UNDERSTANDING YANA PREHISTORY: APPLICATION OF MULTIPLE ANALYSES

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ABSTRACT

Archaeological data recovery excavations were undertaken at 3 sites near the boundary between Central and Northern Yana territories in Shasta County during the summer of 1990. Carried out in conjunction with planning for construction of the California-Oregon Transmission Project, a variety of analytical techniques were employed for site interpretation. Lithic analysis indicates different reduction sequences for Grasshopper Flat and Tuscan obsidians occurring at the sites. Blood residue analysis indicates possible exploitation of various animals. Radiocarbon assays, obsidian hydration analysis, and a substantial collection of projectile points provide for interpretation of site chronology, and suggest much later occupation than would have been inferred from artifact morphology alone.

Archaeological data recovery excavations were undertaken at 3 sites in Shasta County during the summer of 1990, in conjunction with planning for construction of the California-Oregon Transmission Project, which extends from Malin, in south-central Oregon, to Tesla Substation, near Tracy, California. These sites were discovered during the course of archaeological inventory of the transmission line corridor, conducted by Dames & Moore in 1987 and 1988. During this survey, 49 archaeological sites were recorded, the majority of which were subsequently avoided during construction of the transmission line. At 6 sites, however, limited clearing of hazard trees was required. Significance of these 6 sites was evaluated either through test excavations or with reference to criteria outlined in a cultural resource evaluation plan prepared for the project. The data recovery investigations discussed here focused on 3 of these sites, located near the ethnographic boundary between Northern and Central Yana territories (Hull et al. 1991).

Sha-1720, Sha-1723, and Sha-1752 are located in central Shasta County, approximately 40 km east of Redding in the vicinity of Round Mountain (Figure 1). Two of these sites occur within the Cow Creek drainage, while the third is located on Cedar Creek, a major tributary of Cow Creek. This third site,

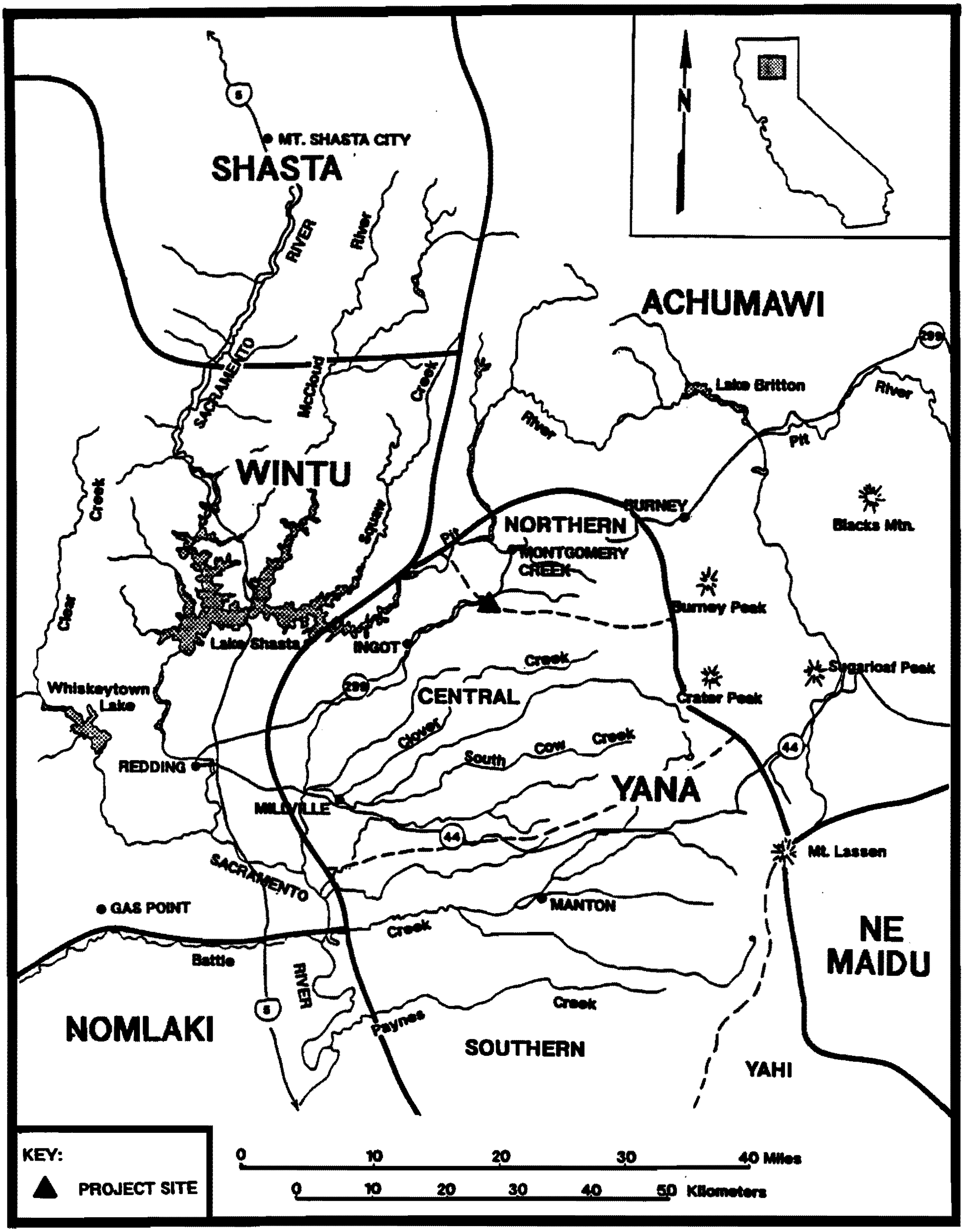


Figure 1. Project location map (after Hull et al. 1991).

Sha-1752, is the northernmost of the 3 and is found within territory traditionally assigned to the Northern Yana. Although located less than 3 miles south, the remaining 2 sites, Sha-1720 and Sha-1723, lie within Central Yana territory.

Sha-1720, the largest of the 3, consists of 5 loci of cultural material and midden soils on a series of knolls above Cow Creek. Two of these loci occurring within the transmission line right-of-way were the focus of investigations, including the densest concentration of cultural debris defined as Locus A. Historic and modern use of the site is intense, and most of the surface finds were located within the dirt road transecting the southern margin of Locus A.

Sha-1723, located less than 2 km downstream from Sha-1720, occurs on 2 terraces adjacent to Cow Creek. Most of the cultural material is present on the upper terrace, however, and 2 possible housepit depressions were noted in this portion of the site during survey.

Sha-1752 is the smallest of the 3 sites and is defined by a small clearing in an otherwise densely forested hollow. Four small possible housepit depressions were noted during site recording, but other cultural remains were rare. Only 1 flake and 1 possible groundstone tool were observed prior to data recovery work.

Because construction-related impacts to these sites were being kept to a minimum, data recovery investigations were relatively limited in scope, as well. Even so, survey results and recovered materials indicated that a wide range of research topics could be addressed. This appeared particularly significant given the relative paucity of previous archaeological investigations within this portion of Yana territory. In addition, multiple analytical techniques, some of which had not been employed in previous regional studies, were applied to the site collections in order to address research questions within domains including cultural chronology, subsistence practices, and obsidian procurement and exchange. This approach provided for more detailed consideration of specific topics within these domains, while allowing for more definitive statements about prehistoric use. As will become clear, however, many new questions about Yana prehistory were suggested by the data.

Traditional approaches to definition of site components and determination of site chronology, including stratigraphic observations, artifact morphology, artifact and assemblage cross-dating, and radiocarbon analysis, were applied. Classification of projectile points indicated a variety of types, including Desert Side-notched, various types of Gunther Barbed, Medium Corner-notched, Medium Corner-notched Variant, Medium Contracting Stem, Large Side-notched, Large Corner-notched, Broad Stemmed, Foliate, and McKee Uniface (Figure 2). Moreover, the location of these various types by depth within different sites suggested a

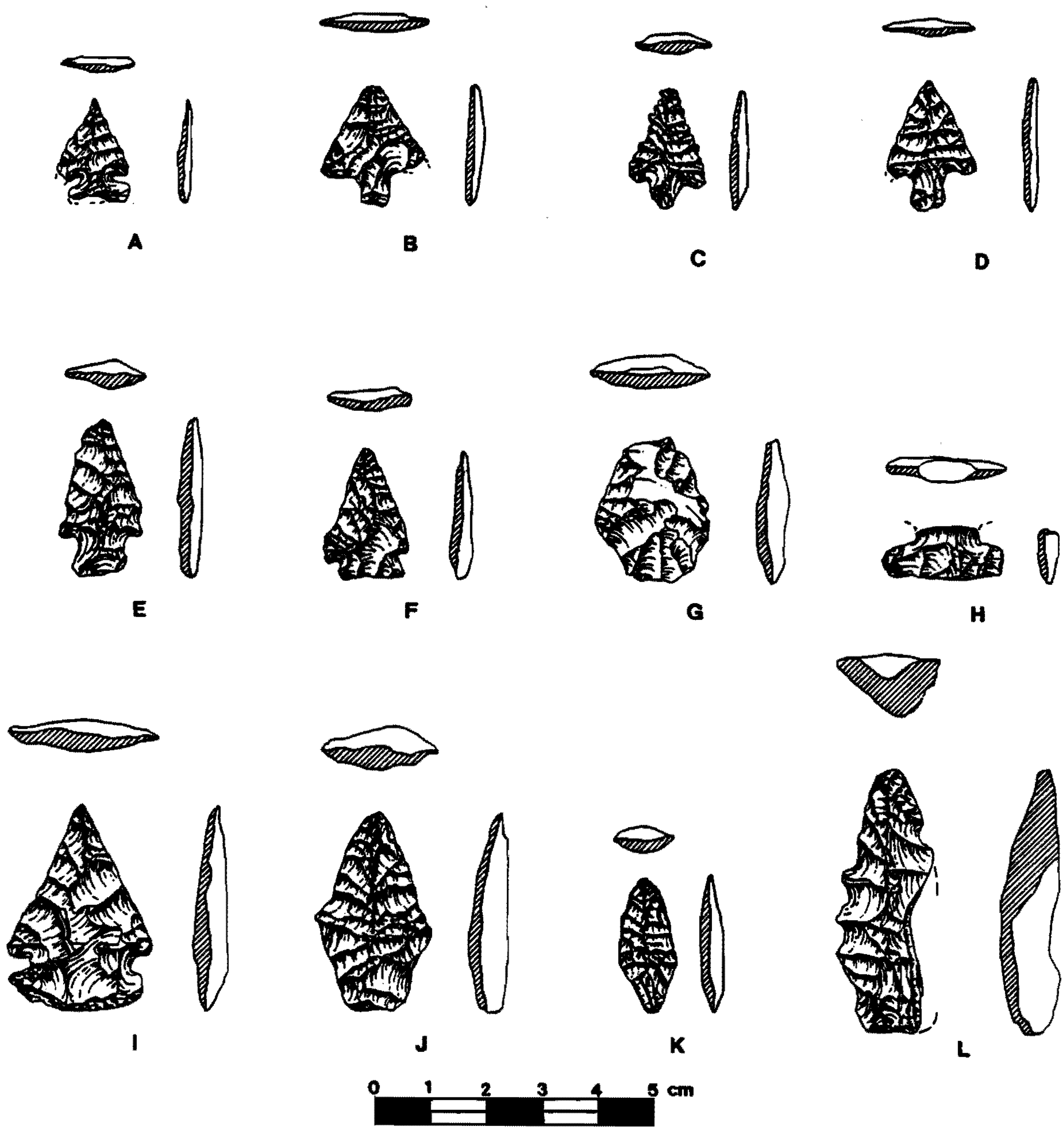


Figure 2. Projectile point types recovered: (a) Desert Side-notched; (b-d) Gunther Barbed; (e) Medium Corner-notched; (f) Medium Corner-notched Variant; (g) Medium Contracting Stem; (h) Large Side-notched; (i) Large Corner-notched; (j) Broad Stemmed; (k) Foliate; and (l) McKee Uniface (after Hull et al. 1991).

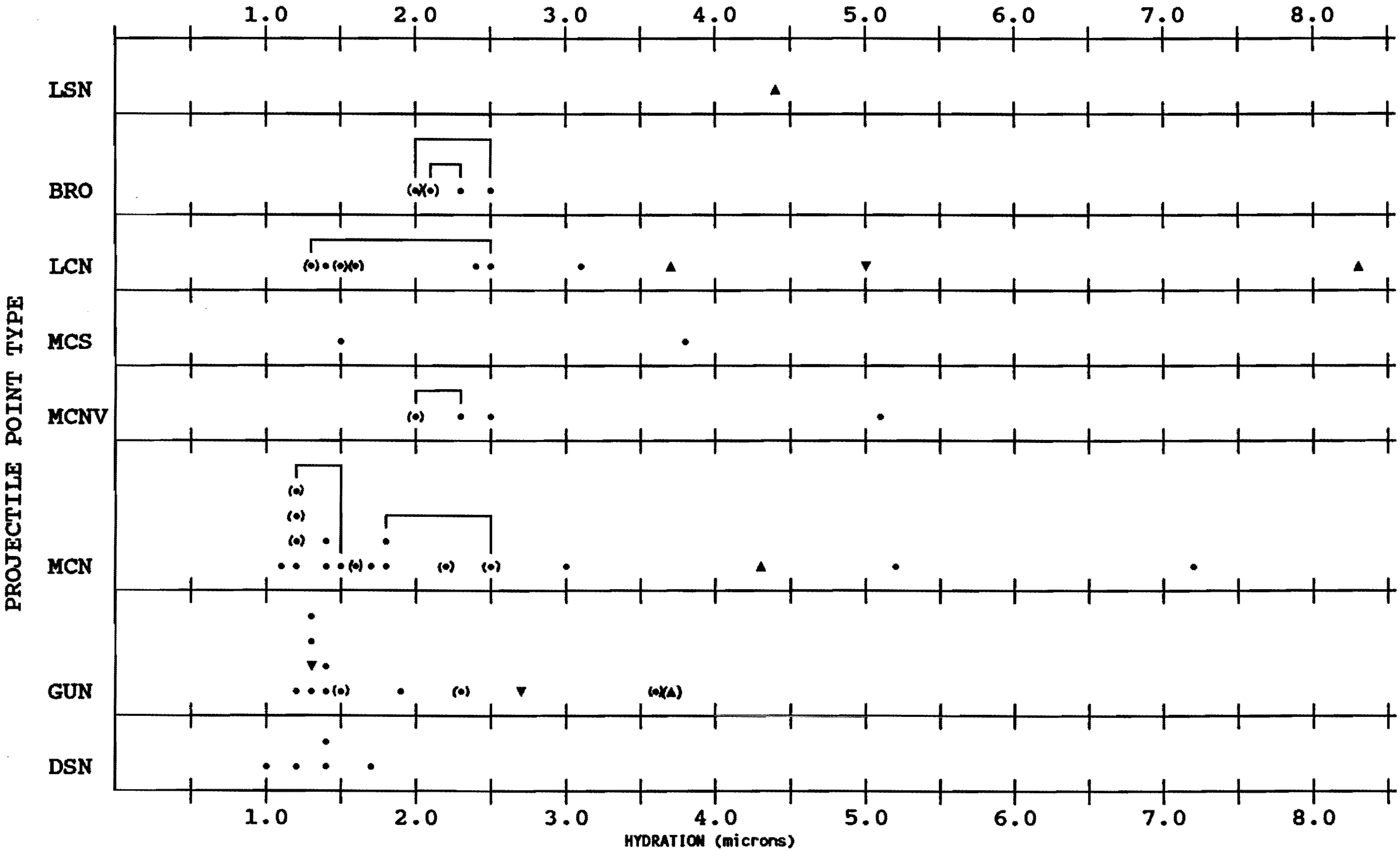
relative sequence of types consistent with established regional chronologies. Portable milling equipment recovered at Sha-1720, including a bifacial metate and a basin-shaped millingstone with a flattened base, also supported chronological interpretations. These data indicated occupations spanning approximately 2,500 years, including Kingsley, Dye Creek, and Mill Creek complexes, with the McKee Uniface suggesting even earlier use at Sha-1723.

Only 1 feature was suitable for radiocarbon dating; a house floor discovered at approximately 70 cm in depth within 1 of the depressions at Sha-1723. Although 2 assays on charred timbers laying upon the floor resulted in modern age determinations (80 ± 50 B.P. and 70 ± 60 B.P.), charcoal floated from the house floor matrix provided a date of 380 ± 80 B.P. In addition, the stratigraphic occurrence of Desert and Gunther series points above the house floor indicated that this age was in keeping with other chronological indicators. Large Corner-notched points were located below the floor.

In addition to these data, however, hydration measurements for sourced obsidian tools and debitage were considered for both relative and absolute dating of components. Moreover, particular attention was given to obsidian cut location on tools and artifact reworking, in order to provide for more meaningful interpretation of results. In some cases, multiple cuts were employed to recognize such reuse.

The sample of 56 projectile points submitted for hydration analysis provided a large data base with which to address site chronology (Figure 3). Most of these pieces were ascribed by x-ray fluorescence analysis to the Tuscan source, but possible differences in the rate of hydration for various visually distinct types within this source group were apparent early on in analysis of the data. Specifically, several artifacts of a dull gray variety exhibited unusually thick rims for their respective artifact types, while some specimens of a uniformly translucent pinkish-brown variety also exhibited somewhat thick bands. Based on Hughes' (1986) descriptions of Tuscan types, the dull gray variety may reflect the Oat Creek locality located approximately 25 km southwest of the sites. When these specimens and reworked pieces were excluded from series-specific point ranges, resulting ranges for the predominant red-and-clear and black-and-clear varieties were relatively tight (Table 1). Moreover, the relative sequence was consistent with stratigraphic observations, while the slow rate of hydration for Tuscan material noted in previous studies was readily apparent in the data. These visual types likely reflect Backbone Ridge and Buzzard Roost locality materials, which occur closest to the project area.

These results were then compared with similar studies from nearby areas, and the data were considered within a regional perspective. Employing annual temperature data available from Burney, approximately 30 km east of Round Mountain, adjustments to the Grasshopper Flat obsidian hydration rate and the correction



• = Tuscan, ▲ = Grasshopper Flat/Lost Iron Well, ▼ = Unknown, () = Reworked, ——— = Multiple rims, LSN = Large Side-notched, BRO = Broad Stemmed, LCN = Large Corner-notched, MCS = Medium Contracting Stem, MCN = Medium Corner-notched, MCNV = Medium Corner-notched Variant, GUN = Gunther, DSN = Desert Side-notched

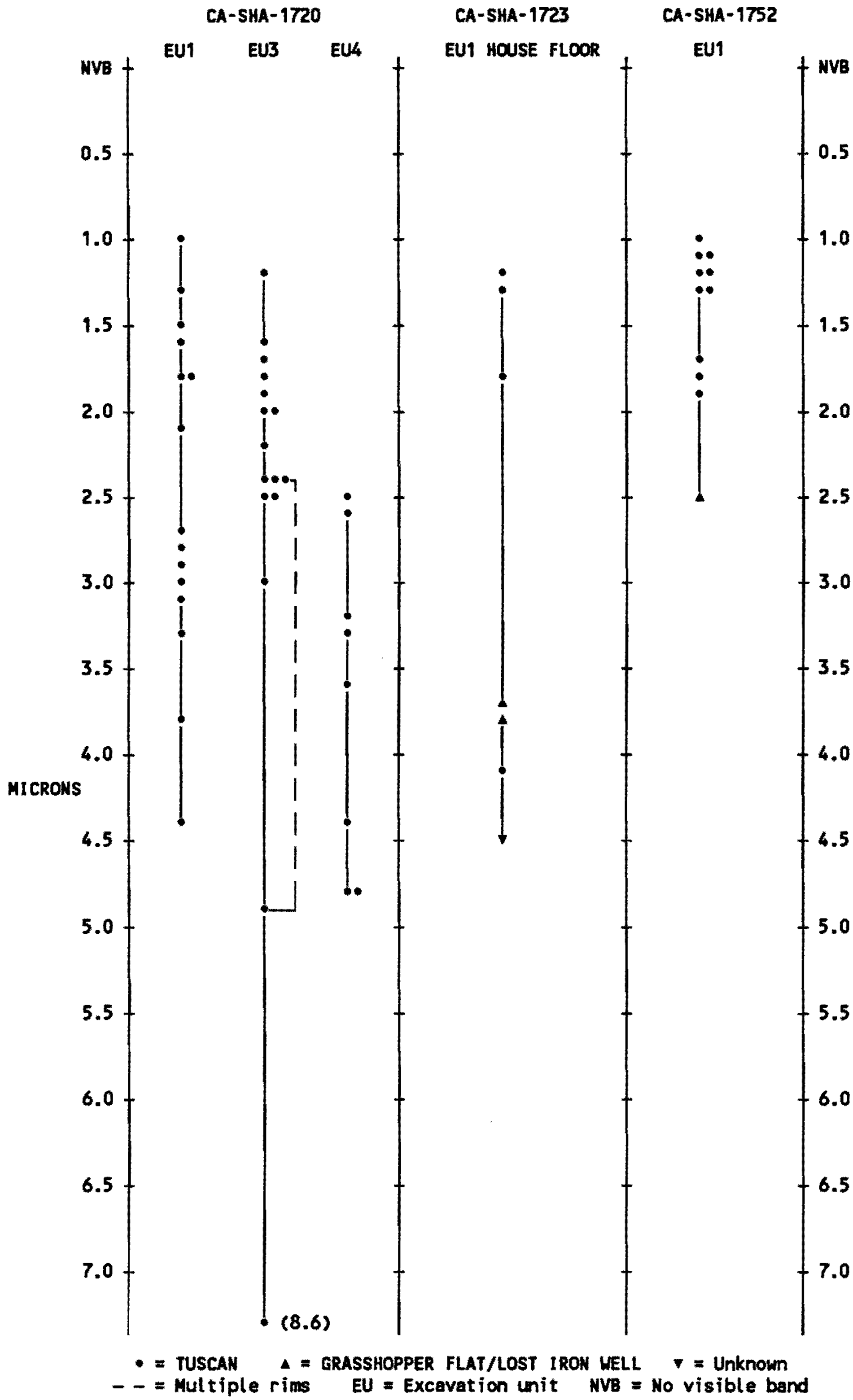
Figure 3. Projectile point hydration measurements (after Hull et al. 1991).

Table 1. Tuscan projectile point obsidian hydration ranges (μ).

Type	Range	Mean	n
Desert Side-notched	1.0-1.4	1.25	4
Gunther Barbed	1.2-1.5	1.34	7
Medium Corner-notched	1.4-1.8	1.6	7
Medium Contracting Stem	1.5	1.5	1
Medium Corner-notched Variant	2.0-2.5	2.27	3
Large Corner-notched	2.4-3.1	2.67	3
Broad Stemmed	2.0-2.5	2.25	2

for Tuscan obsidian developed for the Sacramento River Canyon were applied. This application, however, provided rather disappointing results, not in keeping with other chronometric data at the sites. Although several sources of potential error are possible, including lack of site-specific temperature data, limitations of rate formulas to the Sacramento River Canyon suggested by Basgall and Hildebrandt (1989) appear well-founded. Attempts to propose a Tuscan rate formula specific to the Round Mountain area, however, were not possible with the available data, as hydration results for Tuscan debitage from the house floor were not clustered (Figure 4) and, hence, were not appropriate for association with the radiocarbon age. Comparison with data from Lake Britton provided somewhat more promising results, as a radiocarbon assay of 380 years B.P. was associated with a mean Grasshopper Flat obsidian hydration reading of 3.96 microns by Kelly et al. (1987). These results are mirrored in the Grasshopper Flat obsidian data from the house floor at Sha-1723, as the two specimens of this source material exhibit 3.7 and 3.8 microns of hydration, respectively.

While direct use of hydration rate formulas for absolute dating did not appear appropriate, application of the Sacramento River Canyon formula for comparing Grasshopper Flat and Tuscan obsidian on a relative basis did suggest some interesting patterns in the use and distribution of obsidians in prehistory. Although Tuscan obsidian accounted for the majority of the material submitted for x-ray fluorescence analysis, making up 81% of the collection and dominating all components, Grasshopper Flat obsidian and several "unknowns" were also identified. Of the 10 pieces of Grasshopper Flat obsidian submitted for hydration analysis, 4 specimens exhibited rims between 3.7 and 3.8 microns. Employing the relative comparative formula posited by Basgall and Hildebrandt (1989), these measurements are equivalent to approximately 2.1 microns on Tuscan glass. Such measurements for Tuscan material are very rare in the California-Oregon Transmission Project collection, and are prevalent only on reworked artifacts (see Figure 3). These data suggest that people with connections to the north and/or access to Grasshopper Flat obsidian may have moved into or made use of the area during the period reflected by these measurements (ca. A.D. 500).



Note: Data from CA-Sha-1720 are for visually sourced material

Figure 4. Debitage obsidian hydration results (from Hull et al. 1991).

Possibly unused to exploiting cobble materials such as Tuscan, they brought in limited quantities of Grasshopper Flat obsidian and scavenged and reworked Tuscan artifacts occurring on sites.

Lithic analysis and description of the artifact assemblage further suggest differences in the exploitation and use of these 2 obsidian source materials. Bifaces of Tuscan obsidian reflect various reduction strategies, including manufacture from thick, secondary decortication flakes to ovate or foliate forms, sometimes employing bipolar reduction. Conversely, most Grasshopper Flat bifaces are bulbar flakes, thinned through pressure and percussion to triangular forms.

Within the domain of subsistence reconstruction, faunal assemblages were described, but the relatively poor preservation of most of this material did not permit detailed interpretation of subsistence practices. The majority of the bone recovered at all sites could only be identified as large or medium mammal, while freshwater shell fragments were also recovered at all three sites. There was a disproportionate amount of the latter material at Sha-1752, however, suggesting a possible greater reliance on such resources at this Mill Creek Complex site. This same pattern of late prevalence of freshwater shellfish exploitation has been noted elsewhere in Shasta County (e.g., Clewett and Sundahl 1983; Kelly et al. 1987).

As a result of the relatively limited data available from faunal analysis, a subsample of flaked stone tools was analyzed for blood residues to assist with identification of subsistence practices. This technique has been used with some success in Oregon and elsewhere (cf. Nilsson and Kelly 1991), but had not been previously applied in the southern Cascades. In selecting specimens for analysis, a variety of tool types were included in order to allow some assessment of possible functional distinctions for morphological classes.

Of the 34 tools submitted for blood residue analysis, 15 were found to have such residues (Table 2). In addition to rabbit, families recognized include Cervidae (deer, elk), Antilocapridae (antelope), Bovidae (sheep, goat), Felidae (cats, including mountain lion and bobcat), and Canidae (dog, coyote, wolf). Human blood was identified on one edge-modified piece, although given the tool type, this likely reflects injury to the user or flintknapper rather than violence.

These results suggest a varied faunal assemblage, although no distinctions between tool types were apparent. Rabbit is most prevalent (n = 7; 47%), followed by deer (n = 4; 27%), antelope (n = 3; 20%), cat (n = 3; 20%), dog (n = 2; 13%), and sheep (n = 2; 13%). The only clear distinction between sites is the restriction of sheep blood to 2 projectile points from Sha-1752. This identification is intriguing, as this site is the only one occurring in northern Yana territory. The difference may also reflect site age, however, as this deposit is the youngest

Table 2. Tools submitted for blood residue analysis.

Catalog Number	Site	Unit	Depth (cm)	Type	Residues
1720-70	SHA-1720	STU4	40-60	EMP	
1720-90	SHA-1720	STU8	0-20	EMP	
1720-140	SHA-1720	EU1	40-50	PP	
1720-141	SHA-1720	EU1	40-50	PP	
1720-144	SHA-1720	EU1	50-60	EMP	
1720-166	SHA-1720	EU2	10-20	PP	
1720-167	SHA-1720	EU2	10-20	PP	
1720-175	SHA-1720	EU2	20-30	PP	
1720-196	SHA-1720	EU2	60-70	SCR	RABBIT
1720-217	SHA-1720	EU3	40-50	PP	DEER, ANTELOPE
1720-227	SHA-1720	EU3	50-60	B	
1720-228	SHA-1720	EU3	50-60	PP	
1720-235	SHA-1720	EU3	60-70	PP	
1720-237	SHA-1720	EU3	60-70	EMP	
1720-242	SHA-1720	EU3	70-80	PP	DOG
1723-47	SHA-1723	STU5	20-40	EMP	DEER, ANTELOPE
1723-58	SHA-1723	EU1	10-20	EMP	RABBIT
1723-63	SHA-1723	EU1	20-30	PP	
1723-96	SHA-1723	EU1	50-60	PP	DEER, CAT
1723-146	SHA-1723	EU1	90-100	EMP	HUMAN,CAT,ANTLOPE
1723-162	SHA-1723	EU1	110-120	PP	
1723-216	SHA-1723	EU3	30-40	PER	
1723-223	SHA-1723	EU3	30-40	EMP	
1723-254	SHA-1723	EU3	70-80	PP	DEER
1723-255	SHA-1723	EU3	70-80	PP	RABBIT, CAT
1723-258	SHA-1723	EU3	70-80	VAR	RABBIT
1723-287	SHA-1723	EU3	100-110	EMP	RABBIT, DOG
1723-312	SHA-1723	EU3	130-140	PP	RABBIT
1752-10	SHA-1752	STU2	20-40	PP	RABBIT
1752-15	SHA-1752	EU1	0-10	PP	
1752-24	SHA-1752	EU1	20-30	PP	
1752-30	SHA-1752	EU1	30-40	PP	SHEEP
1752-34	SHA-1752	EU1	40-50	PP	SHEEP
1752-48	SHA-1752	EU2	10-20	PP	

B = BIFACE; EMP = EDGE-MODIFIED PIECE; PER = PERFORATOR; PP = PROJECTILE POINT; SCR = SCRAPER; VAR = VARIA; STU = SHOVEL TEST UNIT; EU = EXCAVATION UNIT

of the 3 studied. Coupled with faunal assemblage results suggesting a prevalence of freshwater shellfish, distinct dietary practices may be indicated for various time periods or site types within Yana territory.

Data derived from all analysis techniques applied provide for a much more dynamic picture of Yana prehistory than might otherwise be available. In addition, new questions to be addressed are highlighted. For example, exploration of intrasource hydration rate variation for the Tuscan source is indicated, as understanding of such phenomena will assist in refinement of the regional chronology. Likewise, clarification of the relative rate of hydration for Grasshopper Flat and Tuscan materials will permit further consideration of possible shifts in obsidian procurement and cultural factors such as population movements that may be mirrored by such changes. Continued application of organic residue detection techniques is also indicated, including study of groundstone artifacts, as these data provide a much broader picture of subsistence practices than generally available and may be of use in defining site seasonality and settlement patterns.

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