DIFFERENCES IN SITE CONSTITUENTS AT SALT POINT:

ALTERNATIVE EXPLANATIONS.

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ABSTRACT

Studies within Salt Point State Park on the Sonoma County coastline have identified over 100 prehistoric sites including dense shell middens and sparse lithic scatters. It has been suggested that the lithic scatters represent early cultural components and that the shell middens are late. This and other hypotheses regarding paleo-climatic reconstruction, space-time relationships, settlement-subsistence patterns, and interaction and exchange systems are being tested through a phased research program. Preliminary results are reported here.

INTRODUCTION

The Anthropological Studies Center recently conducted cultural resource studies within Salt Point State Park as part of a burn management program. Independently of the contract, research into the area's prehistory was also carried out. The research program briefly outlined below is preliminary and will be refined based upon the findings of this initial phase of work. Analyses conducted as part of the program are also phased in order to allow continuous feedback into the questions and methods employed here. The study is designed to shed light on local prehistory by addressing questions having to do with settlement-subsistence patterns. Although the current analysis is limited by its emphasis on artifactual samples restricted to surface materials and observations, the research design is intended to guide excavation-based study.

STUDY AREA DESCRIPTION

Salt Point State Park is located on the northwest coast of Sonoma County approximately 60 miles northwest of San Francisco Bay (Figure 1). It consists of 5000 acres of ecologically diverse terrain created by the uplift of geologically ancient marine terraces (Figure 2). These marine terraces are evident as large steps in the topography, bisected by permanent and seasonal watercourses(Figure 3). Beginning at the Pacific Ocean, a rocky coastal shoreline abundant in marine crustaceans rises steeply up a 40 to 60 foot high bluff. This bluff marks the seaward edge of Terrace 1.

Vegetation on Terrace 1 is primarily a coastal prairie consisting of native and introduced grasses, scattered shore pines, and large patches of lupines. Eroded ancient sea stacks

dot Terrace 1 in places.

Terrace 2 is charactarized by the ecotone between the coastal prairie and dense mixed oak woodland, bishop pine forest, and stands of old-growth redwoods. Watercourses and small patches of chapparal are also present.

Inland from the coastal terraces the hills climb steeply to the northeast to a prominent ridgeline with elevations of 900 to 1000 feet above sea level. Remnant prairies occur in places along the ridgeline; however, the steep slopes between the ridge and Terrace 2 are heavily forested.

PREVIOUS ARCHAEOLOGICAL RESEARCH

Very few archaeological studies have focused specifically on the northern Sonoma County coast. Most of the work that has been done consists of project specific archaeological reconnaissance aimed at addressing environmental protection concerns (Foster 1985; Melandry 1976; Porter 1986; Watts 1979). Substantial research has been undertaken farther afield, including San Jose State University's research program over 40 miles to the northwest in Mendocino County (Layton, in press.) and investigations conducted by U.C. Davis and Sonoma State at the Lake Sonoma/Warm Springs Dam area (Basgal and Bouey 1984), located about 15 miles to the northeast. Other investigations have been conducted in Fort Ross State Park about 5 miles south (Farris in press), and Bodega Bay 24 miles south (e.g. Fredrickson 1962)

To the north, Thomas Layton of San Jose State University and Dwight Simons of Sonoma State University have been concerned with testing current linguistic-based models of the prehistory of the central North Coast Ranges (Layton in press). They have conducted investigations over the past eight years comparing postulated catchment zones of both coastal and inland sites. Coastal sites are believed to be peripheral to an interior heartland. Layton postulated that the presence of Monterey chert in the archaeological assemblage identified coastal people and that Konocti obsidian was associated with interior groups who also utilized the coastal environs on a seasonal basis.

Layton also concluded that the abrupt appearance of abundant Konocti obsidian at 2.5 microns (Layton's suggested calendric date of A.D. 500) marks the inclusion of this portion of the central Mendocino County coast into the seasonal round of the Western Pomo.

Obsidian studies within the Warm Springs locality, within Southern Pomo territory indicated that Konocti obsidian comprised the greatest proportion of obsidian deposited in the area (Basgal and Bouey 1984). More recently, Suzanne Stewart (Stewart 1988) of Sonoma State has conducted investigations at a ridgetop site adjacent to the more lowland Warm Springs sites. Stewart found that Konocti obsidian at the ridgetop also comprised the largest

proportion of obsidian, beginning about 4.8 microns. Napa obsidian was present throughout this timeframe, increasing in proportion during the Emergent Period.

On the Sonoma coast, approximately 5 miles south of Salt Point, Glenn Farris (Farris in press) is conducting research on material from a late period seafood processing site. Obsidian hydration, radiocarbon dates and a single glass trade bead suggested that the site had been occupied intermittently from A.D. 830 to the first half of the nineteenth century. Farris noted that although the site is within Kashaya Pomo territory, other inland groups would also have visited the coast to obtain food.

Further south at Bodega Head, David A. Fredrickson in 1962 conducted excavations at 3 prehistoric sites in Coast Miwok territory. One site was protohistoric and two were affiliated with the Middle Horizon (Berkely Pattern).

Within the study area Clement Meighen (1967) in 1951 conducted excavations at two protohistoric Kashaya sites, one a coastal site, near the north boundary of Salt Point State Park, the other an interior site located inland about 3 miles. Both sites contained obsidian and chert artifacts, animal bones, and stone tools. However, the artifact types were significantly different and the interior site also contained clamshell-disk beads and glass bifaces. He argued that the differences between the artifactual assemblages retrieved from the two sites were indicative of distinct seasonal living patterns.

In 1969, William E Pritchard (1970) conducted extensive survey of portions of Salt Point State Park, the present study area, and recorded scores of prehistoric sites. He noted that two distinct site types were present: (1) dense shell middens that contained a paucity of lithic artifacts; and, (2) sites which contained little or no shell but significant amounts of lithics. Pritchard suggested that the lithic dominated sites represented early cultural components and that the shell midden sites represented late prehistoric deposits.

Pritchard further argued that the shell middens represent two types of occupation: small middens on the bluffs represent seasonal exploitation of marine resources by small single-family groups, and large sites located well back in the treeline reflect intensive habitation by larger groups.

Although ethnographic descriptions of the local Kashaya Pomo Indians lifeways are rich in detail (Barrett 1908; Cook 1956; Gifford 1967; Gifford and Kroeber 1939; Heizer 1978; Kniffen 1939; Kroeber 1925; Loeb 1926; Oswalt 1964; Powers 1877; Stewart 1943), we do not summarize them here. However, it has been noted that 4 village sites and 6 campsites are located along the lower coastal terraces in the western portion of the project area.

FIELD SURVEY AND SURFACE SAMPLING

Site survey and surface sampling that contribute to this paper were conducted at Salt Point during the fall and winter 1987. Survey efforts have identified 126 prehistoric sites within 1000 acres of the coastal strip and lower elevation terraces and 4 prehistoric sites within 4000 acres of the upper elevation terraces. Because of a prior dry year, and because field work was conducted in the fall, ground visibility was fair to excellent. In addition, erosion afforded vertical exposures at many sites. Shovels tests were used to check the soil where poor ground visibility was encountered in forested areas .

All obsidian observed on the surface of each site was collected. Since ground visibility overall was optimal, and since no particular source was favored during surface collecting, we believe that the obsidian specimens collected are reasonably representative of the proportions of the different sources present at each site and in the area as a whole.

The geological origin of over 400 specimens was determined through visual sourcing techniques by two independent analysts. All four local sources were present in varying amounts. It was found that Napa Valley sources comprised 50% of the sample; Annadel obsidian at 36% made up the second largest portion of the sample; Mt. Konocti and Borax Lake sources contributed small quantites, 10% and 4% respectively. A total of 59 specimens were subjected to obsidian hydration analysis including 18 Annadel, 17 Napa, 14 Konocti, and 10 Borax Lake.

RESEARCH DOMAINS

Materials collected and observations made during the survey are being linked to our formal research design which includes four research domains and five major hypotheses. We do not address these issues directly in this paper, but briefly outline them as follows.

Paleo-Climatic Reconstruction

Dwight Simons (in Layton in press) has synthesized pollen and other enviromental data important to the understanding of paleo-enviroments for the outer northern California coast. He concluded that other than relatively minor variations in temperature, climatic conditions were complacent in this region during the last 6000 years. However, he noted that changes in relative proportions of grass and shrub pollen indicate that the areal extent of grassland and coastal shrub associations were not constant through time.

Additional pollen-core analysis of samples from two local ponds is currently being conducted by G. James West of the Bureau of Reclamation. This is the first pollen study on the California Coast north of the San Francisco Bay Area in 30 years.

To better understand the nature of prehistoric vegetation communities within the project area, Michael Jablonowski of

Sonoma State is conducting a pilot study to identify whether phytoliths occur in soil samples taken from various prehistoric sites and different vegetation communities.

Space-Time Relationships

Source-specific obsidian hydration dating is employed to develop temporal relationships; absolute age conversions of hydration measurements will not be stressed.

Interaction and Exchange Systems

This study will emphasize obsidian visual sourcing techniques to generate the data used to address questions regarding interaction and exchange systems.

Settlement-Subsistence Patterns

Patterns in settlement-subsistence will be sought through site constituent and habitat analysis. Obsidian hydration rim readings will be used to provide chronological control.

THE PRESENT STUDY

In this paper we attempt to test a pre-existing hypothesis set forth by William E. Pritchard (1970). He argues that there are two site types with different constituents representing two different subsistence patterns. Primarily through obsidian annalysis, we attempt to identify whether our data concurs with Pritchard's model.

FINDINGS

Preliminary results of the study follow. Supporting Pritchard's findings, two basic site types were identified; one contained marine shell deposits, the other contained no apparent shell. In general, dietary debris sites were marked by various cobbles in the form of hammerstones, fire-cracked rock, and sparse quantities of chert and obsidian flakes. Obsidian at dense shell middens is rare. We should note however, that dense shell deposits may dilute the frequency of lithic materials since shell debris accumulate at such a fast rate when compared to lithics. Such sites frequently occur on Terrace 2 and within 50 meters of a primary watercourse.

Sites with sparse or no marine shell exhibited a wider diversity and much higher density of chipped stone forms than the dense shell middens. These lithic sites are characterized by chert and obsidian flakes, flake tools, and, to a lesser degree, bifaces. Schist flakes and schist cobble tools also occur. Slabs and handstones characterize the milling equipment. Marine shell occurs rarely and, then, at very low densities. These sites are primarily on coastal bluffs or on the leeward side of sandstone stacks. There are far fewer fresh water sources within 50 meters of these sites compared to the dense shell middens. The obsidian sample size and distribution for lithic only sites is large and dispersed among these loci.

Obsidian sourcing and hydration results indicate that in

the northern portion of the study area, 92% of obsidian occurs at shell sites, whereas only 8% of the obsidian occurs at non-shell sites. In the southern area, shell and non-shell sites have nearly equal amounts of obsidian, being 49% and 51% respectively (see Table 1).

Overall, Konocti occurs late with obsidian hydration readings ranging from 2.4 to 1.0 microns. This pattern appears similar to that found by Layton along the Mendocino County coast where Konocti occurs during the Emergent period beginning at 2.5 microns. We do not see similar ties with the Warm Springs area where Konocti occurs in abundance much earlier. Konocti obsidian may be entering the study area via a northern route, after entering the coastal strip via an inland route to the north of the Lake Sonoma region.

Napa and Annadel obsidian occur throughout the study area. Napa occurs early with obsidian rim readings ranging from 5.4 to 1.4 microns. Annadel appears later with readings ranging from 2.2 to 1.1 microns. Napa obsidian is most likely coming in from the east, bipassing Warm Springs by a southerly route, up from the Napa Valley, through Knights Valley and Alexander Valley, down the river, and up the coast. Later, Annadel obsidian, originating in the Santa Rosa area, may have been transported north to the Russian River, hence to the coast.

CONCLUSION

As exemplified by the preceding data, this study is based upon the generation of cultural information obtained through the analysis of surface obsidian. Through analysis of site constituents, including materials in addition to obsidian, we have seen evidence for at least two subsistence patterns within the study area. (1) In the northern section obsidian occurs in association with subsistence activities other than shellfish procurement. In the southern section, obsidian appears to be distributed more or less equally within both site types. Microscopic analysis is presently being conducted to confirm that non-shell sites represent a different procurement pattern and are not the result of natural weathering processes affecting shell preservation.

Comparison of obsidian sourcing with patterns in neighboring localities to the north, south, and east with patterns at Salt Point indicates that procurement patterns shifted from an emphasis upon northern sources to an emphasis upon the southern ones. We hypothesize that the dominance of different obsidian sources at different times is due to changing economic alliances between the local residents and neighboring groups.

The work in this paper confirms Pritchard's model wherein two sites (shell and non-shell) represent two different subsistence patterns. We tested for site constituents, site type, obsidian distribution, and time. Our data indicates that there is strong evidence in favor of Pritchard's hypothesis.

Further studies will focus on our research design described earlier. Pritchard's model is part of that research design.

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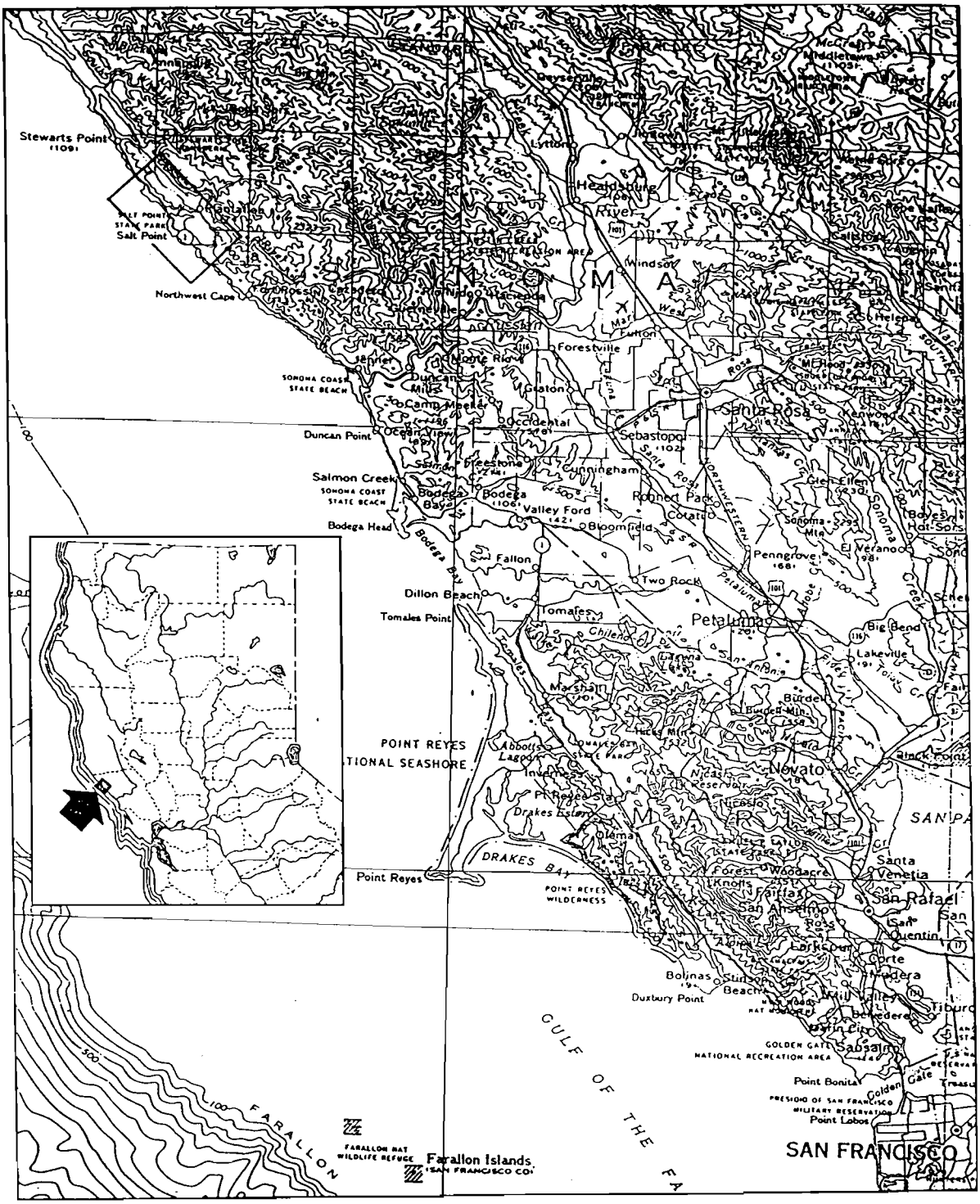

FIGURE 1: PROJECT AREA LOCATION

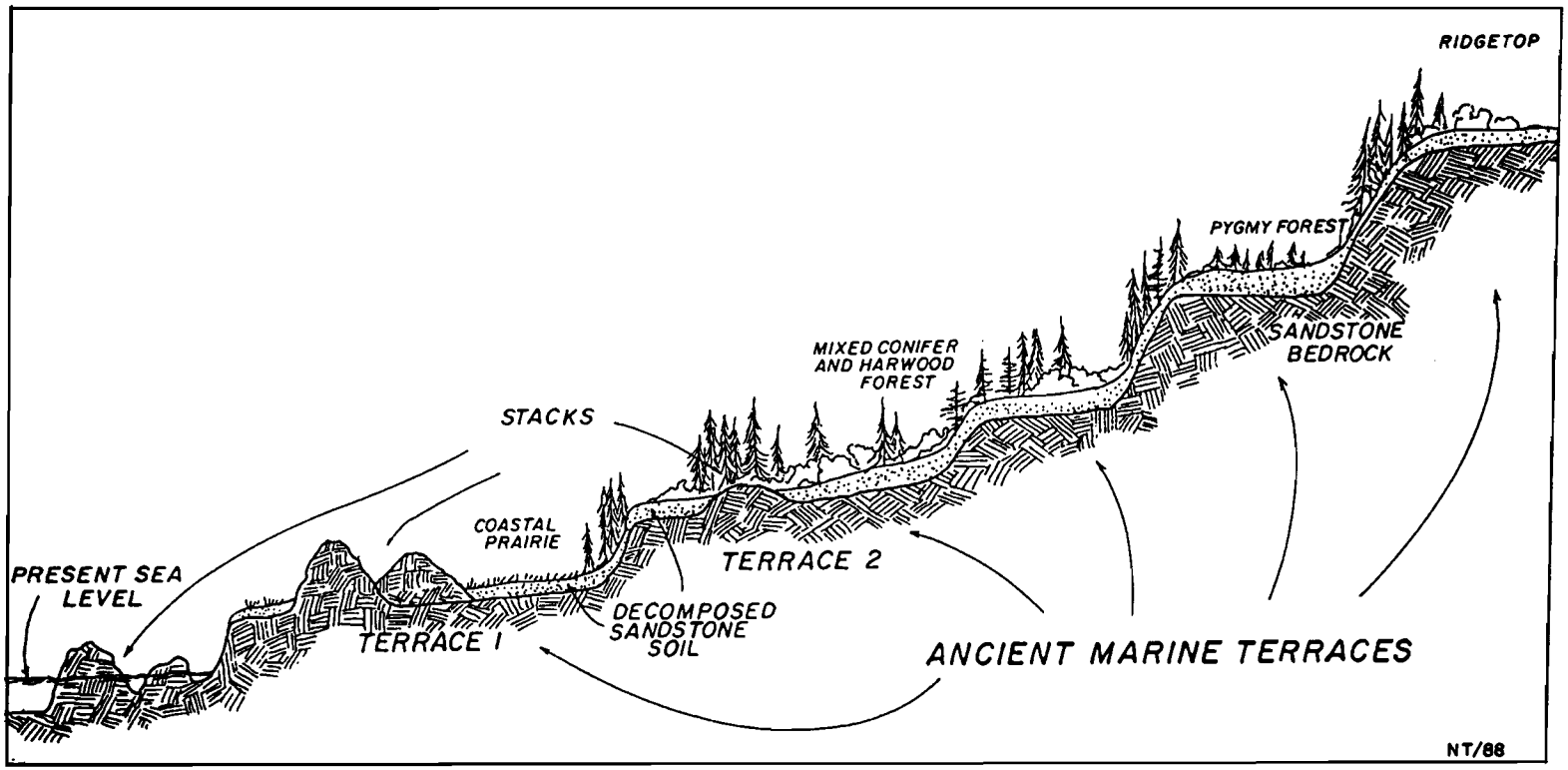

Figure 2 : Schematic Cross Section of Marine Terraces.

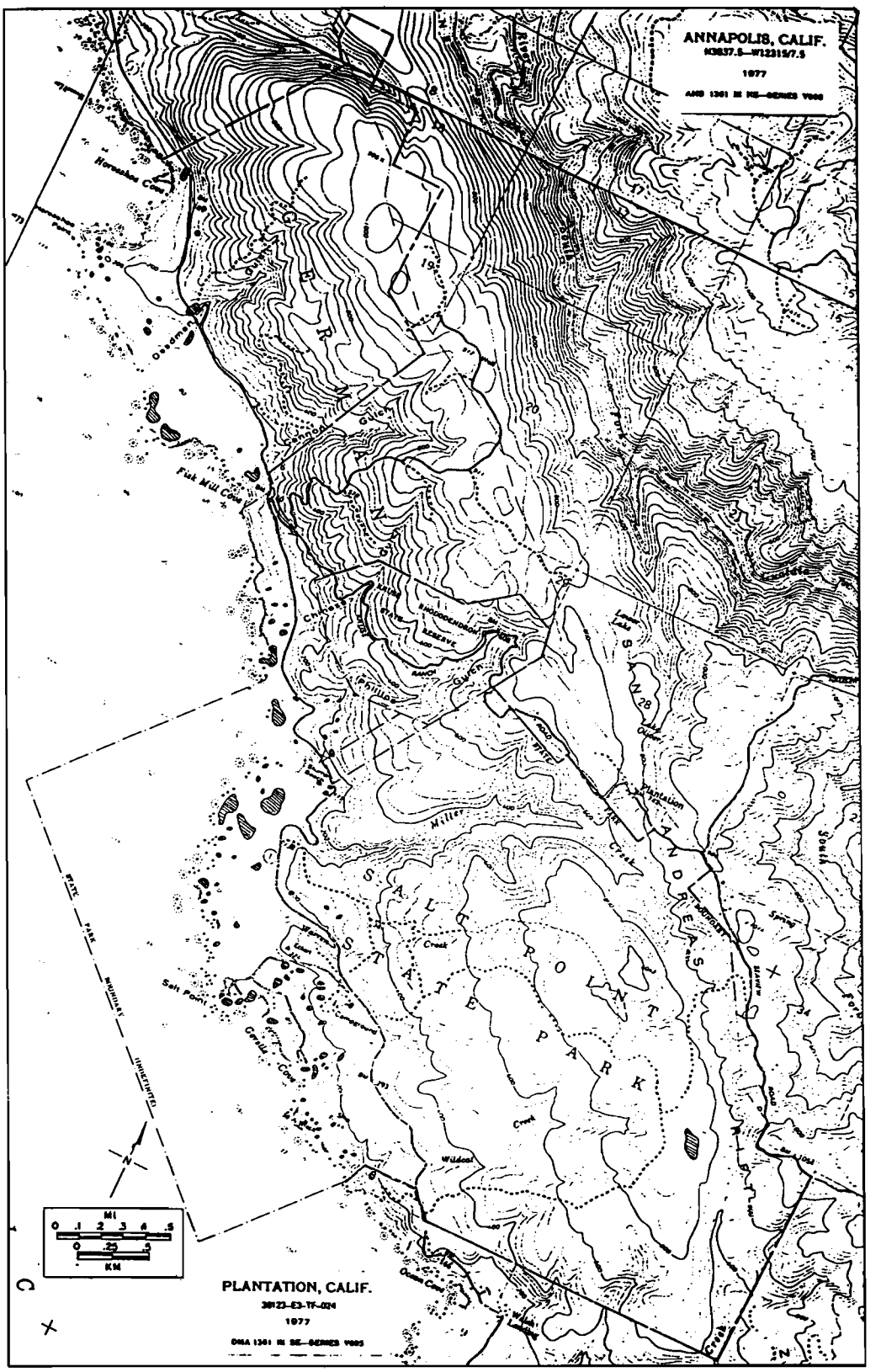

FIGURE 3: PROJECT AREA

TABLE 1

COMPARISONS OF SITE CONSTITUENTS AND OBSIDIAN HYDRATION WITHIN SALT POINT STATE PARK

	BORAX LAKE		MT KONOCTI		NAPA VALLEY		ANNADEL		TOTAL
	Shell	Non-Shell	Shell	Non-Shell	Shell	Non-Shell	Shell	Non-Shell	
NORTHERN AREA:									
Number of Sites	2	1	3	1	4	4	7	2	24
Number of Obsidian Specimens	4	1	11	4	3	80	11	19	133
% of Source within the N. Area	3%	1%	8%	3%	2%	60%	8%	14%	
	= 4%		= 11%		= 62%		= 22%		99%
Obsidian Hydration									
number	0		6		5		0		11
range	0		4.3 - 1.2		4.3 - 1.9		0		na
mean	0		1.8		2.4		0		na
SOUTHERN AREA:									
Number of Sites	3	3	6	2	6	4	6	6	36
Number of Obsidian Specimens	9	4	16	10	59	58	49	67	272
% of Source within the S. Area	4%	1%	6%	4%	22%	21%	18%	25%	
	= 5%		= 10%		= 43%		= 42%		100%
Obsidian Hydration									
number	7		8		11		13		39
range	6.1 - 1.1		7.2 - 1.2		5.9 - 1.2		3.3 - .9		na
mean	3.4		2.8		3.1		1.7		na