RESULTS OF A TEST EXCAVATION AT CA-Lak-589

ANDERSON MARSH STATE HISTORIC PARK

LAKE COUNTY, CALIFORNIA

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ABSTRACT

The results of the analysis of artifacts recovered from a test excavation for a proposed viewing platform at site Lak-589 are described. Preliminary interpretations of the remains suggest that activities such as core reduction, tool manufacture and maintenance, food procurement and processing of marsh and woodland resources were performed at this location within the 20 acre site. The author explores how these findings compare to other research results at Lak-589, as well as at Lak-510. Tentative conclusions from obsidian hydration analysis suggest that this area on Lewis Ridge was occupied from approximately the Early Borax Phase (5000-2500 B.C.), to at least the Late Houx Phase (A.D. 0 - 1000).

This report discusses the results of a test excavation project undertaken last fall by Northern Region Headquarters, Department of Parks and Recreation. Mitigation of the effects of a 30 foot diameter viewing platform and ramp for access (AMVP) was completed within site Lak-589, an extensive 20 acre midden nominated to the National Register as part of the Archaeological District of Anderson Marsh State Historic Park, Lake County (Figure 1). Mitigation work provided the opportunity to address some general questions regarding the length of occupation and types of activities carried out at this part of the Lewis Ridge site (Lak-589).

Since 1983 John Parker has directed a field school at Lak-589 with the goal of systematically surface collecting the upper 10 cm of the site in order to mitigate impacts from visitor use in the park. Using the findings from this work,

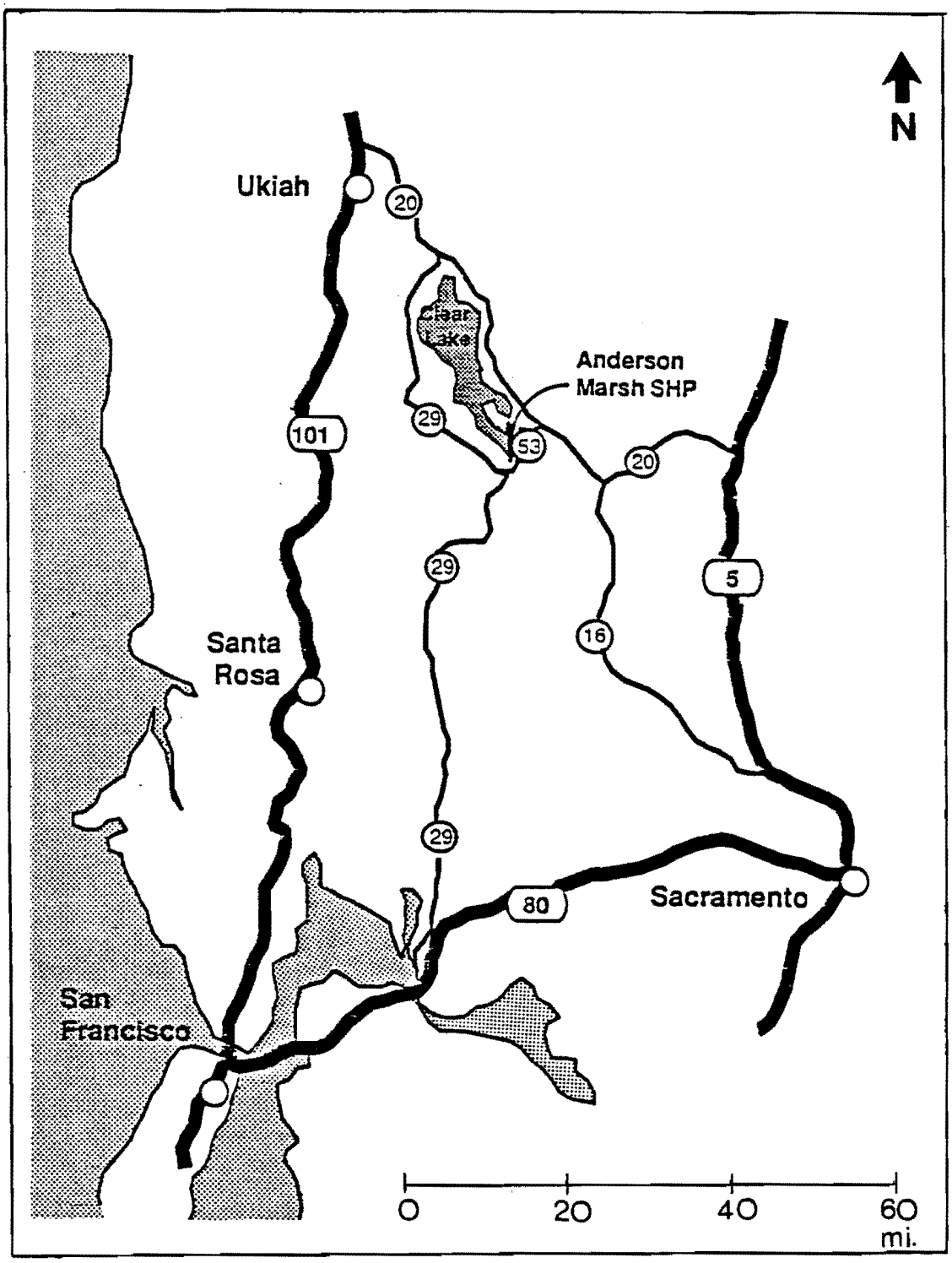

FIGURE 1. Vicinity map of Anderson Marsh State Historic Park.

Greg White (1986) proposed a model of prehistoric habitation. White's (1986) hypothesis that the archeological remains at different localities of the site reflect exploitation of a subset of marsh and prairie resources is based on noticeable differences in the types and ratios of tools associated with different natural areas. Using this model, the author expected remains from the test excavation on the western slope of the ridge to include items reflective of an economy which concentrated on procuring and processing marsh waterfowl and vegetal resources located to the west, versus prairie resources such as game animals east of the ridge.

Given an average density of 12,000 flakes per cubic meter, the depth of the deposit to at least 104 cm based on auger tests, and limited availability of a field crew, field methods were restricted to excavating three, 1 X 1 meter test units to 30 cm, the maximum depth of disturbance, and one unit to subsoil.

The majority of the excavation work was conducted during the 1987 Labor Day weekend by a crew of 25 to 30 volunteers and State Park archeologists. Four strata were noted in Unit #1, the deepest unit, ranging from a dry, dark brown clayey loam midden, to an intermixed clay and friable midden, to a stratum of brown clay, and then to a sterile, yellow silty clay (Figure 2). A total of 2 cubic meters of midden were excavated and all remains were catalogued and analyzed at the Northern Region's lab.

The results of obsidian hydration analysis of several Borax Lake flake samples indicate that a great deal of mixing occurred in the upper 60 cm, and that the levels from 70-110 cm are probably associated with one component. The smallest hydration reading of 2.5 microns from the upper level suggests that this area was utilized as recently as the Late Houx Phase, or 500 to 800 years ago. The range of readings from the lower levels (6.8 to 8.6 microns) suggests that the oldest component may date to the Early Borax Lake Phase, or 3500 to 6000 years ago. These preliminary findings suggest that this portion of Lewis Ridge was utilized during a later and an earlier phase than White had estimated in his 1986 settlement pattern model, which suggested utilization from about 1000 to 3000 years ago, with a more recent occupation of 500 years ago at the top of the ridge outside of the project area. There were no indications of Paleo-Indian use, as Parker's (personal communication 1987) discovery of a crescent in the surface collections at the ridge top suggested.

Since an abundant assemblage of waste flakes was collected, lab methods were designed to detect any notable differences in the frequencies of lithic materials or in the types of knapping activities through time. All obsidian materials were visually sourced into Borax Lake, Mt. Konocti, and Napa obsidian

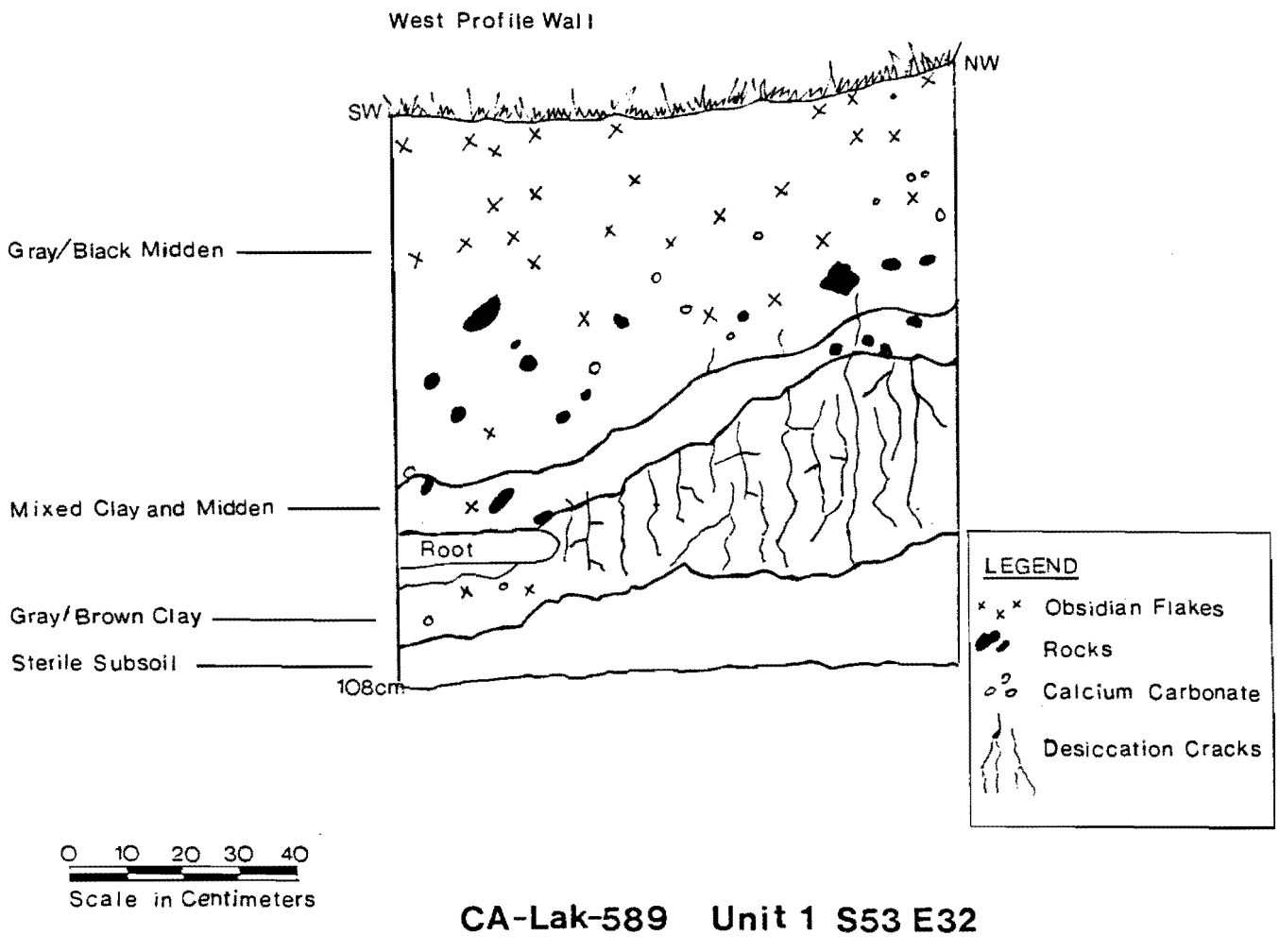

FIGURE 2. Stratigraphy of Unit 1, 0 - 108 cm.

categories to determine if certain tools were manufactured on-site or traded with distant groups who had access to Napa obsidian. The high frequency of Borax Lake flakes and cores in all levels and all units indicates that this material was greatly preferred over any other (Table 1). The percentage of Borax Lake obsidian flakes per level ranges from 81.4 to 94.7%, while Mt. Konocti flakes slightly outnumber basalt flakes by about 2% in a majority of the levels. The paucity of Napa obsidian and chert flakes and the presence of several projectile points of these materials suggests that the Pomo and their ancestors obtained these points through trade, but that they were reworked or maintained here. The frequency of Borax Lake obsidian flakes at this locality compares well with Parker's 10 cm deep sample unit less than 5 m from Unit #1. However, his sample of surface flakes from an area only 30 m to the east on the ridge top shows a noticeable difference with only 57% of the flakes of Borax Lake obsidian. The frequencies of subsurface debitage remains on the ridge top may provide different results. In summary, interpretations concerning distributions of lithic materials throughout this site should consider that small surface samples do not necessarily represent patterns within a large area.

In addition, all Borax Lake obsidian debitage was size-sorted to help interpret changes in the function and use of the site through time. Some inferences concerning the frequencies of various flake sizes are that a difference in flake sizes between levels reflects a change in subsistence strategy employed (Basgall 1983; Mick Hayes, personal communication 1987; Patterson 1981). Typically, a mixture of smaller and larger flakes implies that a full range of workshop activities and a more sedentary lifestyle existed, while only large flake sizes implies a temporary station where preliminary reduction of raw lithic materials occurred. Little change was noted between levels with over 81% of all Borax Lake obsidian flakes in all levels averaging between 6 and 12 mm, and the remainder averaging between 12 to 24 mm, except for a few larger flakes. The finds suggest several stages, including primarily the final stages of lithic reduction and tool manufacture, occurred. A lack of large chunks of unworked obsidian, the overall low frequency of decortication flakes, and the presence of prepared cores of Borax Lake and Mt. Konocti obsidians and basalt, lend further support that the primary stages of lithic reduction probably did not occur here.

No complete projectile points are in the AMVP collection. However, a serrated distal point fragment of green chert is similar to the Willits stemmed series of 1200 to 6000 years ago. And a long, thin willow-leaf distal fragment of Borax Lake obsidian is similar to points identified at Lak-510 which date to about 2000 to 4000 years ago. Twenty-six projectile point fragments were recovered. Borax Lake obsidian is the most common material, followed by Napa and Mt. Konocti obsidians, and

TABLE 1

FREQUENCIES OF OBSIDIAN AND BASALT FLAKES PER UNIT AND PER LEVEL

UNIT 1

Level in cm.	Unk. & OBSALT		Borax Lake		Konocti		Napa		Basalt		Total
Surface	0		36	94.7%	2	5.3%	0	0.0%	0	0.0%	38
0-10	5	0.3%	1412	84.4%	118	7.1%	4	0.2%	134	8.0%	1673
10-20			942	86.7%	62	5.7%	5	0.5%	78	7.2%	1087
20-30			990	87.0%	81	7.1%	4	0.4%	63	5.5%	1138
30-40			1258	86.4%	88	6.0%	9	0.6%	101	6.9%	1456
40-50			1220	87.5%	97	7.0%	3	0.2%	74	5.3%	1394
50-60			1185	85.4%	119	8.6%	5	0.4%	79	5.7%	1388
60-70			1248	86.3%	133	9.2%	10	0.7%	55	3.8%	1446
70-80			942	86.7%	85	7.8%	3	0.3%	57	5.2%	1087
80-90			1023	88.6%	63	5.5%	5	0.4%	63	5.5%	1154
90-100			1202	90.1%	88	6.6%	5	0.4%	39	2.9%	1334
100-110	104	12.9%	657	81.4%	31	3.8%	3	0.4%	12	1.5%	807
Total	109	0.8%	12115	86.5%	967	6.9%	56	0.4%	755	5.4%	14002

UNIT 2

Surface			54	88.5%	3	4.9%			4	6.6%	61
0-10	1	0.1%	814	84.8%	82	8.5%	2	0.2%	61	6.4%	960
10-20	2	0.2%	698	83.1%	84	10.0%	4	0.5%	52	6.2%	840
20-30	10	1.0%	820	83.6%	92	9.4%	5	0.5%	54	5.5%	981
Total	13	0.1%	2386	12.6%	261	1.4%	11	0.1%	171	0.9%	18985

UNIT 4

Surface			15	78.9%	3	15.8%			1	5.3%	19
0-10	1	0.1%	1456	84.3%	149	8.6%	4	0.2%	117	6.8%	1727
10-20			1599	85.4%	159	8.5%	7	0.4%	108	5.8%	1873
20-30			1555	87.9%	122	6.9%	2	0.1%	90	5.1%	1769
Total	1	0.0%	4625	85.8%	433	8.0%	13	0.2%	316	5.9%	5388

UNIT 8

Surface			72	81.8%	7	8.0%			9	10.2%	88
0-10			845	81.5%	126	12.2%	4	0.4%	62	6.0%	1037
10-20			2027	84.8%	224	9.4%	7	0.3%	132	5.5%	2390
20-30			1274	85.9%	122	8.2%	3	0.2%	84	5.7%	1483
Total			4218	84.4%	479	9.6%	14	0.3%	287	5.7%	4998

then chert. By using Greg White's (1984:401) model implying certain point fragment types to be representative of certain activities, the higher frequency of Borax Lake obsidian distal fragments, compared to base, or medial fragments, may indicate that projectile points may not have been primarily used for hunting at this locality, but that points may have been maintained or reworked here, and that animal carcasses may have been prepared here.

A total of 69 bifaces were collected. Borax Lake obsidian remains the most popular material (55 specimens), followed by Mt. Konocti obsidian (9 specimens). One unusually large and unrefined basalt biface appears similar to a chopper. Seven keeled bifaces were located in the 10 cm to 100 cm levels. A comparison of biface thicknesses reveals that thin bifaces (with a thickness/width ratio of less than .54) give way to thick bifaces after the 60 cm level. Bifaces are by far the most popular tool type, which may be due to their manufacture on-site or their utilization for a variety of activities carried out at this location. The Pomo and their ancestors may have used bifaces as large knives for preparing vegetal, faunal, and avifaunal resources.

A total of sixty-nine flake tools were recovered, including two knives, 26 scrapers, one burin, three prismatic blades, five gravers, and 30 indeterminant flake tools. Like bifaces, flake tools may have been used in the preparation of a variety of food resources and may have been used to work leather or tules.

The data supports White's hypothesis that differences in the types and ratios of tools is reflective of different natural resources available. The ratio between projectile points and other flaked tools (including bifaces) in the AMVP collection is 11:75, while this same ratio for Parker's 1980 Unit #5 collection from the eastern slope of Lewis Ridge is 30:5. Thus, on the eastern slope where the prairie supports large game animals for hunting, projectile points far outnumber flake tools, while on the western slope overlooking the marsh and wetlands, where waterfowl and a variety of plant materials for basketmaking are found, flake tools far outnumber projectile points.

While procurement and processing of marsh resources appears to be predominant on the western slope, the groundstone and faunal remains attest that both prairie and woodland resources were prepared and utilized. Sixteen groundstone fragments including two handstones, two pestles, three manos, an anvil stone, and several multiple-use tools were collected from all levels below 20 cm.

Milling stones could have been used with metates or nearby bedrock mortars for grinding acorns, seeds, bone, dried meat or fish. Or couples who wanted a baby could have used them to produce the numerous cupules less than 5 m away. The anvil

stone has three small dimples which have been interpreted as holding nuts or acorns for cracking with a handstone. Similar stones were found at Lak-510.

Faunal remains include 214 (88%) unidentified mammal fragments, four (1.6%) rodent, one bird, four (1.6%) fish, and twenty (8.2%) turtle fragments, and a few fragments of freshwater mussel. Almost 50% of the mammal bone fragments were fire-altered, indicating that the bones may have been used for fuel for fires or that animal bones were discarded into fires after the meat was eaten. Percentages of unburnt to burnt bone fragments may be misleading given the fact that the preservation of burnt bone is much greater than unburnt bone. The results of the faunal analysis are somewhat surprising given the expectation that the inhabitants would have procured primarily marsh resources at this location. The proportionately larger amount of mammal bone than fish, waterfowl, or shell remains may be accounted for by the high acidity of the soil here which may have dissolved more fragile or hollow bones compared to the denser bones of deer, elk, and small mammals. Differential preservation of mammal versus wetland fish and fowl bones is apparent in a number of other sites in the Clear Lake vicinity.

The collection includes 161 bone tool fragments, all less than 20 mm in length. All except two appear to be mammal bone fragments. The items included: thirteen possible awls, bipointed objects, or hairpins; one utilized fragment with a flat, knife-like appearance; and two possible bird tube whistle fragments which may have been used during dances.

Unusual finds include two pieces of clay or daub and a highly polished cobble fragment. The clay pieces may be the remains of a burnt, clay lined tule house. And the polished chert stone may have been carried in a medicine bag by a shaman for gaining power.

One feature (Figure 3), a rock and artifact cluster, was recorded in the 90-100 cm level of Unit #1. It consists of a cluster of angular rocks and five artifacts, including a cylindrical core, a prismatic blade, two biface midsections, and a mano. Similar features were also noted at Lak-510. They may have been one person's tool kit or a ceremonial marker.

The analysis presented is preliminary, yet the data are useful for directing future reexaminations and queries which may contribute to our understanding of activities that occurred throughout the site and how this site functioned in the network of Anderson Marsh habitations. Future research concerns might attempt to answer the following questions.

1. Do differential densities in lithic materials reflect changes in overall population or changes in the types of activities carried out through time, or both?

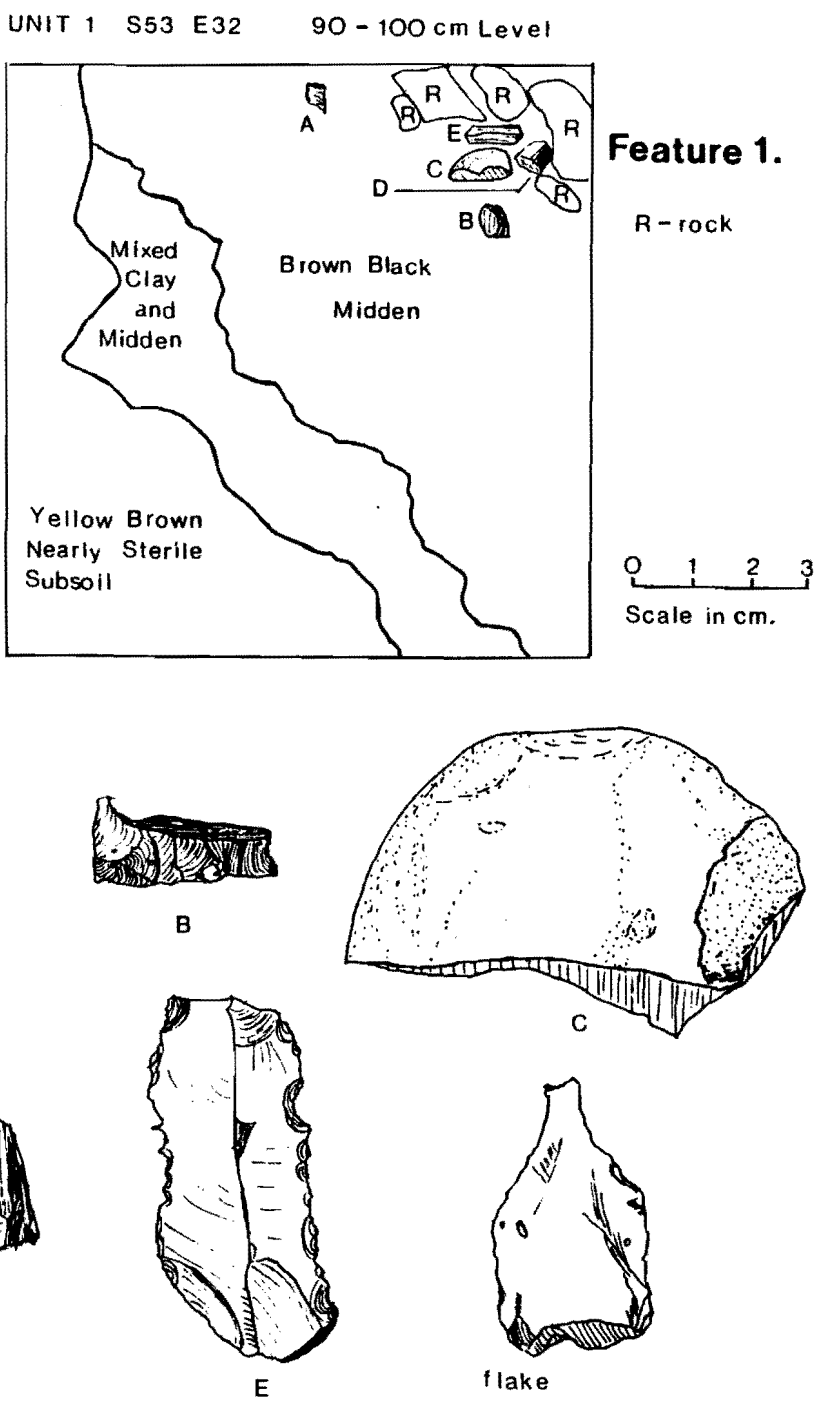

FIGURE 3. Feature 1, Unit 1, S53 E32, CA-Lak-589.

2. Were certain areas or workshops for manufacturing specific tools selected within the site?
3. Was the ridge top utilized for more sedentary activities, while the slopes were utilized for seasonal food procurement and tool manufacture?

4. Do the ratios between projectile points and flake tools in other areas on the eastern and western slopes of the ridge support the hypothesis of differential resource exploitation?
5. How closely do patterns of temporal variability throughout the site based on obsidian hydration analysis of materials from deep units (past and future) compare with White's (1986) settlement pattern model based on surface finds?

In an effort to fully understand past land use patterns and human activities, archaeologists in the Clear Lake vicinity should continuously interface with other researchers such as geologists, soil scientists, geomorphologists, and palynologists. Only by focusing on more detailed levels of analysis can we accurately reconstruct area-specific activities suggested by this preliminary analysis.

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