DATA FROM CA-LAN-1702 AND REGIONAL IMPLICATIONS

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ABSTRACT

Two testing and evaluation projects were conducted by Tetra Tech in the area south of Rogers Lake at Edwards Air Force Base, California. Limited test excavations and artifact analysis of CA-LAN-1702, part of the 140th Street Project, revealed a small intact dune with deep, stratified deposits. Within this dune, a variety of organic and stone materials were recovered including shell and bone artifacts, charcoal, wood, debitage, and large quantities of faunal remains. A chronological sequence beginning approximately 2000 years BP was identified through radiocarbon dating and obsidian hydration. The applicability of data from CA-LAN-1702 to the south Rogers Lake area as a whole is discussed in the context of work performed at CA-LAN-863, a very large regional site with multiple loci.

Introduction

In 1994 and 1995, archaeologists from Tetra Tech, Inc. conducted 2 major testing and evaluation projects in the area south of Rogers Dry Lake at Edwards Air Force Base (Figure 1). This area is characterized by low sand dunes, claypans, and alluvial plains. The elevation ranges between 2,280 and 2,320 feet above mean sea level. Ephemeral drainages occur in the area, trending north-south toward the dry lake. The dominant plant community is halophytic-phase saltbush scrub which occurs on relatively shallow saline soils around playas and in claypan and dune complex areas. Stands of mesquite are associated with north/south trending drainages but are not as common as they are immediately west of the project areas. Joshua trees are also found and are most plentiful on the larger dune ridges.

The more extensive of the two projects was the evaluation of CA-LAN-863, a site which measures more than a mile from east to west and nearly 3/4 of a mile from north to south. Fifteen loci were identified in previous work on the site. As well as being evaluated as an individual property, data from this site is also being used to develop criteria for a proposed National Register district of prehistoric properties in the South Rogers Lake area.

The other project was an investigation of five archaeological sites adjacent to 140th Street East. The goals of this study were to evaluate the sites for the National Register of Historic Places and to assess damage that occurred during road widening activities. The project included 4 prehistoric sites ranging in size from 2075m^2 to 44,000m^2 and the documentation of the remains of an historic homestead.

This discussion focuses on the results of investigations at CA-LAN-1702, one of the sites examined during the 140th Street project, and the applicability of data obtained to the South Rogers Lake area as a whole.

Site Data

In 1989, a cultural resource survey was conducted in response to a proposal to widen 140th Street. Three archaeological sites and several isolates were recorded during this survey (Perry 1989). In November of 1989, a field check of the road project was performed and the investigator discovered that the extent of grading along the road shoulder was greater than expected. Staging areas and vehicular turnarounds had also impacted the archaeological sites adjacent to the road. While conducting a damage assessment survey, Rick Norwood and Mike Perry identified and recorded a new site, which had also sustained damage

(Braun-Fishman 1989).

Site CA-LAN-1702 is a prehistoric site located on a small dune along the eastern edge of 140th Street. The original site record notes the presence of burned bone, fire-affected rock, a millingstone fragment, and four chert flakes. A Cottonwood point was collected from the site surface when the site was revisited in 1990. The dimensions of the site were originally recorded as being approximately 54 meters (north/south) by 15 meters (east/west).

In December 1994, the site was resurveyed by crews from Tetra Tech, Inc. and new boundaries were established to include previously unrecorded artifacts surrounding the dune. The new site dimensions were determined to be approximately 160 meters (north/south) by 44 meters (east/west) (Titus *et al.* 1995).

A sparse scatter of lithic artifacts was recorded on the claypan north of the dune. Lithic debitage, fire-affected rock, bone, and a schist metate fragment were found on the areas to the south and east of the dune. A small concentration of approximately 15 flakes in an area 6 meters in diameter was noted thirty meters south of the dune edge.

Most of the cultural material observed on the site surface was found on the west side of the dune. Erosion, which was probably accelerated by the road widening activities on 140th Street, had exposed additional artifacts and features. There were two blowouts eroding on the dune which contained dense concentrations of burned bone and other artifacts. These blowouts are separated by a small ridge that rises approximately 2.5 to 3 meters above the road surface.

The northern blowout contained darkened sand, chert and jasper flakes, thousands of small burned mammal bone fragments, 1 *mytilus* and 2 *olivella* shell beads, and a charred Joshua tree log eroding out of the sand.

The southern blowout included a hearth feature consisting of more than 40 pieces of fire-affected rock; abalone shell fragments; chert, jasper and obsidian flakes; charcoal; and thousands of burned mammal bone fragments.

A total of 5 shovel test units, 3 formal test units, and 1 surface scrape unit were excavated on the site. Of these, 2 test units and the surface unit were placed in the blowout areas. The sparse surface vegetation in the blowout areas was avoided.

A 1 by 1 meter unit, TU 3 (Figure 2) was excavated in the northern dune blowout area to an overall depth of 130 centimeters and 140 centimeters in the northeast corner. Within this unit, 4 distinct midden layers were observed which undulate and vary in thickness in different parts of the unit. The soil in levels adjacent to the middens in this unit varied in composition, texture and color. Charcoal flecks were present in transitional levels but nearly all of the cultural material recovered from this unit was found in the midden levels.

Artifacts recovered from TU 3 include 1,864 bone fragments, 1/3 of which, were burned; 17 pieces of chipped stone debitage; a bone awl; a *mytilus* shell disc bead and small quantities of schist and fire-affected rock.

A 5 by 5 meter surface scrape unit, SSU 1 (Figure 3), was placed in the southern blowout area and excavated to a depth of 5 centimeters in one meter provenienced squares. This unit encompassed the large scatter of fire-affected rock which was recorded concurrently. Artifacts recovered from SSU 1 include 6,247 bone fragments, many of which were burned; 23 pieces of chipped stone debitage; 39 *haliotis* shell fragments; and 63 pieces of fire-affected rock.

A 1 by 1 meter unit, TU 4 (Figure 3) was placed in the hearth feature in an area where darkened sand had been observed. The hearth continued to a depth of 15 centimeters below surface and contained black soil heavily laden with charcoal. TU 4 was excavated to a depth of 140 centimeters below the surface. Two cultural middens were identified in this unit below the hearth (Figure 3).

Artifacts recovered from TU 4 include 3,398

bone fragments, 1/3 of which were burned; 87 chipped stone artifacts; 1 schist fragment; 8 shell fragments and 24 pieces of fire-affected rock. A majority of the recovered materials, with the exception of the fire-affected rock, was associated with Midden 2 (110-130 centimeters below surface).

One of the remaining units contained moderate quantities of cultural material but no midden deposits were observed. The other units on the site contained sparse amounts of cultural material.

It should be emphasized at this point that the presence of buried midden layers is not a common characteristic of sites in this environment. The area is dominated by low dunes and hummocks which are stabilized to some degree by local clusters of low-density vegetation. This is a relatively high-energy eolian environment which can affect archaeological remains by shifting them over time from their original locations, either horizontally or vertically. Faunalturbation is also an important factor in this area in degrading the integrity of archaeological remains. The presence of the midden layers in the dunes, "is a very unique situation (which implies) that the landscape in the dune field has had periods of stability during the Holocene" (Morgan 1995:8). The processes contributing to the preservation of these cultural middens and methodologies for predicting their presence should be explored further. Excavations indicate that the lateral extent of these deposits on CA-LAN-1702 is limited to only a small area within the site. Similar midden deposits have not been observed by the author in test excavations of nearly 40 sites or loci at Edwards AFB.

Regional Implications

The following discussion is based on information that was recovered from CA-LAN-1702. This section will present the data and will compare it with information from other sites in the 140th Street project and CA-LAN-863.

Chronology

The chronological placement of site CA-LAN-1702 was approached using a variety of techniques including radiocarbon dating, obsidian hydration, and stylistic analysis of shell beads and projectile points. Three chronological periods corresponding to surface and subsurface deposits in TU 4 were defined based on radiocarbon dating: these were 415-40 B.C. (Midden 2), 405-670 A.D. (Midden 1), and 1205-1400 A.D. (Feature 1, hearth) (Titus *et al.* 1995).

Obsidian hydration dating of a flake from Midden 2 corroborated the results for that level (Titus *et al.* 1995). Chronological indicators found on the surface of the site include *Olivella* and *Mytilus* shell beads, and a single Cottonwood triangular point, all roughly corresponding to the latest phase of occupation.

The 4 middens manifest in TU 3 were not dated due to budget constraints although datable charcoal material was collected. A single *Mytilus* shell bead was recovered from the level between Midden 1 and Midden 2. This type dates most frequently between 1000 - 1800 A.D. (King 1981). The chronological evidence suggest that CA-LAN-1702 was occupied sporadically over a period of at least 2,000 years.

The chronological information obtained from the other sites in the 140th Street Project was limited to two *Olivella* shell beads which have been dated to 2000-200 B.C. and 900-1500 A.D. No suitable samples for radiocarbon dating were recovered from the 47 other units excavated during the 140th Street project and work at CA-LAN-863.

While many of the dates obtained from CA-LAN-1702 are similar to those from other sites in the South Rogers area, some obsidian hydration dates and the presence of a Pinto point may indicate an earlier occupation at CA-LAN-863 (Taskiran *et al.* 1996). At CA-LAN-863, relative dating based on obsidian hydration, supported by bead analysis and projectile point typology, suggests that the site may have been occupied intermittently from roughly 5,000 B.C. to as late as 1500 A.D.

Subsistence

The assemblage recovered from CA-LAN-1702 contains an extraordinary amount of faunal material and other clues to prehistoric subsistence. Significantly fewer bones were found at the other sites in the 140th Street project and at the loci excavated at CA-LAN-863. A preliminary analysis of the 12,000 bone fragments collected indicates that a minimum of eleven different taxonomic classifications were present at CA-LAN-1702. The vast majority of the faunal remains (at least 90%, although this number has not been precisely quantified) are black-tailed jackrabbit, which were often communally hunted according to the ethnographic data (Yohe 1984). With the current level of analysis, data indicating that this area was used for a communal hunt or subsequent processing are limited to the high percentage of jackrabbit bone at CA-LAN-1702.

The presence of 11 different taxa suggests some diversity of animals utilized as part of the subsistence resource base. At least one-third of the bones from CA-LAN-1702 were burned which indicates that food preparation involving roasting or other open flame techniques was conducted at the site. The percentage of burned bone in these units is very high when compared to the other sites in the 140th Street Project or at CA-LAN-863. The evidence indicates that food preparation was conducted on a large scale and/or over a long period of time at site CA-LAN-1702.

The use of plant resources as a component of the subsistence base at CA-LAN-1702 is also indicated. Pollen and macrofloral analysis of samples from the two test units yielded some evidence of plants that were possibly utilized. A soil sample from Midden 1 in TU 4 contained large aggregates of Cheno-am (Chenopod and Amaranthus) pollen, consistent with what would be expected with the processing of Cheno-ams (goose foot, pigweed, and other weedy annuals used for their greens and seeds) in the hearth feature. A high concentration of starch granules noted in this sample is probably related to the presence of grass seeds, which may have been ground into a meal and cooked (Cummings and Puseman 1995); however, no charred grass seeds were identified.

A sample from the Midden 2 in TU 4 is even more heavily dominated by Cheno-am pollen. Macro-floral remains included a charred Cheno-am embryo fragment. This suggests that the processing of these kinds of plants took place at this same location during at least 2 long periods of prehistory separated by 500 years. A charred cactus seed fragment was also found indicating possible processing of cactus fruit or seeds.

Local saltbush, sagebrush, and mesquite were identified in charcoal samples and apparently were collected and utilized as wood for fuel.

Groundstone artifacts represent indirect evidence for a high degree of plant processing occurring in the area. While groundstone artifacts can also be associated with other functions (Yohe *et al.* 1991), plant processing is the most likely explanation for the eleven manos and mano fragments found on the surface of the 140th Street sites and CA-LAN-863. A large pestle, similar in type to those mentioned in the ethnographic literature for mesquite processing was recovered from the surface of CA-LAN-863 (Fowler 1986).

Lithic Technology

Excavation recovered 158 flaked stone artifacts from CA-LAN-1702. Most of the artifacts are chert, followed by smaller amounts of jasper, chalcedony, and rhyolite. Obsidian and quartz are also present in very small quantities. Except for the obsidian, there are local sources for each of these material types. Interesting technologically is the presence in Midden 2 of a concentration of small, heat-altered, pressure flakes with platforms. This pattern may indicate the resharpening of curated tools rather than tool manufacture at CA-LAN-1702 associated with the earliest time period. The rest of the assemblage from CA-LAN-1702 and the other sites in the 140th Street project display a more mixed pattern of lithic reduction.

The lithic assemblage recovered at CA-LAN-863 showed a considerable degree of variation between loci (Taskiran et al 1996). An unusual characteristic of some loci was the presence of a large number of bifaces made of a variety of materials.

CONCLUSIONS

In summary, the data recovered from a single site with rich subsurface deposits provide a relatively rare opportunity to confirm and supplement information gathered from a wider geographic context. However, for each of the research issues examined here, the data from the broader South Rogers area raise additional questions that CA-LAN-1702 does not address. While data from a small area which may have a specialized function cannot be expected to speak for a region, it can provide some insight into the complexity of land use over time and help focus future research efforts.

Notes

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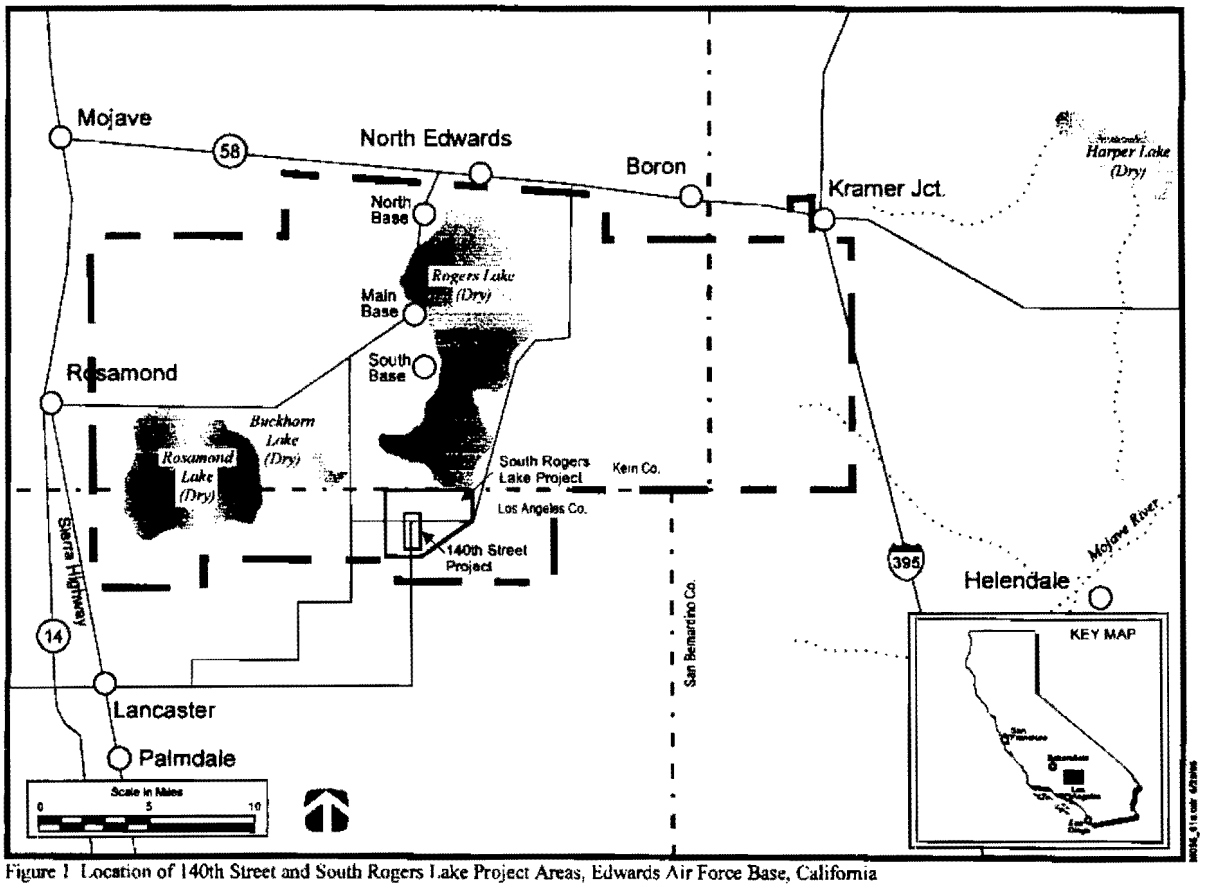
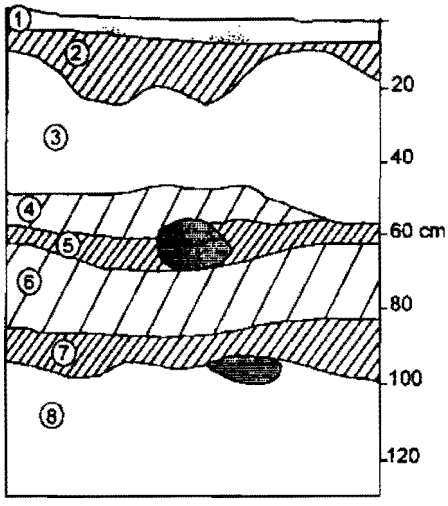
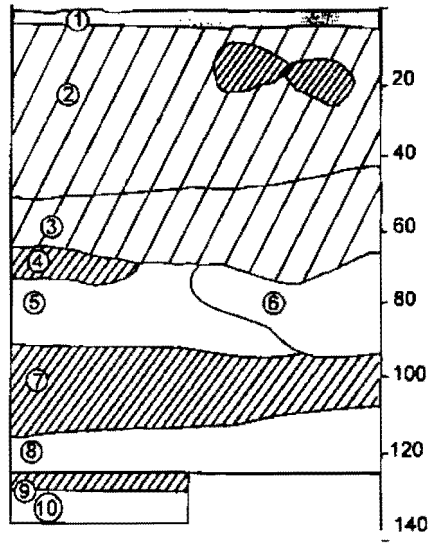


Figure 1 Location of 140th Street and South Rogers Lake Project Areas, Edwards Air Force Base, California





South Wall Profile

① Loose Surface Sand

② Slightly Compact Sand with Ash and Charcoal Particles (Midden 1) 10Yr 3/2 very dark greyish brown

③ Lighter Sand With Small Charcoal Particles 10Yr 4/3 brown

④ Dark Soil Overlying the Midden Level 10Yr 4/3 brown

⑤ Very Dark Midden Level (Midden 2) 10Yr 3/2 very dark greyish brown

⑥ Dark Soil Underneath the Midden Level 10Yr 4/3 brown

⑦ Very Dark Midden Level (Midden 3) 10Yr 4/2 dark greyish brown

⑧ Light Yellowish Grey Sand With Few Charcoal Particles 10Yr 5/2

East Wall Profile

① Loose Surface Sand

② Dark Soil With Large Charcoal Particles 10Yr 3/3 dark brown

③ Dark Soil Overlying the Midden Level 10Yr 3/3 dark brown

④ Very Dark Midden Level (Midden 2) 10Yr 4/3 brown

⑤ Greyish Sand 10Yr 4/3 brown

⑥ Greyish Sand with White Particles 10Yr 4/2 dark greyish brown

⑦ Very Dark Greyish Brown Midden Level (Midden 3) 10Yr 3/2 very dark greyish brown

⑧ Light Sand Wtih Very Little Charcoal 10Yr 5/3

⑨ Midden Layer (Midden 4)

⑩ Clay Pan 10Yr 4/4 dark yellowish brown

LEGEND

Soft Surface Sand

/// Midden

/ / / Relatively Dark Sand With Ash and Charcoal

Possible Animal Disturbance

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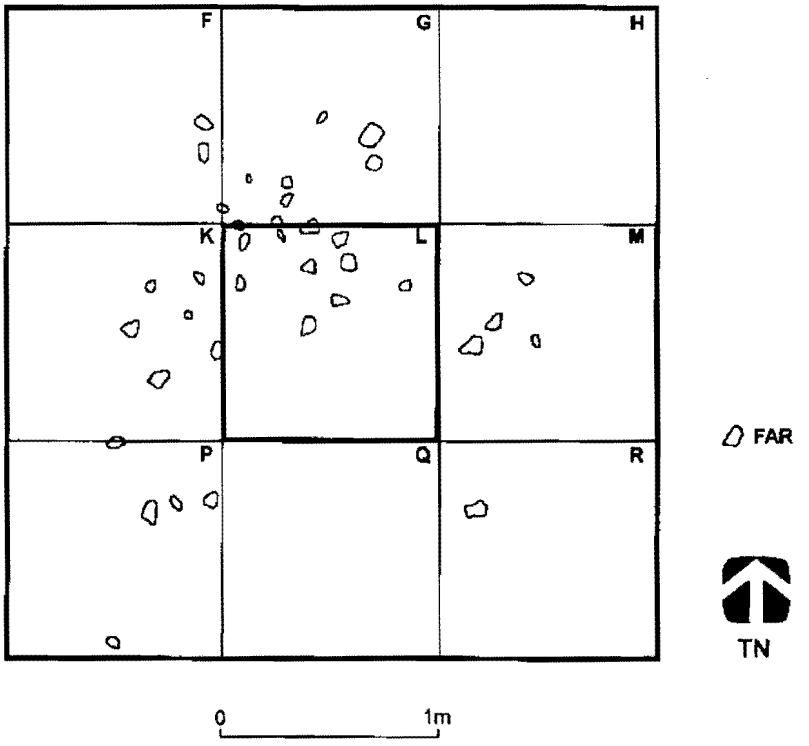
Figure 2 TU 3, South and East Wall Profiles CA-LAN-1702 140th Street, Edwards AFB, California



Surface Plan of TU 4 (Square L) and Part of SSU 1 Showing Feature 1 (Hearth). CA-LAN-1702, 140th Street, Edwards AFB, California

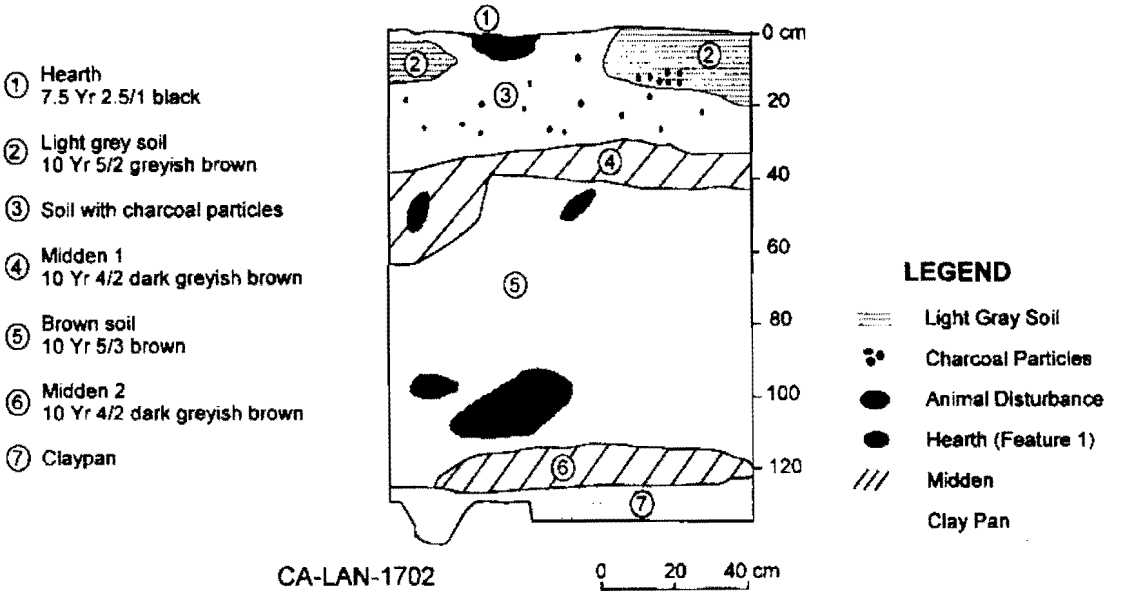


Figure 3 TU 4, North Wall Profile, CA-LAN-1702, 140th Street, Edwards AFB, California

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