is as a gathering and hunting area for mesquite and small game. This phase would have occurred during the lake's final recession. Radiocarbon dates indicate that exploitation of the dune terminated with a massive fire across the entire site around AD 1800. Minor 20th-century

activity is represented in the upper strata of the site.

CA-RIV-4754 can be included with the large number of sites in the north La Quinta area that are associated with Lake Cahuilla. These sites indicate an abundance of animal and plant resources that resulted in a population increase for the region at that time. With the drying of the lake, different subsistence strategies were required. Increased mesquite grove exploitation would have been an adaptive mechanism for coping with the stresses of the changing environment.

METHODS

Initial excitement for the project was attributed to an exposed dune face which revealed an extensive burn layer. Presence of closely associated ceramic sherds that appeared to have fallen out of the dune face led to the assumption that the burn layer must have been a rich midden. To our surprise, this assumption was proven incorrect. Cultural materials were rare within the burn layer itself. Most artifacts and ecofacts were found beneath this layer.

Phase II (test excavation) of this project took place in late June and early July of 1997 and was sponsored by the city of La Quinta. Figure 1 shows the layout of areas excavated at the site. A total of 14 excavation units were dug, either 1 x 1

or 2 x 2 meters in size. Because of the depth of the cultural deposit (approximately 1 meter below surface), overburden had to be stripped by backhoe prior to unit excavation. Additionally, six backhoe trenches were dug to cross-section the site. Two minor features were identified during fieldwork, and one additional feature was unearthed during monitoring of road construction. Native American consultation and review of ethnographic literature contributed to the interpretation of site utilization.

RESULTS

Investigations at the Burning Dune Site yielded much data on interpretation of the archaeology of the La Quinta area. This site is significant for two main reasons: first, for its placement within the chronology of Ancient Lake Cahuilla and second, the site presents evidence of an adaptive shift in subsistence pattern as the result of desiccation of the lake. We were fortunate that a fairly abundant amount of charcoal and carbonized material was recovered during excavation of the site. Radiocarbon dating of this material, along with presence of diagnostic artifacts, indicate initial use of the site around AD 1610 and final use around 1800. The 1610 +/- 50 date is entirely consistent with a proposed final high stand of the lake in the early to mid 1600s, and when viewed in the light of other evidence, as discussed below, we are certain that this occupation does relate to the final high stand.

With the desiccation of Lake Cahuilla, use of the site diminished and evidence becomes more inferential. The site was likely utilized for mesquite exploitation and maintenance through burning, as suggested by numerous carbon deposits throughout the site. Two carbon samples, taken from different parts of the site at similar stratigraphic levels, suggest that a single large burning occurred around 1800. After this point, no further Native American use of the Burning Dune Site seems to have occurred.

The faunal assemblage of the Burning Dune Site is one of the more unique of the La Quinta area, partially resulting from the heavy dominance of fish bone. This is the second largest fish bone assemblage (N=3886 of 4158 total faunal

specimens, MNI=51) within the Salton Basin. The collection is even more impressive in its preservation of the faunal specimens. Many extremely fragile individual head bones were recovered. Recovery of such specimens is rare in Salton Basin archaeological sites.

Although the variety of species was not as impressive as the quantity and preservation of lacustrine fauna, the species identified in the faunal analysis (done by Dr. Thomas A. Wake, UCLA Zooarchaeology Laboratory) were entirely consistent with the species of fish present in the ancient freshwater lake. The two dominant species represented in the assemblage are bonytail (*Gila elegans*) and razorback sucker (*Xyrauchen texanus*). These fish are Colorado River species that would have entered Lake Cahuilla when the Colorado River's course was periodically diverted from the Gulf of California into the Salton Basin forming the freshwater lake. Both of these fish would have provided hearty meals and would be well worth the time and energy spent for their procurement.

Procurement of these fish was probably done using U- or V- shaped fishing weirs typical of the ancient Lake Cahuilla shoreline. Presumably fishing nets were also used, either alone or in combination with the weirs. Although direct evidence of these procurement techniques was not found at the Burning Dune Site, use of such fishing techniques would explain the absence in the faunal assemblage of small fingerling sized fish that would have managed to escape from capture. Once procured, the fish would have been roasted over an open fire. It is our contention that roasting of fish was likely done by the site's occupants in a wrap of wet clay, such as the fish roasting technique recorded for some Colorado River peoples (Trippel 1889). Bones of these fish would have been tossed into hearths subsequent to consumption. Presence of uncut, burned fish bone with a high co-occurrence of non-uniform, tabular, burnt clay is indicative of such activities. The faunal assemblage also indicates that the diet of predominantly fish was supplemented by small mammals, mainly cottontail rabbits and rodents. Use of clay in cooking has been noted for the Cahuilla in preparation of small rodents, which were wrapped in wet clay and baked (Bean 1972:60). Like the fish bone, the burned

condition of the small mammal bone and the association of non-uniform, tabular, burnt clay suggests that these animals were also roasted with clay and then the remains were disposed of in a fire. Lack of large wild ungulate bones further supports a high degree of dependence on fish and small game. But with desiccation of the lake, dependence on fish would have lessened and other protein sources would have been sought. The Burning Dune Site is a wonderful example of this shift.

The Cahuilla believe that as the lake receded Coyote came down from the mountains and planted mesquite on the newly dried lakebed. This oral tradition is supported by biological and archaeological evidence which shows that mesquite thickets did follow the retreating shoreline. Once CA-RIV-4754 was covered in mesquite, this area would have become a valuable resource for exploitation of the mesquite itself and the small mammals that live within the groves. As is well known, mesquite was a particularly valuable plant for desert peoples. It has been said that it is alongside the oak in importance to the Cahuilla (Bean and Saubel 1972). Uses of mesquite are many and range from food to firewood, and from diapers to mortars. The only direct archaeological evidence of mesquite on the Burning Dune Site comes from the macrobotanical analysis (done by Dr. Virginia Popper and Dr. Steve Martin, UCLA Paleoethnobotany Laboratory) in which mesquite wood charcoal and carbonized plant material were recovered. Due to the burned nature of the mesquite, only mention of some possibilities of how the mesquite was burned will be applicable here.

According to Bean and Saubel (1972:113), "mesquite was viewed as one of the best firewoods, [as] it compared favorably with oak and provided a hot, durable fire for cooking, baking pottery, and warmth." Mesquite bark is also known to have been used as kindling and mesquite charcoal has been recovered from Cahuilla cremations. The burned condition of buried portions of mesquite at this site is the argued source of carbon deposits in the exposed

dune face. While most of these deposits are natural and contain no cultural material, we believe they are attributable to deposition from intentional burning by the Cahuilla of the associated mesquite thicket. Burning of mesquite and other plants by the Cahuilla has been historically and ethnographically documented and presumably, as is the case with other native peoples, fire was utilized as a strategy in plant cultivation and maintenance. In addition to or as an advantage of the maintenance burning of the groves, burning was used as a strategy in the hunting of small game. Bean and Saubel (1972:115) relate that:

...an efficient method of securing game was to set fire to mesquite brush as a group enterprise. Children were often used in encircling the mesquite trees, which were then fired. Animals were killed as they attempted to escape or were chased back into the brush, where they burned. Once the fire died down, the burned animals were gathered and prepared for eating. The practice of burning the mesquite also served to thin out stands and resulted in improved crop yields at a later date.

SUMMARY

Archaeological investigations, along with ethnographic and native consultation, suggest that the Burning Dune Site exhibits two very different resource exploitation patterns corresponding with changing environmental situations; the first, fishing in association with the final high stand of Lake Cahuilla and the second, subsequent utilization of the mesquite thicket on the site for plant foraging and small game hunting. We believe the site displays a shift in subsistence strategies forced by the desiccation of the ancient freshwater lake. With the drying of the lake, different subsistence strategies were required. Increased mesquite grove exploitation would have been an adaptive mechanism for coping with the stresses of the changing environment.

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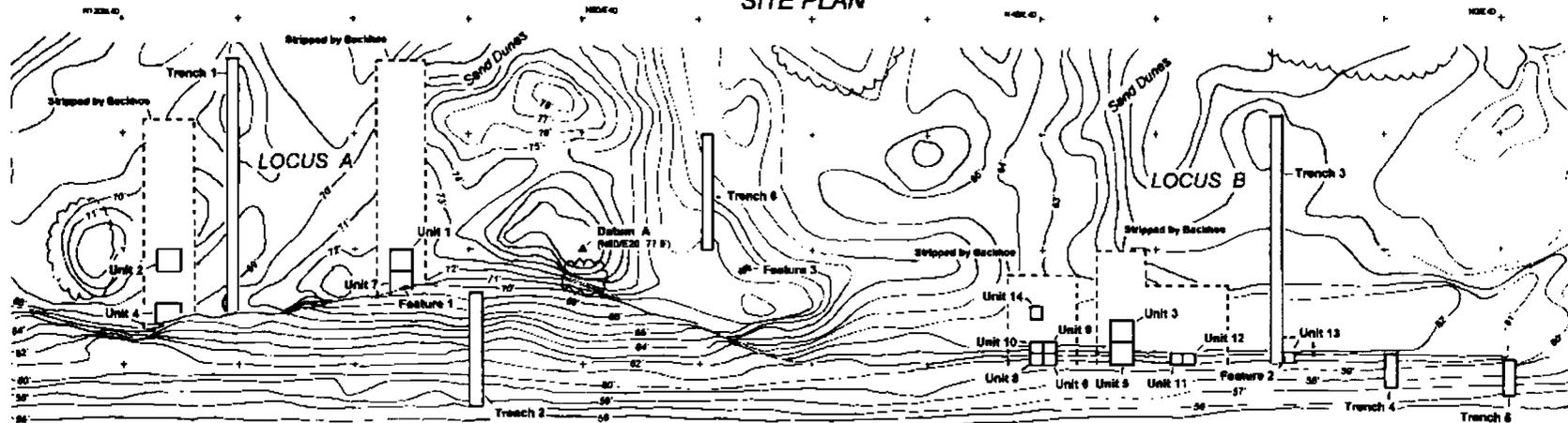
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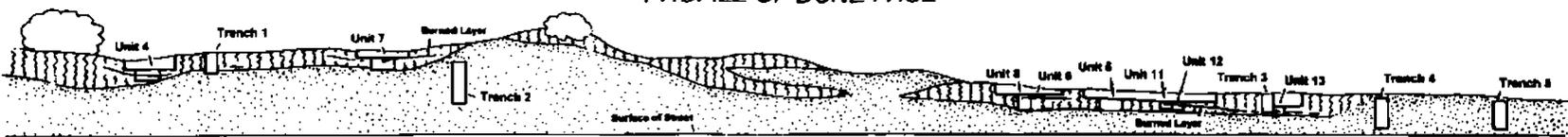
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SITE PLAN

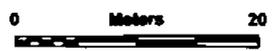


Adams Street

PROFILE OF DUNE FACE



CA-RIV-4754 The Burning Dune Site
La Quinta, California



KEY:
 Sand Covered Area
 Exposed Escarpment

51