Chapter 3: Methods and Curation

This section provides an overview of general field and laboratory methods employed in this project. Project policies and practices related to tribal monitoring and consultation with Tolowa partners are also described.

General Mapping and Recording Procedures

To ensure an accurate record of fieldwork, extensive notes were taken and standard forms completed. Notes include profile drawings of unit walls and detailed descriptions of soil stratigraphy, soil types, Munsell soil color descriptions, depth measurements, and an inventory of artifacts. General field and environmental conditions were also noted (e.g., adverse weather, condition of ground surface). Surface survey field notes include site sketch maps, artifact drawings, and site location maps. Auger/shovel testing forms include field specimen logs and auger summary forms. Excavation forms also include field specimen logs, as well as unit summaries and maps, and feature records and map forms. Additional method-specific recording procedures are detailed in the following sections. Archaeological Site Condition Assessment Record forms were completed for all State Parks archaeological sites discovered or revisited throughout this fieldwork.

All proveniences were measured off of the USGS benchmark located in the southeastern edge of CA-DNO-26. As the benchmark is conveniently located at the NPS/State Parks border, all surface survey, auger, and shovel testing proveniences with eastings were on NPS property, and those with westings were on State Parks property. Site maps were prepared for each individual archaeological site and include major landforms, elevations, surface-collected artifacts, roads, buildings, campsites, and other important features. Hand-drawn maps were scanned by the GIS staff at the NPS office in Arcata and provided the base for auger testing and site maps used in later reporting.

Surface Survey

In general, surface survey was undertaken in areas with good ground visibility and in locations of high cultural sensitivity. Surface survey involved crew members walking in regular (approximately 15-meter) transect intervals. When artifacts were encountered, they were pin-flagged and the area was searched in tighter intervals to determine site boundaries.

AUGER AND SHOVEL TESTING

Early in this fieldwork, a trial was carried out to see if shovel tests were a more effective method than auger tests. It was determined that auger tests were more efficient in terms of time spent excavating and artifact recovery in the study area. Although shovel tests are larger and typically produce more artifacts per test hole, the primary goal of this phase of research was to determine presence/absence of cultural materials, and auger tests sufficiently met this goal. Additionally, shovel tests proved no more efficient than auger tests in breaking through the rock and root laden soil of the study area.

A regimen of auger testing was therefore employed in areas of poor surface visibility and areas with a high likelihood of buried cultural deposits; this was the main method employed in Redwood National and State Park to determine site boundaries and presence or absence of archaeological deposits. Subsurface testing was found to be the most suitable method for assessment of cultural resources in the forested project area.

Auger tests are approximately ten-centimeter-diameter circular holes dug with manual bucket augers by a team of two to three people (Figure 12). Tests were dug in 20-centimeter intervals to the maximum depth possible and were abandoned when large roots, rocks, or other obstructions were encountered. If obstructions were encountered in the first 20-centimeter level of excavation, two to three additional tests were attempted in the area. All excavated soil was dry-screened through 1/8-inch wire mesh hand screens. Recorded information includes soil constituents, Munsell soil color designations, presence/absence of charcoal, modern debris, and, if present, the number and class of artifacts.

From left to right, recorder, screener, and bucket auger "operator."
Note thick vegetation and low surface visibility typical of the area.

Figure 12. Auger Testing Team.

To encourage plant regrowth, the first 20-centimeter level of earth was kept separate from lower material. Upon backfilling, soil deeper than 20 centimeters was placed back first in the auger hole, and then the remaining upper level (first 20 centimeters) of soil was placed on top. Soil was tamped down and covered with forest duff to ensure that auger tests were not visible and to encourage later plant growth in the augered area.

Auger tests were excavated in regular intervals whenever possible (typically every 15 to 30 meters). When tests were "positive" (i.e., cultural materials present), additional tests were extended in a (north/south-east/west) cruciform pattern to determine the horizontal boundaries of the site. Site boundaries were established when at least two consecutive auger tests were "negative" (cultural materials absent). A single positive test was termed an isolated find or an *isolate*.

Charcoal and burned plant material was commonly encountered, the cause of which (anthropogenic, forest fire, or campfire-related) is often impossible to determine without more intensive testing. Thus, though charcoal was noted whenever present, augers with sparse amounts of charcoal and no artifacts were designated negative tests. Additionally, as campground-related refuse was commonly encountered in auger tests, those with only modern debris (i.e., not pre-turn-of-the-twentieth-century historic artifacts) were not designated positive tests.

Shovel tests are approximately 30-centimeter-diameter circular holes dug with shovels. Methods are identical to those specified above for auger tests. Only eight shovel tests were excavated during this fieldwork, while 846 auger tests were dug (Tushingham 2006:Appendix B).

UNIT EXCAVATION METHODS

Excavation units were generally 1 x 2 meters in size and were placed in various locations within sites to ensure that the full extent of the site is sampled. All units were tied to the main site datum which was established prior to the excavation. To maintain vertical control, all measurements (X, Y and Z coordinates) were taken from each unit datum using a string, line level, and metric folding ruler. A transit was used to map sites and was the method used to establish each unit datum to the site datum. Units were dug in stratigraphic levels whenever appropriate; otherwise, arbitrary ten-centimeter levels were employed. Soil was systematically hand-excavated in regular intervals and dry-screened through 1/8-inch wire mesh. With the exception of fire-cracked rock, all cultural materials were collected.

Artifacts were separated by level or feature and bagged and tagged with appropriate provenience information. Artifacts discovered *in situ* were three-point (X, Y, Z) provenienced. Upon the completion of each level, a unit level map was drawn noting visible features, artifacts, large rocks, and roots. Unit profiles were drawn at the completion of each unit, and digital photographs were taken of the base of unit levels, features, and profiles.

Soil samples from features (house floors, hearths, etc.) and soil column samples were collected for flotation analysis. Column samples are 20-x-20-centimeter-wide samples excavated in ten-centimeter increments after the completion of unit excavation. Soil samples were processed at the UC Davis archaeological laboratory using a Flote-Tech flotation machine and separated into non-buoyant "heavy" and buoyant "light" fractions. Analyzed heavy fractions were sorted into >1/4-, 1/8-, 1/16-, and <1/16-inch size grades. A sample of

light fractions from various contexts was analyzed for charred plant remains by Eric Wohlgemuth (see Tushingham 2009 for results).

Plastic tarps were placed under all back dirt, and the first 20 centimeters of soil was kept separate from deeper soil to promote plant re-growth upon backfilling. Following excavation, back dirt was systematically replaced to ensure that units were not subject to future slumping. It was then "naturalized" by placing leaves and other vegetation in the area.

TRIBAL MONITORING AND CONSULTATION POLICIES

Tolowa involvement has been a hallmark of this project. In 2002, when this project began, Redwood National and State Parks Cultural Heritage Chief Karin Anderson initiated consultation with the Tolowa people. Since that time, a partnership has been developed between the Tolowa community, Redwood National and State Parks, and UC Davis.

Tolowa tribal monitors were present during all phases of fieldwork; their observations and input were regularly asked for, and their insights often directed the course of fieldwork and provided many intellectual contributions to the study. Tolowa monitors included Marilyn Bray, Margaret Moorehead Brooks, Richard Brooks, John Green, Elaine Moorehead, Brock Richards, William (Bill) Richards, and Marva Scott. The Field Director worked closely with monitors and consulted with them regularly concerning daily field operations. Students were instructed to keep monitors informed throughout fieldwork.

In addition to Tolowa monitors, many members of the Tolowa community from the Elk Valley Rancheria, Smith River Rancheria, and Tolowa Nation, and adjoining tribal groups (in particular, members of the Yurok Tribe) visited the site. Site tours and summaries were given by the Field Director, or a Teaching Assistant if the Field Director was unavailable.

The project also involved regular consultation with Tribal members, Culture Committees, and Tribal Councils of the Elk Valley and Smith River Rancheria. Project reporting included attendance at culture committee meetings, timely reporting of findings via presentations, written reports and letters, and field protocols.

LABORATORY METHODS AND CURATION

During field school operations, a laboratory was set up at the Hiouchi Visitors Center for initial artifact cleaning, sorting, and preliminary analysis. Most in-depth artifact analysis was performed by the author, John Darwent, and laboratory assistants at the UC Davis Archaeological Laboratory, except for faunal and plant macrofossil analyses, and obsidian hydration and sourcing, which were outsourced to specialists. Archaeological materials were made available for post-fieldwork analyses through a loan agreement between California State Parks, the National Park Service and the University of California, Davis, Department of Anthropology.

Artifacts were brush-cleaned with water, except for fragile items such as nutshell and faunal remains, which were kept dry and gently cleaned with a small brush, when appropriate. Excavated artifacts were organized by site, unit, level, and/or house number. Artifacts were placed in four-millimeter archival quality bags and tagged with all provenience information. All data was entered into a Microsoft Excel database following the established catalog format.

All collections, including artifacts, photographs, and other appropriate documentation, were delivered to the National Park Service (Orick, California) and California State Parks (Sacramento) curation facilities, as appropriate. Collections derived from sites on California State Parks property are associated with Accession Number P1321, while collections derived from sites on National Park Service lands are associated with Accession Number REDW-00282. The Tolowa indicated that they would like to see the collection managed in the local area, and other parties have agreed that it may be appropriate to house the entire collection together in Orick or in the future at a facility managed by the Tolowa community.

Chapter 4: Archaeological Sites and Fieldwork

The archaeological data summarized in this monograph were collected from six sites along the Smith River in Jedediah Smith State Park and the Hiouchi Flat area of Redwood National and State Park. Sites include the ethnographic Tolowa village of Red Elderberry Place (CA-DNO-26), CA-DNO-332, -333, -334, -339, and -XX13. The sites are within the Riverine (Redwood Belt) environmental zone (see Chapter 2) on the eastern edge of the coastal rainforest, approximately nine air miles from the Pacific coast in the foothills of the Klamath Mountains.

The study sites are situated on high, flat terraces above the flood zone facing the salmon-rich Smith River, ideal locations for long-term habitation. In a geoarchaeological study of the area, Meyer (2008) identified "six major landforms and a distinct terrace sequence" and determined that archaeological sites are located mostly on Late Pleistocene to Holocene stream terraces. Before being logged, the sites were in "park like" old growth redwood forest, with little understory except for ferns.

Most of the sites are currently covered by a dense forest of second growth redwood, Douglas fir, bay, and tan oak trees, with an understory dominated by poison oak and sword ferns. The remnants of primary old growth Redwood forest are mostly limited to site CA-DNO-334, although some large redwood trees are located in other sites close to the river. Thick vegetation obscures the ground surface so that artifacts are rarely visible. Historic-period plantings (e.g., fruit trees and lilies) also influence current site vegetation and are associated with privately owned twentieth-century homes and gardens once located at or near CA-DNO-26, -332, and -XX13; with the Catching ranch (1870s-1920) between Hiouchi and CA-DNO-26; and the Zopfi homestead (1910-) near CA-DNO-26 and -XX13. The National Park Service razed most of the associated structures in the last 20-30 years.

Due to thick forest duff and dense vegetation (sword fern, blackberries, and poison oak are widespread), ground surface visibility is low. Local climate is influenced by moist and foggy maritime conditions, though it is generally warmer and drier than at lower elevations along the coast.

FIELDWORK SUMMARY

No prior subsurface studies have been completed in the area, and of

the sites described here, CA-DNO-26 was the only site that had been previously recorded. The recorded portion of CA-DNO-26 was limited to the southeastern-most section of the site, which is associated with the ethnographically recorded Contact Period occupation of Red Elderberry village. Due to poor surface visibility and the potential for buried deposits, particularly in alluvium adjacent to the river, auger testing was determined to be the best method of site survey and led to the delineation of CA-DNO-26 and discovery of the additional five sites described here. Sites CA-DNO-26, -333, and -334 have been variously impacted by campground-related activity and infrastructure since the campground's opening in 1929. Visibility is marginally better in highly trafficked areas such as campsites and trails, though even in these areas forest duff still obscures most surface artifacts and features.

A systematic regimen of auger and shovel testing (n=848) and surface survey (where possible) was conducted over the course of several 3-7-day field visits with volunteer crews, and during three UC Davis archaeological field schools between 2003 and 2005 (Figure 13). Fieldwork included boundary delineation of the five previously unrecorded sites and CA-DNO-26. Auger testing methods, fieldwork, and findings summarized here are fully reported in Tushingham (2006).

Unit excavation was conducted at CA-DNO-26 and -333 during two UC Davis archaeological field schools in 2003 and 2004. Thirty-one units were excavated at CA-DNO-26, and four units were excavated at CA-DNO-333, representing approximately 84 cubic meters of excavated soil. Units ranged from 1 x 1 to 1 x 8 meters in size, although the majority of the units were 1 x 2 meters in size. Five semi-subterranean houses were tested, accounting for 24 of the excavated units. The remaining 11 general midden units were 1-x-2-meter exposures excavated outside of housepit depressions, and distributed throughout the

Figure 13. UC Davis Archaeological Field School, 2004.

site to gain an understanding of inter-site variability. Unit excavation methods and site descriptions of CA-DNO-26 and -333 are summarized here. For detailed descriptions of excavated houses and features and of the assemblage of these sites, see Tushingham (2009).

Additional auger testing (n=32) and excavation of 11.8 cubic meters of soil was conducted at sites CA-DNO-332, -334, and -XX13 in 2006 during a Far Western Anthropological Research Group, Inc., project (Tushingham et al. 2008). An in-depth geoarchaeological study addressing the history of landforms and potential for buried sites in the area was completed in tandem with this project (Meyer 2008). Excavation and assemblage data for these sites are summarized here (for more detail, see Tushingham et al. 2008).

There are at least nine depressions at CA-DNO-26 and four at CA-DNO-332. All are round to ovoid in shape and measure between four and eight meters in diameter. Prior to excavation, it was not clear whether they represented houses or modern or natural features such as tree fall. In many cases the depressions were barely visible, being filled with thick forest duff, trees, and other vegetation. Five of the depressions were tested at CA-DNO-26 (Houses 1-4) and one at CA-DNO-333 (House 5). All were found to contain the remains of semi-subterranean houses which closely resemble those recorded in the ethnographic record. A circular depression was identified as a possible house pit feature at CA-DNO-334. However, no cultural features were encountered during testing (at Unit 1), so the depression may be associated with the root ball of a fallen tree. Many depressions were also observed at CA-DNO-332, but poor surface visibility and other factors made their delineation difficult.

ARCHAEOLOGICAL SITES

Red Elderberry (CA-DNO-26)

Site CA-DNO-26 is a large habitation site (360 meters north-south by 100 meters east-west) on the north bank of the Smith River associated with the ethnographic Tolowa village of *Chvn-su'lh-dvn*, Athabascan for Red Elderberry Place or Salmonberry Place (Loren Bommelyn, personal communication; Drucker 1937). Ethnographic records of *Chvn-su'lh-dvn* are scant, although according to Drucker (1937), the site had two houses and a sweathouse and was a suburb of *Tatatun*, a major village site located in present-day Crescent City (Drucker 1937). Additional ethnographic data on the site are detailed in Chapter 5.

Previous Research

Although no prior subsurface investigations have been completed at CA-DNO-26, several archaeologists have previously visited and/or described the site. In the late 1960s, Richard Gould visited several interior Tolowa sites, including CA-DNO-26. He collected approximately 100 artifacts from the surface, and the resulting collection is housed at the American Museum of Natural History in New York City. Eric Ritter surveyed and completed the first site record for CA-DNO-26 (Ritter 1969a), in which the site is described as a major village with dark midden measuring approximately 50 meters north-south by 100 meters east-west, with a depth of more than one meter. Observed features included a "Chinese miner's trench," a rock pile, and a "ceremonial pit" in a clearing at the east side of the site hypothesized to be a "possible religious area in which Indians tossed rocks into a pit as an offering" (Ritter 1969a). Two possible 50-centimeter-deep house pit depressions are described in Ritter's notes, one circular (six meters in diameter) and one oval (~6 x 10 meters). Ritter interviewed a local man, Mr. Sawyer, who indicated that he collected 20

points, retouched flakes, pieces of ocean shell, scrapers, debitage, hammerstones, and core tools from the surface at CA-DNO-26. Sawyer noted "that a Mr. Zofti [Zopfi] lived near the site. Zofti [Zopfi] told him the last Indian (a renegade) lived on the site around 1902. He was chased into the forest and shot by local white residents" (Ritter 1969a).

Despite the lack of subsurface investigations, the scientific importance of CA-DNO-26 was apparent to earlier researchers. In an overview of sites in Redwood National Park Michael Moratto states:

> The archaeological remains would appear to be of exceptional scientific value. The apparent site of *Tcunsu'ltun* seems to be the *only* midden site within Jedediah Smith Redwoods State Park. Furthermore, this is the only reasonably intact inland archaeological site known to exist within the proposed boundaries of Redwood National Park. [Moratto 1973:90-91]

Moratto's significance determination was based on his observation of "rich black midden" and many artifacts observable on the surface including marine shell scrapers, net sinkers, hammerstones, nineteenth-century bottle glass, and numerous worked flakes of chert and obsidian. Site dimensions at the time were estimated at 200 meters east-west by 50 meters north-south, with a depth of at least 90 centimeters. At least two possible "subrectangular" housepits measuring approximately 10 x 15 feet were noted.

Based on information provided by previous surveys, ethnography, and interviews with Tolowa consultants, a National Register of Historic Places nomination was completed for CA-DNO-26 (Bickel 1979). The nomination notes that Tolowa consultants were interviewed in 1978 and 1979 but had no knowledge about which families once lived on the site. They "readily supplied the name *Chvn-su'lh-dvn* (said to mean "elderberry place;" cf. Drucker's "pigeonberry place") for the location. Some said that it was once a village; others said, just a place used by people [presumably for fishing or gathering berries or other vegetal foods]" (Bickel 1979:2). Chert cores, flake tools, and debitage were observed on the surface of the site, and it is noted that the interviewed Tolowa consultants had no knowledge of the location of the cemetery. Intensive survey and subsurface testing (auger borings and possibly excavation) was recommended to determine the nature, depth, and integrity of site boundaries; the extent of campground damage to the site; and whether "the observable pits in the site may be related to recent campground use, rather than earlier Tolowa occupation" (Bickel 1979).

In 1982, Hood and McAleer revised the site record for CA-DNO-26. The site was determined to be larger than any of the previous surveys indicated: 260 meters east-west by 100 meters north-south. Handstone fragments, fire-cracked rock, and a total of six to eight probable house pit depressions were observed in a survey of the site.

Fieldwork Summary

Systematic auger and shovel testing was conducted in the winter and spring of 2003 and during three UC Davis archaeological field schools held in the summers of 2003, 2004, and 2005. The boundaries of site CA-DNO-26 were mapped via the presence of 66 positive tests, including 56 auger tests, seven shovel tests, and three surface artifact locations. A total of 588 artifacts was recovered in these tests (Tushingham 2006). Soil conditions vary considerably within the site, from sandy alluvium along the Smith River in the site's southwestern section, to rocky, deflated soils in the northeastern section of the site. The

maximum depth auger tests were dug varied accordingly; while it was possible to excavate some auger tests only to a maximum of 20 centimeters or less, auger tests adjacent to the river in the western section of the site extended as deep as 540 centimeters below surface. Evidence for buried cultural deposits is clustered along the low-lying alluvium covered area, with multiple auger tests producing buried cultural materials beneath 20-120 centimeters of sandy alluvium. The maximum depth of the artifacts that were recovered via auger testing was in this area of the site, at 220 centimeters below surface.

Unit excavation took place during the 2003 and 2004 archaeological field schools and included the excavation of 31 units, including eight general excavation units and 23 units placed in houses (Table 5).

Table 5. CA-DNO-26 Unit Excavation Summary.

UNIT	UNIT SIZE (METERS)	MAX. DEPTH EXCAVATED (CM)	CULTURAL CONSTITUENTS
General Midden Units			
A	1 x 2	80	Early period midden (20-80 cmbs)
B	1 x 2	150	Stratified Early/Middle/Late Period deposit
C	1 x 2	150	Early period midden (60-100 cmbs)
D	1 x 2	150	Late Period midden above Middle Period living surface, hearth, midden, and ground stone feature (50-100 cmbs)
E	1 x 2	150	Middle Period midden (20-150 cmbs)
H	1 x 2	150	Early/Middle/Late Period deposits
P	1 x 2	174	Stratified Early/Middle/Late Period deposit
Q	1 x 2	188	Stratified Middle/Late Period deposit
House 1			
FS/FN	1 x 8	158	Late Period semi-subterranean house with packed clay floor, burned upright planks. Mixed Late/Middle Period and intact Middle Period deposits before house floor
Y	1 x 2	108	
House 2			
AA	1 x 4	120	Semi-subterranean house with packed clay floor, linear stone alignment. Late and Middle Period deposits
House 3			
I	1 x 2	160	Late Period semi-subterranean house with blue clay floor, shelf, food caches, abundant net sinkers, harpoon tips, salmon bone
ZN	1 x 2	136	
ZW	1 x 1	112	
Z	1 x 2	161	
House 4			
GN	1 x 2	62	Heavily burned Contact Period semi-subterranean sweathouse with interior paved area, slab-lined hearth, upright planks, plank floor. Assemblage similar to that of Late Prehistoric House 3, with addition of historic materials.
GS	1 x 2	62	
J	1 x 2	65	
K	1 x 2	60	
R	1 x 2	80	
S	1 x 2	80	
T	1 x 3	92	
U	1 x 3	74	
V	1 x 2	115	
W	1 x 1	39	
X	1 x 2	113	
BB	1 x 3	60	

In a geoarchaeological study of the area, Meyer (2008) identified two major landforms at CA-DNO-26. The upper part of the site is located on a Latest Pleistocene strath terrace (a type of terrace that is the result of stream downcutting through bedrock) at an average elevation of 136 feet above mean sea level. This terrace is estimated to be 19,000-11,500 years old and is "likely associated with deglaciation of the Upper Klamath Mountains, which eventually led to reduced runoff, concentrated flows, and channel incision. Thus, the sediments that now form this terrace have remained relatively stable over much of the time people occupied the region" (Meyer 2008:21). This terrace was probably not submerged during the major flood of 1964, which inundated many parts of Del Norte County and lower sections of the project area.

Very dark midden soil and high artifact densities are characteristic of this upper terrace area. At least nine circular depressions are laid out in a single row along the highest sections of the terrace. Four of these were tested; all were determined to be the remains of semi-subterranean houses of varying age. Houses 1-3 date to the Late Period, while recovered historic-era (Contact Period) artifacts are clustered in the easternmost section of the site near an excavated sweathouse (House 4) dating to the mid to late 1800s. The earliest radiocarbon date obtained from deposits on this terrace is 3953 cal BP (CAMS-114838) in the lower levels of Unit FN (below House 1; see Table 11 on page 64). However, consistently thick obsidian hydration readings suggest there are very old archaeological deposits on the terrace, which could be confirmed through additional radiocarbon dating.

The lower (river-side) portion of the site is located on a second landform identified by Meyer (2008) as a Late Holocene terrace estimated to be less than 800 years old. This landform covers buried A Horizon deposits dating from the Early to Middle Holocene. The terrace averages 112 feet above mean sea level and likely was covered in 1.5-6.5 feet of water during the 1964 flood. Auger testing along the river bar revealed deeply buried artifacts (up to 220 centimeters below surface), which were capped by 20-120 centimeters of fine-grained sandy alluvium. Additionally, 90% of auger-recovered artifacts were found 40 centimeters or more below surface on this terrace, while on the upper Late Pleistocene terrace, only 55% were found below 40 centimeters (Meyer 2008). As many as three formerly stable A Horizon deposits dating to the Early to Middle Holocene are buried beneath the younger alluvial deposits (Meyer 2008). Consistently thick obsidian hydration readings and Early to Middle Holocene AMS dates at Unit B support this finding. The Middle Holocene dates from Unit B include the following: 3614 cal BP (PRI-07-146-573), 7510 cal BP (NOS-57448), 7806 cal BP (PRI-07-146-571), and 8072 cal BP (PRI-07-146-576; see Table 11 on page 64).

The site is surrounded on all non-river-facing sides by characteristically gravelly, shallow soils with no artifacts identified in auger tests. Similar gravelly soils were encountered in other parts of the project area, including a large area between CA-DNO-332, -26, and -XX13. Typically devoid of cultural materials, such areas appear to be the result of past fluvial activity (Meyer 2008).

Assemblage and Chronology

Through excavation and testing at CA-DNO-26, three temporally significant components have been defined, with distinct assemblages, features, and patterns of raw material use and procurement. This chronological sequence represents more than 8,000 years of human occupation, and is supported by the presence of temporally diagnostic

projectile points, radiometric (AMS) dates of charred nuts and seeds, and obsidian hydration analyses.

Excavated artifacts include a wide variety of prehistoric and protohistoric artifacts (obsidian, chert and basalt flakes, flake tools, projectile points, steatite and clay pipes, ground stone, cores, core tools, cobble tools, steatite and *Olivella* shell beads, pendants, mammal, fish and bird bone, shell, glass and metal artifacts, fire-cracked rock, and charcoal). Artifacts from the two main study sites, CA-DNO-26 and -333, contained the most intact deposits of the project sites; assemblage data separated into component are presented ahead in Table 12 through Table 14 starting on page 66.

Twenty AMS dates were obtained from CA-DNO-26 unit excavations (see Table 11 on page 64). Of these, six are from house floor or feature contexts, while the remainder are from general midden contexts. Projectile points dating to the Early Period include large to medium foliates which are similar to those recorded for Glade Pattern sites in southwest Oregon. Points associated with the Mendocino or Middle Period include Trinity series points, Mendocino Corner Notched, Squaw Creek Contracting Stemmed, and McKee Unifaces. Late Period projectiles were the most numerous, particularly Gunther barbed and Gunther variant points. Other common Late Period styles include concave-based (harpoon) tips and flake projectile points, the latter of which were found (via excavation and obsidian hydration analysis) to be a marker for the time period. Finally, Desert Side Notched points were rare but present in terminal Late Period and Contact Period contexts.

In sum, site CA-DNO-26 is associated with the ethnographic village of *Chvn-su'lh-dvn*. Excavations revealed an extremely long chronological sequence ranging from earlier than 8000 cal BP to the Contact Period. The remains of four semi-subterranean plank houses were excavated at the site and include the earliest well-dated houses of their kind (House 1, with a mean pooled radiocarbon age of cal 1267 BP) and the only excavated plank sweathouse recorded in the region.

CA-DNO-333

Site CA-DNO-333 is a large prehistoric site (250 meters north-south by 150 meters east-west) located on a high terrace above the Smith River. CA-DNO-333 is located on the same stable Late Pleistocene terrace as the upper part of CA-DNO-26 (Meyer 2008). The site is not mentioned in the ethnography, and interviewed Tolowa consultants had no knowledge of this specific location. However, the presence of an archaeological site in this location was suspected for several reasons. First, site setting is quite similar to that of CA-DNO-26—both areas are ideal locations for a village, as they provided ready access to the salmon-rich, fresh-water Smith River, and are situated on high, flat terraces. Second, three depressions similar to confirmed housepit depressions were observed clustered along a terrace in the central section of the site. Third, a bowl mortar and pestle were discovered in the immediate area by Redwood National and State Parks maintenance staff in the 1980s.

Fieldwork Summary

The presence of an archaeological site was confirmed via auger testing in the summer of 2003, and final boundary delineation took place at the site in the summer of 2004 and 2005. A total of 72 artifacts was recovered from 34 positive auger tests and at two surface artifact locations (Tushingham 2006). A total of four 1-x-2-meter units was excavated at CA-DNO-333 during the 2004 UC Davis field school (Table 6).

Table 6. CA-DNO-333 Unit Excavation Summary.

UNIT	UNIT SIZE (METERS)	MAX. DEPTH EXCAVATED (CM)	CULTURAL CONSTITUENTS
General Midden Units			
L	1 x 2	150	Middle period deposit (30-130 cmbs), lithic work area feature.
M	1 x 2	150	Stratified Late and Middle Period deposit. Two stratigraphically distinct slab-lined hearths.
O	1 x 2	150	Stratified Late and Middle Period deposit.
House 5			
N	1 x 2	161	Heavily burned Late Period semi-subterranean house, with trenches, posts and planks. Middle Period deposit below floor.

Soil conditions vary considerably within the site. Though sandy alluvium is present along some river-facing sections, unlike CA-DNO-26, buried cultural deposits were not encountered during auger testing or unit excavation. Deep, dark midden soils with high artifact frequencies are typical of the central and river-facing sections of the site, while rocky deflated soils were encountered near non-river facing site boundaries. The maximum depth of auger-tested artifacts were discovered in this area, at 140 centimeters below surface.

Also located in this central midden area are four 3-5-meter diameter depressions that are similar to confirmed semi-subterranean houses at CA-DNO-26. Unit N excavations (see Table 5) confirmed that one of these depressions was a Late Period semi-subterranean house (House 5). Spatial patterning of suspected house pit depressions is not as clear as at CA-DNO-26. Although three depressions are clustered along the river terrace, the only tested depression (House 5) is set back approximately 50 meters from this cluster, and no other depressions are visible near House 5. The immediate area is heavily impacted by campground activity and roads through the park, so if house depressions existed they may be no longer visible on the landscape. Other excavated features include two stratigraphically distinct Late Period slab-lined hearths discovered in Unit M near the three suspected housepit depressions, and a lithic work area consisting of a dense concentration of chert cores, choppers, battered cobbles, and debitage in Unit L dating to the Middle Period.

Very gravelly shallow soils devoid of cultural material surround the south and southwestern boundaries of the site and extend to the northern boundaries of CA-DNO-26. Similar off-site gravelly soils were encountered in other parts of the project area, including a large area between CA-DNO-332, -26, and -XX13.

Assemblage and Chronology

Three temporally significant components (Early, Middle, and Late Period) were encountered at CA-DNO-333. Cultural constituents include a wide variety of prehistoric artifacts (obsidian, chert and basalt flakes, flake tools, cores, core tools, projectile points, ground stone, animal bone, fire-cracked rock, and charcoal). No protohistoric artifacts were recovered at the site. Artifacts from the two main study sites, CA-DNO-26 and -333, contained the most intact deposits of the project sites; assemblage data separated into component are presented in Table 12 through Table 14 starting on page 66.

Two AMS dates were obtained from site CA-DNO-333 (Table 11 on page 64). The first (CAMS# 114831) was a small piece of burnt nut seed from Unit M, Level 7. It was located in midden between two stratigraphically distinct slab-lined hearths which were

located above and below Level 7. The sample produced a conventional date of 815 ± 35 BP and a calibrated date range of 679-786 BP. The second was obtained from a charcoal sample from House 5, Unit N, which dates to 420 ± 30 BP. The sample produced two calibrated date ranges: 333-351 BP and 435-523 BP.

Several distinct projectile point styles were recovered during unit excavation, including a large serrated Glade foliate, Mendocino Corner Notched points dated to the Middle Period, and Late Period Gunther barbed and Gunther variant points.

CA-DNO-332

Site CA-DNO-332 is an extensive (100-x-680-meter) prehistoric and historic period site located on a high terrace overlooking the north side of the Smith River. The relatively high elevation of the terrace indicates that the site has historically been protected from seasonal flooding of the river. Tolowa consultants report that native people lived in this area until around 1910; Richard Brooks had always heard that a historic-period village was located behind the fire station, an area in the eastern section of CA-DNO-332. This is corroborated by archival data (detailed in Chapter 5) which demonstrates that a large Indian-white family, the Catchings, lived on the flat by the 1870s. Their homestead encompassed approximately 270 acres in the area, and their home was located in the direct vicinity of the firehouse (now on National Park Service property). Later-dating homes and summer cottages were constructed on the site mostly after the 1940s. The National Park Service acquired these private parcels and razed most of the associated structures during the past 20 to 30 years. However, old fence lines, house foundations, water ditches, and historic period garden plantings and fruit trees remain scattered throughout the site.

Previous Research

In a corridor survey of US Highway 199, King (1972:11) assigned the site area "recently purchased by the National Park Service" as the location of the village of *Chvn-su'lh-dvn* (CA-DNO-26). Residents in the early 1970s told King that an "Indian structure" was once located in the area. King observed dark midden soil and shell on the surface of the area and concluded that the site was probably mostly historic, as he only identified old bottle glass in exposed surfaces (gopher holes). Ethnographic evidence (e.g., Drucker 1937), previous archaeological studies, and Tolowa oral histories all confirm that *Chvn-su'lh-dvn* was located to the west of this site in historic times; although the current site boundaries of CA-DNO-333 and -26 are separated by 90 meters, if and how the sites were connected in the past remains unclear.

In 1973, in an archaeological overview for RNP, Michael Moratto addresses the issue:

> It seems clear that the north bank of Smith River in this area was extensively utilized by the Indians. Although it is probable that the site described by King is merely the periphery of the midden discussed above [CA-DNO-26], the ascription of the name *Tcuncu'ltun* to either site (or to both of them collectively) would seem reasonable. It may be, in fact, that the "two" sites merely reflect settlements by the same community at different times. [Moratto 1973:90]

Fieldwork Summary

Archaeological fieldwork at the site began in the spring of 2003 when the site was discovered by a team of UC Davis volunteers. UC Davis archaeologists returned to the site during the 2005 summer field school. In all, 270 artifacts were recovered on the surface and from 85 auger tests (Tushingham 2006).

Investigations during the 2007 Far Western project included subsurface excavation of two 1-x-2-meter units and two 1-x-1-meter units (Table 7). Twenty-two auger tests were also excavated to complete site boundary delineation and mapping. Unit excavations were conducted in two areas. Exposure 1 was placed toward the western end of the site, away from the terrace edge, where the 2003 and 2005 auger yields were relatively high. Exposure 2 was placed along the terrace edge toward the eastern end of the site. At both exposures, excavations began with a 1-x-2-meter unit followed by a 1-x-1-meter extension. These efforts resulted in the excavation of 9.0 cubic meters of soil.

The subsurface structure of CA-DNO-332 varies from shallow rocky and gravelly soils at site margins, to deep midden soils with high artifact frequencies in the central two-thirds of the deposit. Several depressions were observed at the site which may represent house pits. However, any clustering or linear layout of the depressions was not clearly visible. Due to poor surface visibility and time constraints, it was difficult to properly evaluate these depressions.

Table 7. CA-DNO-332 Unit Excavation Summary.

UNIT	UNIT SIZE (M)	MAXIMUM DEPTH (CM)	CULTURAL CONSTITUENTS
Exposure 1			
1	1 x 2	160	Mixed Early and Middle Period deposit, living surface & Oregon Series point at 90-100 cmbs.
1A	1 x 1	160	Mixed Early and Middle Period deposit.
Exposure 2			
2	2 x 1	150	Mixed Early and Middle Period Deposit, some Late Period constituents.
3	1 x 1	120	

Assemblage and Chronology

The artifact assemblage at CA-DNO-332 is composed almost entirely of flaked stone tools, including 56 flake tools, 15 bifaces, seven formed flake tools, three cobble tools, two projectile points, one core tool, and more than 4,500 pieces of debitage (Table 8). Ground and battered stone implements are completely absent, and the remainder of the collection includes a single tarring pebble, a drilled stone disk (see Figure 16 on page 69), and an unusual piece of red clay.

Analysis of flaked stone tools indicates that people arrived at the site with finished tools made from obsidian and cryptocrystalline silicate that were refurbished during their stays. Some tool manufacturing also occurred, particularly simple flake tools and bifaces made from cryptocrystalline silicate, and more heavy-duty tools made from local toolstones such as greywacke. A relatively high percentage of obsidian debitage (62.0% overall) was recovered at the site, including material from both Medicine Lake Highlands and Spodue Mountain, indicating that people were actively involved in a system of inter-regional exchange.

Table 8. CA-DNO-332 Artifact Inventory.

	TOTAL	EXPOSURE 1	EXPOSURE 2
Flaked Stone			
Projectile Points	2	1	1
Bifaces	15	2	13
Formed Flake Tools	7	1	6
Flake Tools	56	23	33
Core Tools	1	1	-
Cobble Tools	3	2	1
Debitage	4,503	1,401	3,102
Miscellaneous Items			
Tarring Stone	1	1	-
Modified Stone	1	1	-
Red Clay	1	-	1
Total	4,590	1,433	3,157

Notes: Data from Tushingham et al. (2008:35).

Radiocarbon dates, obsidian hydration data, and a single time-sensitive projectile point indicate that both exposures at CA-DNO-332 are associated with occupations that correspond to the Borax Lake (8000-3500 BP) and Mendocino (3500-1500 BP) patterns. Exposure 2 also contained a limited amount of material corresponding to the earliest end of Gunther Pattern time (roughly 1500-700 BP).

Six radiocarbon dates were obtained during excavation, three from Exposure 1 and three from Exposure 2 (see Table 11 on page 64). Unfortunately, radiocarbon dates in both exposures were stratigraphically mixed. For example, Exposure 1 produced the oldest date of 8875 cal BP (80-90 centimeters), while deeper depths produced dates of 2222 cal BP (100-110 centimeters) and 5838 cal BP (150-160 centimeters). It is difficult to understand the stratigraphic positioning of the dates, but given the large trees and roots within this location, it is possible that the sediments could have been reworked by tree falls, rodent borrowing, or other natural or anthropogenic disturbances. A similar situation was encountered at Exposure 2—the oldest radiocarbon date of 3235 cal BP was from a sample found at 50-60 centimeters, while others dated later but were found in lower stratum (711 cal BP from 70-80 centimeters, and 766 cal BP from 100-110 centimeters). Again, some sort of turbation must have occurred at this location, creating the inverse stratigraphy evidenced by the dates.

A chert Oregon series projectile point fragment is the only definitive time-sensitive artifact collected from the site (see Figure 16 on page 69). It was found at a depth of 90-100 centimeters in Unit 1 in the same level as a possible living surface. Similar large serrated lanceolates from Pilot Ridge sites were termed "Oregon series" points by Hildebrandt and Hayes (1983, 1993). Though they lacked a datable assemblage, as observed by Greg White (personal communication), the points are identical to those found at sites along the Rogue and Applegate Rivers in southeastern Oregon. At the well-dated Marial site (35CU84), they are commonly found in deposits dating to between 5500 and 2500 cal BP, with a peak at 4000 BP. Unfortunately, Unit 1 radiocarbon dates are mixed: 2222 cal BP (100-110

centimeters); 5838 cal BP (150-160 centimeters); 8875 cal BP (80-90 centimeters; see Table 11 on page 64).

Despite the great time depth of site CA-DNO-332 spanning more than 8,500 years, it is impossible to sort the findings into discrete components. While chronological resolution of the site at this point is poor, site CA-DNO-332 remains one the oldest riverine archaeological deposits in northwestern California, and intact cultural deposits may still exist at the site.

CA-DNO-334

Site CA-DNO-334 is a relatively large (220-x-200-meter) prehistoric site located on a low terrace just above the Smith River in the northern Day Use Area of Jedediah Smith Campground. Two Smith River Rancheria Tribal members and contributors to the project shared knowledge of this site in interviews conducted with the author. Richard Brooks had heard that there was a village in this location, but thought it could have been located closer to US 199. Additionally, Loren Bommelyn had heard his aunt speak of this area, possibly as a village or fishing camp location. The site is near the ethnographic salmon fishing site of *tum-chaa-me'* and may represent an associated camp or small village. For additional ethnographic information on *tum-chaa-me',* see Chapter 5.

Fieldwork Summary

The site was originally discovered during systematic auger testing conducted during the 2003 UC Davis summer field school. Additional testing and boundary delineation took place at the site in the summer of 2005. These investigations encountered a low density of material (n=32 artifacts) in 15 auger tests and in the exposed root ball of a fallen tree.

Unit excavation at the site was conducted during the 2007 Far Western study (Tushingham et al. 2008); three 1-x-2-meter units were dug at CA-DNO-334, resulting in the excavation of 1.8 cubic meters of deposit (Table 9). Two shallow circular depressions were recorded as possible house pits; Unit 1 was placed within one of these to determine its nature. The unit was excavated to a depth of 40 centimeters and revealed no evidence of a house structure; it produced only one biface and an unworked spall of chert. Unit 2 was placed on the east side of the site and revealed a very low density of material to a depth of 40 centimeters. Finally, Unit 3 was placed closer to the center of the site and yielded only four pieces of debitage to a depth of ten centimeters.

Table 9. CA-DNO-334 Unit Excavation Summary.

	DEPTH (CM)	CULTURAL CONSTITUENTS
Unit 1 (1 x 2 m)	40	Late Period dating lithic scatter.
Unit 2 (1 x 2 m)	40	
Unit 3 (1 x 2 m)	10	

Assemblage and Chronology

Excavations at CA-DNO-334 yielded a low density, ephemeral scatter of flaked stone tools and debitage. The artifact inventory generated from the three units at CA-DNO-334 is limited to two bifaces, two flake tools, 60 pieces of debitage, and a single piece of faunal bone. Most of the debitage (n=51) is cryptocrystalline silicate, eight are obsidian, and

one is quartz. The vast majority of this material is from Unit 2 (n=53), while only six pieces were found in Unit 3 and one piece in Unit 1. While the sample size is small and all conclusions based upon it tentative, it would appear that most lithic activities were focused on the earlier stages of stone tool manufacture of bifaces, such as shaping and thinning, rather than the finishing and maintenance of tools. However, with such light densities of debitage, these manufacturing events must have been sporadic.

While no time-sensitive artifacts were discovered at the site, obsidian hydration data on a small sample of artifacts (n=8) indicate that site occupation dates primarily to the Late Period, between 1533 and 895 BP. Given the narrow character of the assemblage, site inhabitants appear to have been largely invested in flaked stone manufacture and maintenance, probably with the ultimate goal of hunting deer, elk, and other prey species living in the area. The site is near the ethnographically recorded fishing site of *tum-chaa-me'*, and although no direct evidence of fishing was recovered during site excavations, it is probable that the original inhabitants camped at this flat to seasonally exploit salmon.

CA-DNO-XX13

Site CA-DNO-XX13 is a small (30-x-60-meter) lithic scatter located on an ancient terrace more than 500 meters away from the Smith River. It lies just south of US 199, across the road from the Hiouchi Visitor's Center. The northern portion of CA-DNO-XX13 is covered with young evergreen trees and opens to a grass-covered field to the south. Ranching and farming activities took place in this open area from the late 1800s to the mid-twentieth century. Such activities, along with fire management, helped keep the area clear of vegetation throughout the historic period.

Fieldwork Summary

Site boundaries were established via the discovery of nine surface artifacts and ten artifacts recovered from six auger tests in the summer of 2005 (Tushingham 2009). Later fieldwork included the excavation of a single 1-x-2-meter unit (Unit 1) to a depth of 50 centimeters, resulting in the processing of one cubic meter of deposit (Table 10; Tushingham et al. 2008). Site CA-DNO-XX13 is located on a secondary terrace above the Smith River, which seems to represent an older remnant terrace (Meyer 2008). A large open area with shallow, gravelly soils is located directly south of the site and terrace, and there is a discernible decrease in elevation between the site and this open area. Though auger tests were conducted, no artifacts were discovered in this lower open area.

One backhoe trench was also excavated near the margins of the site to assess the geomorphic character of the larger Hiouchi Flat area (Meyer 2008). This study exposed a stratigraphic profile overlaying a layer of river-worn boulders and cobbles that represent an ancient Pleistocene terrace of the Smith River. The age of the underlying boulder/cobble layer indicates that this rather old soil could hold archaeological materials dating from throughout the Holocene.

Table 10. CA-DNO-XX13 Unit Excavation Summary.

	DEPTH (CM)	CULTURAL CONSTITUENTS
Unit 1 (1 x 2 m)	40	Early Period deposit. Low-density scatter of flaked stone tools and debitage.

Assemblage and Chronology

Excavations at CA-DNO-XX13 yielded a low-density scatter of flaked stone tools and debitage. The assemblage includes 75 flaked stone items, including four bifaces, one formed flake tool, two cores, and 68 pieces of debitage. Three of the artifacts—one core and two pieces of debitage—were recovered during the excavation of the geoarchaeological trench.

While no temporally diagnostic artifacts were recovered at the site, a small sample of obsidian (n=10) was submitted for source determination and hydration analysis. The sample produced very thick hydration bands and a high level of obsidian source diversity. Medicine Lake obsidian hydration data on a sample of six artifacts clustered around a mean of 6.0 microns, which converts to an age range of 8221 to 5187 BP, indicating a site occupation during the early Borax Lake Pattern.

These materials probably reflect people using the area on a short-term basis, creating a rather ephemeral archaeological record linked to the production and maintenance of flaked stone tools. The obsidian hydration age estimate corresponds to the early Borax Lake Pattern, indicating that the site represents one of the oldest riverine components in northwestern California.

CA-DNO-339

Site CA-DNO-339 is a sparse scatter of flaked stone and fire-cracked rock, which is in need of boundary testing and further description. The site is on the south bank of the Smith River at an elevation of 100 meters above sea level, on a terrace above Mill Creek (a tributary of the Smith River). It is located on the Stout Grove Trail which meanders through a dense section of old growth redwood forest. On-site vegetation also includes madrone, alder, and fern. Ethnographically, this section of Mill Creek and the Smith River provided an excellent source of salmon for local Tolowa Indians: a village, seasonal camps, a fish trap, and weir sites are all known to be in the immediate vicinity.

Site CA-DNO-339 was discovered by a UC Davis archaeological field school student while hiking on the Stout Grove trail within Tolowa Redwood National and State Park in the summer of 2004. Time constraints did not allow for an in-depth investigation of the site, though the scatter was mapped and the area west of the site to Mill Creek was briefly surveyed.

Assemblage and Chronology

Two artifacts, an obsidian Gunther Barbed point and a use-modified chert flake, were discovered and collected. Fire-cracked rock was observed at the site but not collected. One circular depression near Mill Creek could possibly be a housepit, but due to dense vegetation, this could not be confirmed. The collected Gunther Barbed point is diagnostic of the Late Prehistoric Period (1500 BP-1850 AD) in northern California and southwestern Oregon. Hence, CA-DNO-339 is tentatively classified as a Late Prehistoric site, although future fieldwork may recover evidence of earlier or later site constituents.

Site CA-DNO-339 may be associated with one of the salmon fishing camps described ethnographically in this section of Mill Creek, in particular of the ethnographically recorded fish camp site *Shaa-xu'-me*, which was located in this area (see Chapter 6: *Ethnographic and Archival Data*). At this point it is difficult to make determinations relating

to site function at CA-DNO-339 based on the limited amount of fieldwork and small number of artifacts collected.

Chapter 5: Component Summary

Through the described archaeological fieldwork, four chronological components were discovered at the five study sites, with distinct assemblages, features, and patterns of raw material use and procurement. The chronological sequence is supported by 28 radiometric (AMS) dates, 382 obsidian source determinations, 374 obsidian hydration readings, and diagnostic artifacts from archaeological deposits at these five sites.

RADIOMETRIC RESULTS

Twenty-eight AMS dates were obtained from project area sites (Table 11). Included in this table are an additional three dates obtained from geomorpholocial contexts in the immediate project area (Meyer 2008). Twenty dates were obtained from CA-DNO-26, six from CA-DNO-332, and two from CA-DNO-333. Currently this set of dates includes some of the oldest radiometric dates from any archaeological site in northwestern California, including an 8072 cal BP (PRI-070146-576) from an intact cultural layer at CA-DNO-26. An earlier date from CA-DNO-332, 8875 cal BP (NOS-64275), was from a mixed context.

OBSIDIAN HYDRATION

Hydration rim measurements were taken on 374 obsidian tools and pieces of debitage from five sites: CA-DNO-26, -332, -333, -334, and -XX13. One sourced specimen was not analyzed, and seven specimens lacked measurable hydration, either because of diffuse hydration or no visible hydration band. Twenty-seven obsidian artifacts displayed multiple hydration bands, suggesting scavenging, deliberate reworking or damage: 11 of the 51 tools (22%) and 16 of the 323 pieces of debitage (5%). A piece of debitage with two hydration bands measuring 8.51 and 24.01 microns was not included, as 24.01 is an anomalously large value, likely the result of the rim measurement being taken on natural cortex.

Obsidian frequency by microns is presented in two graphs. Figure 14 shows the distribution for California sources, mostly Lost Iron Wells (LIW) obsidian, and Figure 15 presents the distribution for Oregon sources, mostly Spodue Mountain obsidian.

Based on paired obsidian hydration readings and radiocarbon dates, and obsidian hydration readings on diagnostic artifact forms, the following micron value ranges for LIW obsidian was established for each component:

Late Period to Contact (1.0-2.7 microns), Middle Period (2.8-5.2 microns), and Early Period (>5.21 microns). Spodue Mountain obsidian hydrates slightly more slowly. Diachronic obsidian distribution patterns and sourcing are discussed in Chapter 7.

Table 11. AMS Dates from Study Area Sites and Geomorphologic Contexts.

SAMPLE ID	PROVENIENCE	MATERIAL	14C YEARS	CALIBRATED MEDIAN
Site CA-DNO-26				
PRI-07-146-6014	Unit AA 60-70 cmbs	*Pseudotsuga* charcoal	135 ± 15 BP	123 cal BP
CAMS-114829	Unit P 40-50 cmbs	Seed/nut	265 ± 35 BP	314 cal BP
PRI-07-146-765	Unit D 120-130 cmbs	*Pseudotsuga* charcoal	335 ± 15 BP	380 cal BP
PRI-07-146-568	Unit B 20-30 cmbs	*Pseudotsuga* charcoal	350 ± 20 BP	390 cal BP
PRI-07-146-771	Unit D 60-70 cmbs	*Abies* charcoal	360 ± 20 BP	432 cal BP
PRI-07-146-6076	Unit AA 80-90 cmbs	*Pseudotsuga* charcoal	395 ± 15 BP	485 cal BP
CAMS-114835	Unit FN 140-150 cmbs	Seed/nut	570 ± 40 BP	598 cal BP
PRI-07-146-1598	Unit H 60-70 cmbs	*Abies* charcoal	1100 ± 20 BP	1005 cal BP
CAMS-114828	House 3 Floor	Seed/nut	1165 ± 50 BP	1087 cal BP
CAMS-114827	House 1 Hearth	Seed/nut	1240 ± 40 BP	1179 cal BP
CAMS-114837	House 1 Floor	Seed/nut	1265 ± 35 BP	1214 cal BP
CAMS-114830	Unit P 80-90 cmbs	Seed/nut	1275 ± 35 BP	1221 cal BP
CAMS-114836	House 1 Floor	Seed/nut	1290 ± 35 BP	1232 cal BP
CAMS-114833	House 2 Floor	Wood charcoal	2290 ± 35 BP	2317 cal BP
CAMS-114832	Unit D Hearth	Seed/nut	2935 ± 45 BP	3098 cal BP
PRI-07-146-573	Unit B 90-100 cmbs	*Pseudotsuga* charcoal	3370 ± 20 BP	3614 cal BP
CAMS-114838	Unit FN 140-150 cmbs	Seed/nut	3630 ± 100 BP	3953 cal BP
NOS-57448	Unit B 120-130 cmbs	Wood charcoal	6620 ± 40 BP	7510 cal BP
PRI-07-146-571	Unit B 110-120 cmbs	*Chamaecyparis* charcoal	6970 ± 20 BP	7806 cal BP
PRI-07-146-576	Unit B 120-130 cmbs	*Pinus* charcoal	7250 ± 25 BP	8072 cal BP
Site CA-DNO-332				
PRI-08-25-175	Unit 2 70-80 cmbs	*Pseudotsuga* charcoal	800 ± 15 BP	711 cal BP
PRI-08-25-240	Unit 3 100-110 cmbs	*Pseudotsuga* charcoal	865 ± 20 BP	766 cal BP
PRI-08-25-60	Unit 1 100-110 cmbs	*Pseudotsuga* charcoal	2225 ± 15 BP	2222 cal BP
NOS-64276	Unit 2 50-60 cmbs	Manzanita stone	3040 ± 85 BP	3235 cal BP
PRI-08-25-82	Unit 1 150-160 cmbs	*Pseudotsuga* charcoal	5035 ± 15 BP	5838 cal BP
NOS-64275	Unit 1 80-90 cmbs	Manzanita stone	8020 ± 85 BP	8875 cal BP
Site CA-DNO-333				
NOS-57449	House 5 post	Wood charcoal	420 ± 30 BP	491 cal BP
CAMS-114831	Unit M 70-80 cmbs	Seed/nut	815 ± 35 BP	724 cal BP
Geomorphological Study Dates				
PRI-08-25-1	AREA 2 133 cmbs	*Picea* charcoal	6050 ± 15 BP	6910 cal BP
PRI-08-25-2	AREA 2 190-200 cmbs	Conifer charcoal	9235 ± 20 BP	10409 cal BP
PRI-08-25-3	AREA 2 375-385 cmbs	Asteraceae charcoal	9270 ± 25 BP	10460 cal BP

Notes: All dates calibrated using CALIB 5.01 calibration software.

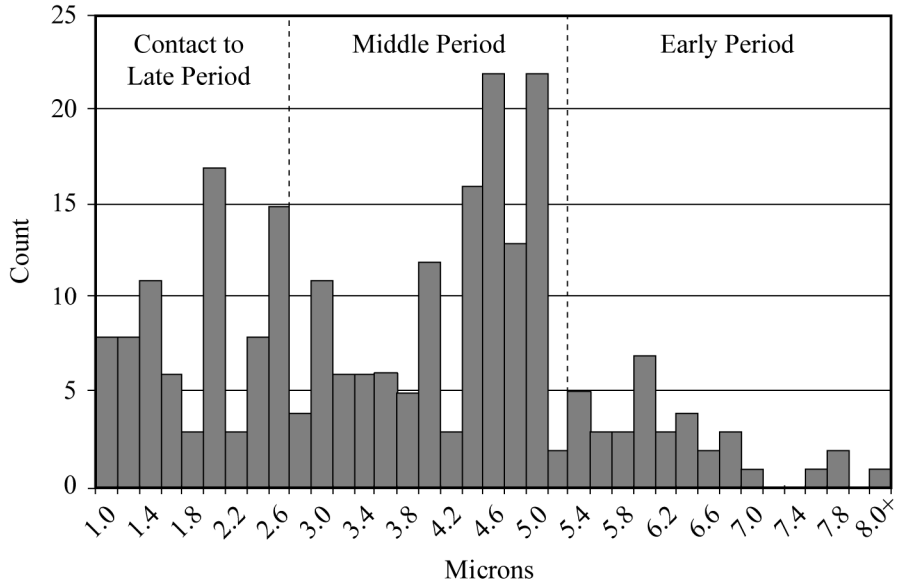


Figure 14. Cross Site Obsidian Frequency by Microns: California Sources.

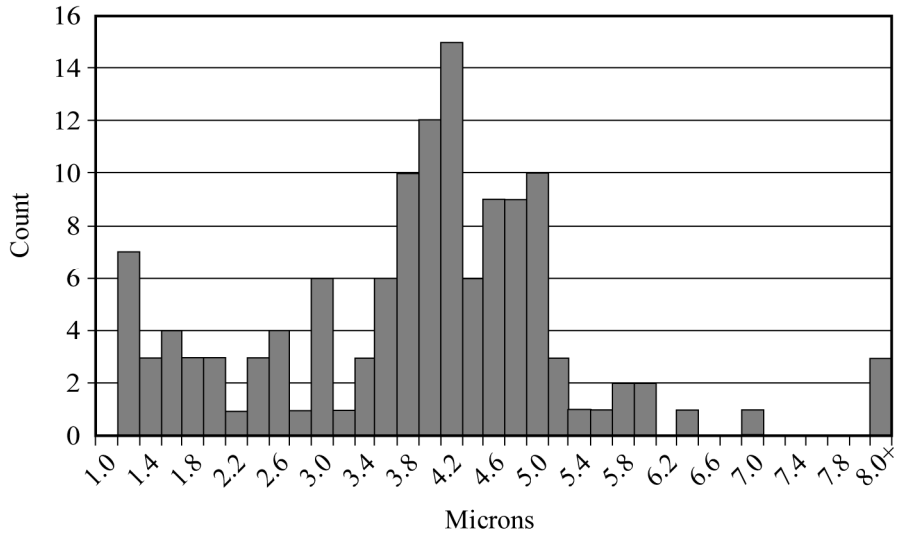


Figure 15. Cross Site Obsidian Frequency by Microns: Oregon Sources.

ASSEMBLAGE AND COMPONENT SUMMARY

Components were separated into Early, Middle, Late, and Contact Period components according to radiocarbon dates, diagnostic artifacts, and obsidian hydration readings with reference to regional chronological sequences. When deposits were clearly mixed (i.e., diagnostic artifacts, obsidian hydration readings, and/or AMS dates were out of sequence), they were designated Late/Middle, Middle/Early, or Late/Middle/Early.

Excavations at CA-DNO-26 and -334 revealed the majority of intact deposits. Artifact assemblages from these sites are separated by component and presented in Table 12 through Table 14. For full details of assemblage findings from these sites, see Tushingham

(2009). Comparative data from sites CA-DNO-332, -334, and -XX13 is available in Tushingham et al. (2008).

Table 12. CA-DNO-26 and CA-DNO-333 Artifact Assemblage by Component.

Artifact Category & Type	Component						
	Early	Middle	Late/ Middle	Late	Contact	Mixed* Context	Total
Lithic Artifacts							
Projectile Points	-	31	9	80	31	-	151
Bifaces	7	28	48	131	56	9	279
Formed Flake Tools	3	33	26	85	19	3	169
Flake Tools	24	67	99	231	71	33	525
Cobble Tools	5	21	12	27	6	15	86
Cores	2	4	11	30	5	2	54
Core tools	1	3	1	17	4	-	26
Debitage	1,138	7,869	7,961	16,980	2,612	1,723	38,283
Ground and Battered Stone							
Net weights	-	-	-	177	28	3	208
Millingstones	1	1	-	-	2	3	7
Handstones	-	3	2	10	9	5	29
Mortars	-	2	-	2	1	1	6
Pestles (large and small)	-	3	2	16	8	1	30
Hammerstones	-	1	2	8	5	1	17
Pipes and pipe fragments	-	2	-	8	8	-	18
Miscellaneous ground stone	-	5	7	22	3	33	70
Worked Bone, Ivory and Shell	-	1	-	5	1	-	7
Historic Artifacts							
Glass bottle fragments	-	-	-	-	-	203	203
Glass debitage	-	-	-	-	-	171	171
Glass tools	-	-	-	-	-	23	23
Buttons/Personal adornment	-	-	-	-	-	13	13
Ammunition	-	-	-	-	-	7	7
Nails	-	-	-	-	-	76	76
Miscellaneous Historic Artifacts	-	-	-	-	-	4	4

Notes: * Includes artifacts from surface and mixed context (Tushingham 2009:162).

Early Period Component (9000-5000 cal BP)

The Early Period (9000-5000 cal BP), equivalent to the Borax Lake Pattern in northwestern California and Glade Pattern in southwestern Oregon, reflects use of sites by mobile hunters and gatherers as temporary camps. Early Period deposits were identified at CA-DNO-26, -332, -333, and -XX13.

Early Period deposits at CA-DNO-26 and -333 include large foliate bifaces, blade and platform cores, formed flake tools, retouched and used flakes, choppers and a shredder (a cobble tool with serrated edges), a milling stone, and lithic waste flakes (Figure 16). The tool kit was generalized, and lithic technology focused on obsidian biface-reduction strategies. No living surfaces or features were encountered to suggest long-term residency during this time.

Table 13. CA-DNO-26 and CA-DNO-333 Lithic Assemblage by Component.

Tool Class & Type	Component						
	Early	Middle	Late/ Middle	Late	Contact	Mixed* Context	Total
Projectile Points	-	31	9	80	31	-	151
Bifaces	7	28	48	131	56	9	279
Formed Flake Tools							
Cutting tools							
Flake serrate	-	3	3	7	2	-	15
Single edge bifacial flake knife	-	1	-	4	-	-	5
Scraping tools							
Beveled scraper	-	-	2	4	-	1	7
Discoidal scraper	-	2	1	1	-	-	4
Endscraper	-	5	2	11	2	1	21
Keeled scraper	-	1	1	6	1	-	9
Multi-scraper	-	-	-	3	-	-	3
Ovate scraper	-	3	1	3	-	-	7
Spokeshave	-	1	3	8	1	-	13
Scraper fragment	-	2	2	3	1	1	9
Perforating tools							
Drills	-	2	2	6	5	-	15
Gravers	1	5	4	12	3	-	25
Pointed flake	1	3	1	2	1	-	8
Multi-element tools	1	4	4	15	1	-	25
Unknown		1	-	-	2	-	3
Flake Tools							
Retouched	7	16	24	61	19	7	134
Used	17	51	75	170	52	26	391
Cobble Tools							
Chopper, bifacial bit	3	5	3	7	1	3	22
Chopper, unifacial bit	1	11	4	10	2	9	37
Shredder (serrated chopping bit)	1	4	4	8	2	2	21
Sinuous working edge	-	1	1	-	-	-	2
Amorphous cobble tool	-	-	-	2	1	1	4
Cores							
Amorphous	-	3	7	12	3	1	26
Bidirectional	-	-	1	1	-	1	3
Blade	1	-	1	3	2	-	7
Platform	1	1	2	7	-	-	11
Split cobble	-	-	-	1	-	-	1
Core shatter	-	-	-	6	-	-	6
Core Tools by Core Type							
Amorphous	1	2	-	5	3	-	11
Platform	-	-	1	6	1	1	9
Split cobble	-	1	-	4	-	-	5
Core shatter	-	-	-	2	-	-	2
Debitage	1,138	7,869	7,961	16,980	2,612	1,723	38,283

Notes: * Includes artifacts from surface and mixed context (Tushingham 2009:162).

Table 14. CA-DNO-26 and CA-DNO-333 Ground Stone Assemblage by Component.

Tool Type (defined in Tushingham 2009)	Component						
	Early	Middle	Late/ Middle	Late	Contact	Mixed* Context	Total
Net weights	-	-	-	177	28	3	208
Millingstones	1	1	-	-	2	3	7
Handstones	-	3	2	10	9	5	29
Mortars	-	2	-	2	1	1	6
Pestles: large	-	2	2	13	5	1	23
Pestles: small	-	1	-	3	3	-	7
Hammerstones	-	1	2	8	5	1	17
Anvils	-	-	1	1	-	1	3
Pipes	-	2	-	8	8	-	18
Shaped/polished stones	-	2	4	11	4	-	21
Slate fragments and artifacts	-	2	2	2	7	-	13
Paintstones	-	-	-	4	1	-	5
Whetstone	-	-	-	-	1	-	1
Shaft straightener	-	-	-	-	-	1	1
Steatite pendant or labret	-	-	-	1	-	-	1
Quartz crystals	-	-	-	1	1	-	2
Unidentifiable fragments	-	1	-	2	20	-	23
Total	1	17	13	243	95	3	385

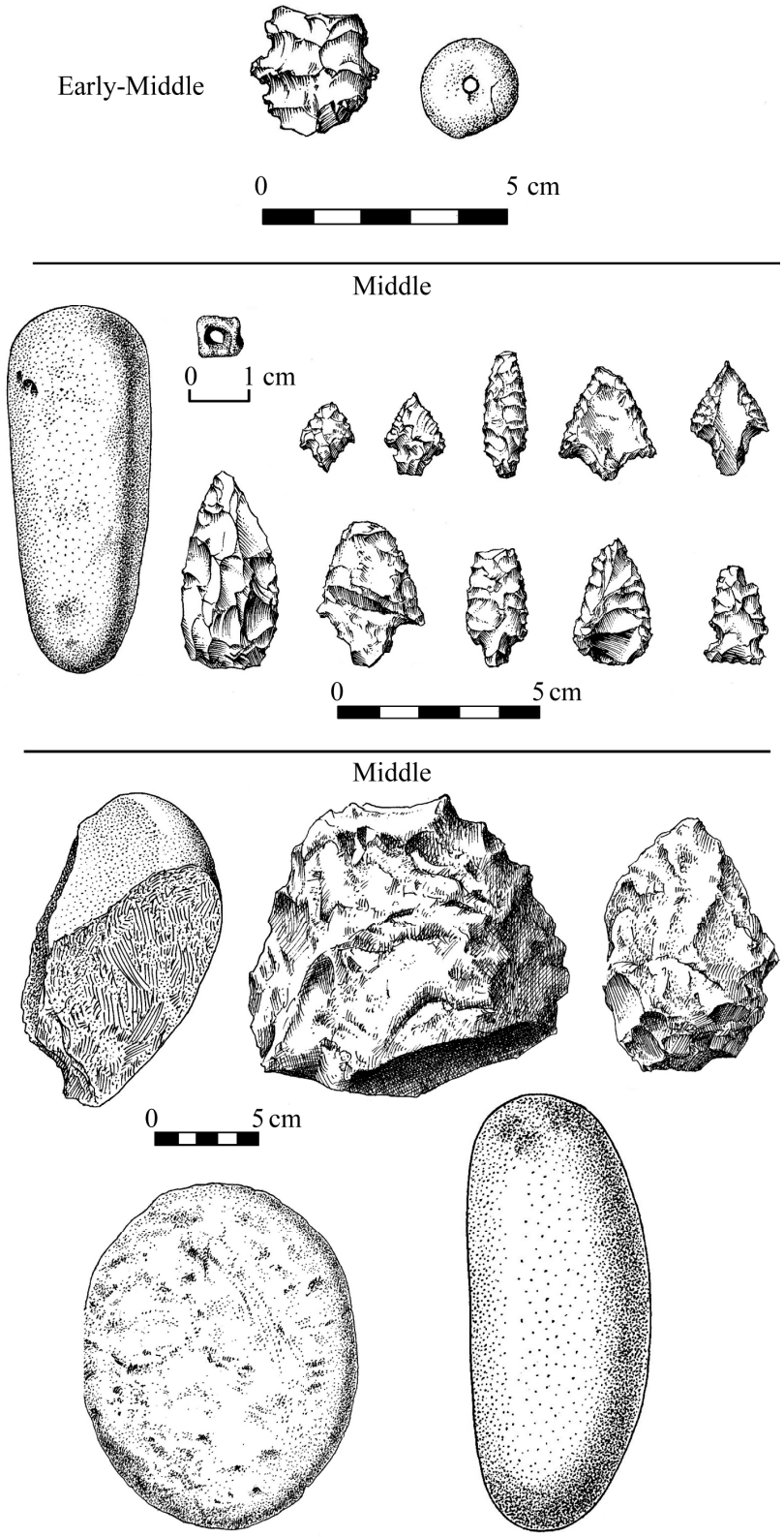
Notes: * Includes artifacts from surface and mixed context (Tushingham 2009:162).

Unit B at CA-DNO-26 provided an intact and well-dated sample. Three AMS dates were obtained from the lower levels of the unit: 7510 cal BP (NOS-57448), 7806 cal BP (PRI-07-146-571), and 8072 cal BP (PRI-07-146-576; see Table 11). Early Period AMS dates obtained from Unit 1 at CA-DNO-332 were stratigraphically mixed: 5838 cal BP (PRI-08-25-82) at 150-160 centimeters below surface, and 8875 cal BP (NOS-64275) at 80-90 centimeters below surface. High mobility is indicated by a generalized tool assemblage, with few formal flake tools and an emphasis on biface (not core) technology. Site CA-DNO-XX13 is a small, single-component site, set on what appears to be an older terrace of the Smith River. While no temporally diagnostic artifacts or radiocarbon datable data was recovered at the site, obsidian hydration evidence suggests the site was in use between approximately 8221 to 5187 BP.

Early sites in southwestern Oregon typically include Glade series foliates and cobble tools, while Borax Lake sites in northwestern California include Borax Lake Widestem points and milling slabs. While foliates were recovered at CA-DNO-26 and -333, Borax Lake Widestems were not. However, the chronological separation of Glade series points remains problematic, as foliates were used until the Historic period throughout the region. Thus, although Early Period deposits cannot be distinguished as either Glade or Borax Lake, Early Period site constituents are similar throughout the region in that they appear to represent seasonal camps or temporary occupations of mobile hunter gatherers.

High Mobility and Exotic Obsidian Use

At the Smith River sites, people used three categories of raw material: (1) abundant, high-quality local chert; (2) lower quality chert and other local stone; and (3) high-quality



Drawn by Rusty van Rossman.

Figure 16. Early and Middle Period Representative Artifacts from Project Sites CA-DNO-26, -332, and -333.

but exotic (distant) obsidian. Obsidian was a sought-after commodity, which has transport costs not associated with other locally available toolstone. Given that the closest obsidian source is located more than 150 miles from the project area (Figure 17) and obsidian is rare in other excavated sites in the region (typically 0.05-5.0% of assemblages), the amount of recovered obsidian at the Smith River sites is remarkable. Although the high proportion of obsidian debitage (47.4% by count) for all components combined is probably elevated in comparison to other sites in the region due to screen size (1/8-inch screens were employed in this project), obsidian still accounts for 29.2% of the projectile points, bifaces, and flake tools.

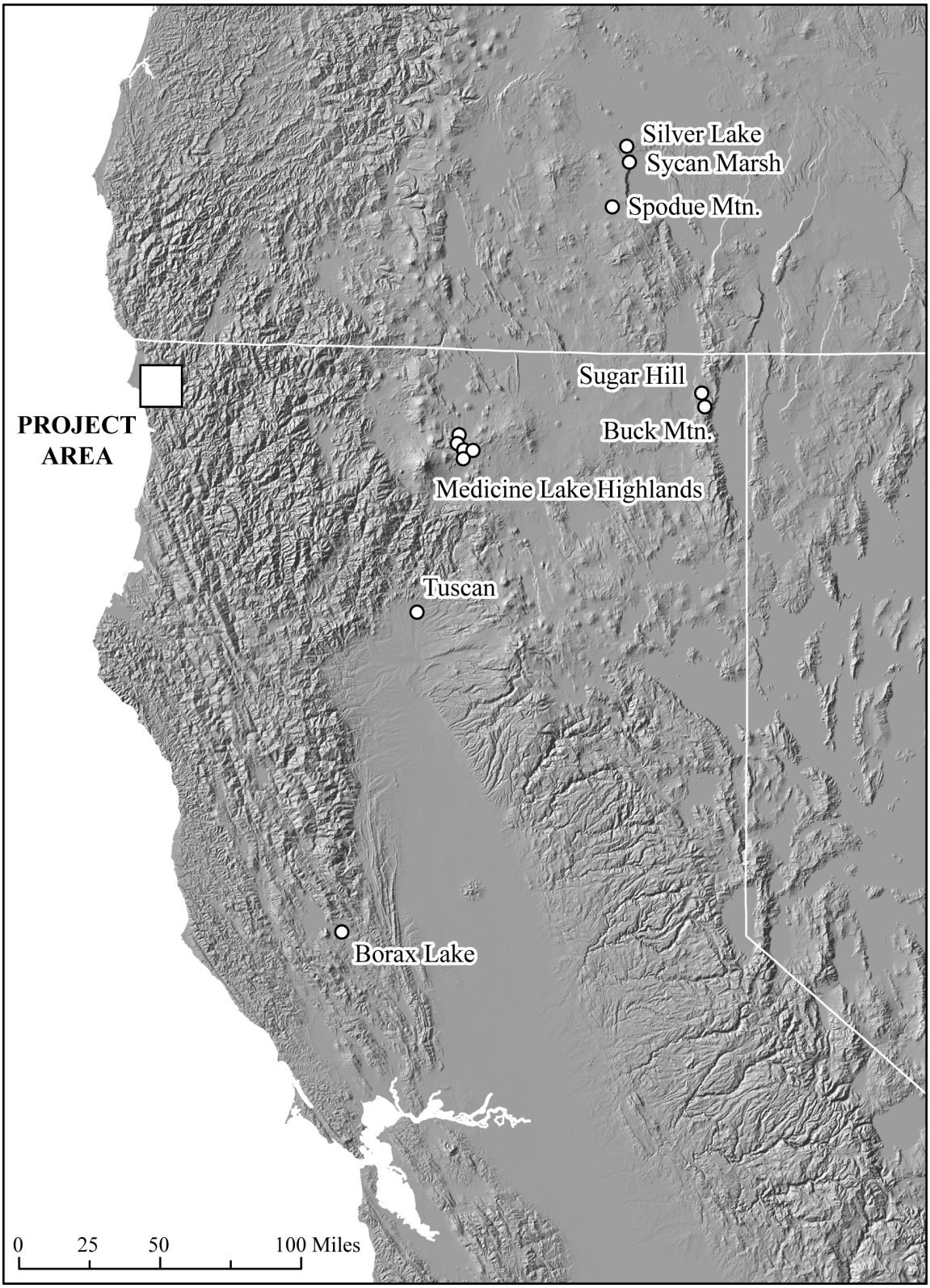
It is expected that mobile hunter-gatherers are likely to use obsidian differently than sedentary people. For mobile foragers, the cost-to-benefit ratio involved with obtaining obsidian may have been lower because obsidian could be obtained while travelling. However, as groups become more sedentary and tethered to local resources, and less willing or able to pay high transport costs or to navigate group interactions necessary to obtain a high-quality but scarce material such as obsidian, focus shifts to high-quality, locally abundant chert. Following Andrefsky's (1994) logic, it is expected that there will be a greater emphasis on bifacial core reduction with obsidian than with chert. As groups become less mobile, the effect will be intensified with obsidian (conservation, more biface reduction, smaller tools, and intensified use), while with chert there should be a general shift to core reduction.

Overall, the Early Period lithic assemblage is overwhelmingly based on obsidian biface reduction. Exotic obsidian use is high and was used more frequently compared to locally available chert earlier in time. For example, Early deposits at CA-DNO-26 contain 83.7% obsidian debitage compared to chert and other local toolstone. Later components contain far less quantities and fewer sources of obsidian (Figure 18). Most obsidian during this time seems to be late-stage bifaces, which is consistent with more mobile foraging systems. Obsidian sources are also extremely diverse, especially compared to later periods (Tushingham 2009; diachrnonic obsidian source diversity trends are also summarized here in Chapter 7).

The obsidian source diversity trend is supported by data from site CA-DNO-332. While excavated components were mixed at this site, radiometric and obsidian hydration data indicate that Exposure 1 contained Early and Middle Period deposits, while Exposure 2 contained mostly Early and Middle Period deposits with lesser amounts of Late Period material. A high percentage of obsidian overall would therefore be expected, particularly in Exposure 1. This expectation is borne out: 71% of the 3,102 pieces of debitage recovered in Exposure 1 was obsidian rather than chert and other local stone. In Exposure 2, 42% of debitage (n=1,401) was obsidian.

Middle Period (5000-1500 cal BP)

Residential stability increased during the Middle Period, equivalent to the Mendocino Pattern in northern California (5000-1500 cal BP), particularly after 3100 BP. Middle Period features and midden deposits were excavated at sites CA-DNO-26, -333, and -332. Six AMS dates were obtained from Middle Period deposits ranging from 3953 cal BP to 2222 cal BP (see Table 11). Deposits dating to between 3100 and 1500 BP, include the earliest ground stone, acorn, manzanita, and features, including a packed floor (Feature D1) and associated hearth (Feature D2) dating to 3098 cal BP (CAMS-114832; see Table 11) at CA-DNO-26, and a lithic work area at CA-DNO-333.



National Elevation Dataset from Gesch (2007) and Gesch et al. (2002).
State boundaries from National Atlas of the United States (2005).

Figure 17. Obsidian Sources Represented at Project Sites.

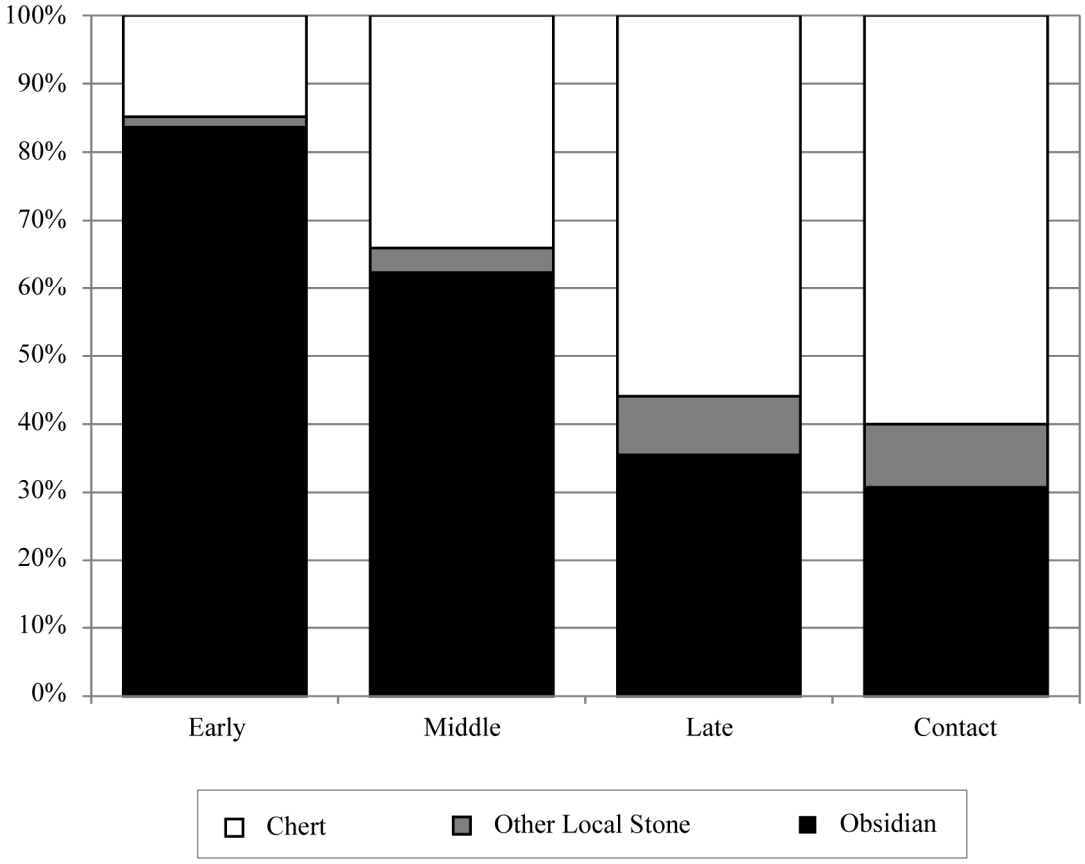


Figure 18. Relative Frequency of Debitage Raw Material by Component.

The assemblage consists of contracting-stemmed and Mendocino Corner Notched points, an "Oregon Series" point, a wide variety of formed flake tools, choppers, bifaces, battered stones, a milling slab, handstones, mortars, pestles, pipe fragments (mostly clay), shaped and polished stone, and slate artifacts including two drilled slate beads (see Figure 16).

Reduced mobility is indicated by the relatively elaborate assemblage. Lithics include a diverse array of formal flaked tools. Choppers (probably for woodworking) are found in larger quantities, and ground stone includes well-formed mortars and large pestles typically associated with intensive acorn processing. Debitage analysis indicates that both biface reduction and core reduction took place. Obsidian use is high, accounting for 62.4% of the debitage.

Increased Residential Stability, Acorn Intensification by 3100 BP

During the Middle Period, obsidian use remains significant and diversity is high (indicative of higher mobility), but the following suggests a decreased degree of mobility:

1. The assemblage is characterized as relatively specialized and diverse and is more similar to the Late Period assemblage than to the Early Period. Lithics include a diverse array of formal flaked tools, as many categories as were used in later times. Choppers, typically associated with woodworking, are found in larger quantities, and ground stone includes well-formed mortars and large pestles typically associated with intensive acorn processing.

2. Analysis of the flaked stone tools suggests core reduction as the dominant lithic reduction strategy. Debitage analysis indicates that both biface reduction and core reduction took place.
3. Features indicate an increasing degree of residency during the Middle Period. At CA-DNO-26, Middle Period features include a packed floor and associated hearth dating to 3098 cal BP (CAMS-114832), and a ground stone concentration underneath this feature. At CA-DNO-333, a lithic work area dates to the Middle Period, and at CA-DNO-332, a probable living surface was encountered in Unit 1 in association with an Oregon series point which date to between 5500 and 2500 cal BP.

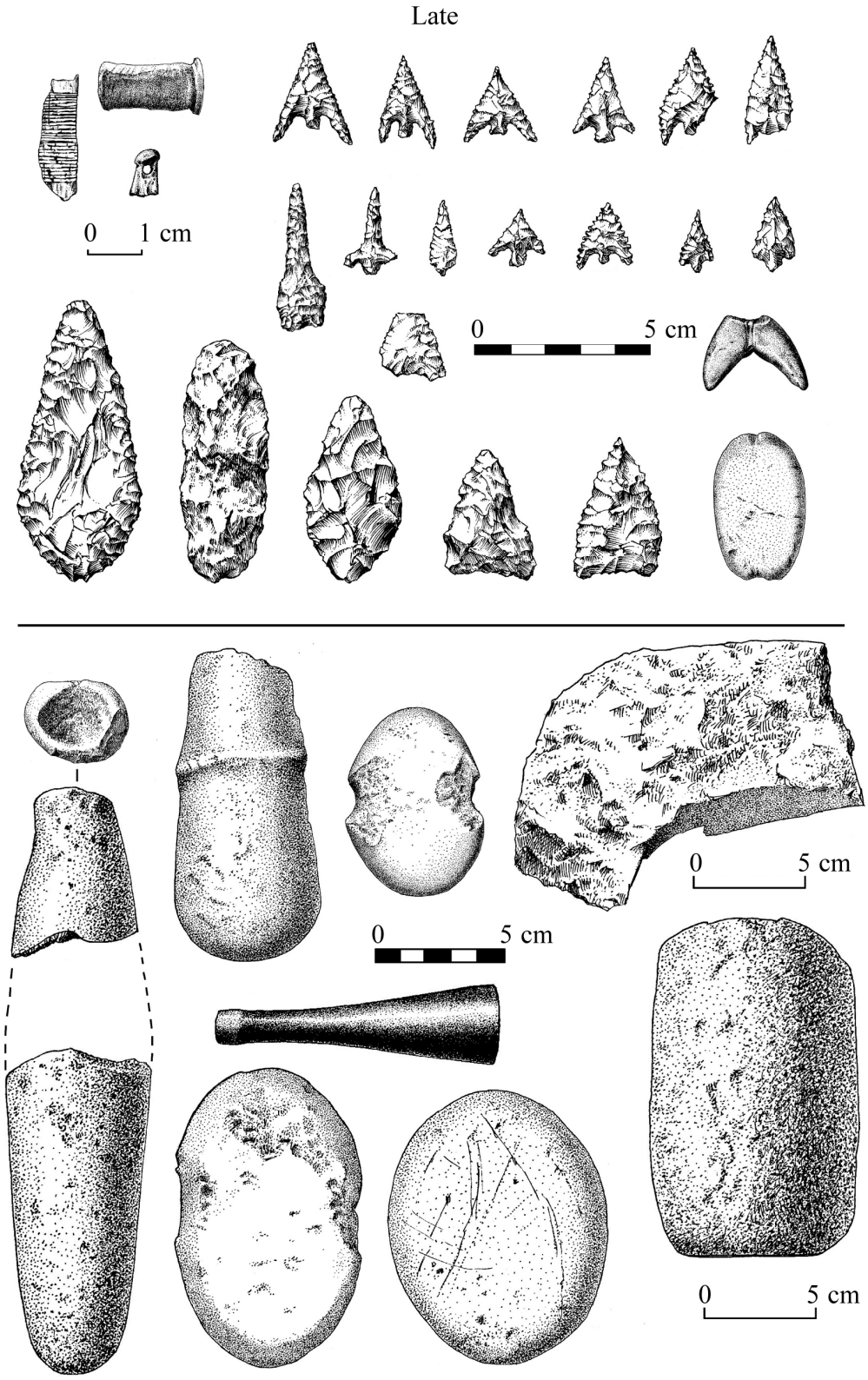
The combined evidence suggests that during the Middle Period (5000-1500 cal BP), mobility decreased slightly and the sites served as residential bases. Site residency seems to have increased after 3100 cal BP as plant processing became more important. This is indicated by a number of features dating to the latter part of the Middle Period, the presence of well-formed mortars and large pestles, and the presence of nuts and seeds in flotation samples from Middle Period deposits. Acorns seem to have been a key staple by this time, while evidence for the intensive mass harvesting and storage of salmon was not found at any of the project sites. Reduced mobility is also inferred by the relatively specialized and diverse toolkit, which includes a diverse array of lithic tools, including formal flake tools and choppers, and a reduction in biface technology.

Late Period Component: (1500 cal BP-AD 1850)

Late Period/Gunther Pattern (1500-150 cal BP) deposits were excavated at sites CA-DNO-26, -333, -332, and -334. Late Period features include two slab-lined hearths at CA-DNO-333 and four semi-subterranean Redwood plank houses (Houses 1-3 at CA-DNO-26 and House 5 at CA-DNO-333) with associated features (hearths, postholes, burned plank wall and roof fall, a rock alignment, and food caches).

Seventeen AMS dates were obtained that are associated with the period ranging from 1232 to 123 cal BP. Ground stone—including highly crafted flanged pestles, hopper mortars, and mortar bowls—is much more abundant than in the Middle Period. The lithic assemblage includes a wide variety of tools, including formed flake tools, choppers, bifaces, and battered stone (Figure 19). Bow and arrow technology spread to northwestern California by this time. Late Period diagnostic projectiles include Gunther barbed and Gunther variant points and other small triangular projectile points. This period shows the first evidence of specialized fishing and woodworking tools and sociotechnomic artifacts such as steatite pipes and pendants, quartz crystals, and carved stone and bone. Not found in earlier contexts, specialized fishing equipment such as net weights and concave-based harpoon tips are abundant in Late Period deposits. While bone preservation is poor, there is a significant increase in salmon bone in Late Period houses suggesting salmon intensification or storage. The earliest pinniped (seal or sea lion) bone, barnacle (*Balanus* sp.), mussel (*Mytilus californianus*), and clam (*Saxidomus* sp.) are represented in the Late Period assemblages.

Late Period riverine and coastal sites share similar site constituents (e.g., Gunther series points, concave-based [harpoon] points, sociotecnomic artifacts), and residential patterns (semi-subterranean houses in linear villages, sedentism or semi-sedentism, logistical mobility [*sensu* Binford 1980, see also page 75], and intensive processing techniques).



Drawn by Rusty van Rossman.

Figure 19. Late Period Representative Artifacts from Project Sites CA-DNO-26 and -333.

Development of Plank House Villages, Salmon Intensification/Storage by 1250 BP

The archaeological excavations summarized in this monograph established firm evidence of the rise of linear plank house villages at CA-DNO-26 by 1250 BP. Exposures at two of the plank houses (House 1 and House 3) were sufficient to determine their size. House floors were clearly defined by the presence of packed clay; house walls and interior pits were demarcated by burned vertical (upright) planks and distinct soil color differences between the outside and inside of the houses. The earliest excavated plank house in northwestern California, House 1 at CA-DNO-26 (Figure 20), has a mean pooled radiocarbon age of 1267 BP (square root of variance = 21.05). The date was derived from three AMS dates on burnt seeds from the house floor (see Table 11). Using Calib 5.0.1, the samples are statistically the same at 95% level. House 1 measures approximately nine meters on its north-south axis and has a six-meter-wide, 30-centimeter-deep interior pit. House 3 at CA-DNO-26 measures approximately six meters on its north-south axis with a 2.3-meter-wide, 60-centimeter-deep interior pit (Figure 21). A single AMS date was obtained from a seed recovered from the floor of the house. The sample (CAMS-114828) dates to 1087 cal BP.

Limited testing at House 2 at CA-DNO-26 and House 5 at CA-DNO-333 was sufficient to establish that the depressions represented semi-subterranean plank houses, but an accurate measurement of their dimensions was not possible because the houses were not fully exposed. A charcoal sample from a post associated with House 5 dates to 491 cal BP (NOS-57449), but dating of House 2 remains problematic.[1]

There is overwhelming evidence that by 1250 BP, low residential mobility, storage, a focus on mass-extractive methods, and logistical pursuit of resources was the dominant strategy. The tested Late and Contact Period semi-subterranean plank houses demonstrate that CA-DNO-26 and -332 had become sedentary villages by circa 1250 cal BP. Plank houses were large, permanent storage facilities where a broad range of foods were kept, including foods obtained from other environmental zones. Though bone preservation overall is poor, there is a significant increase in salmon bone, suggesting salmon intensification or storage. The Late Period provides the first evidence of the logistical procurement of distant seasonal foods, which were pursued by task-oriented groups tethered to residential villages. The earliest pinniped, marine shellfish, and marine mammal hunting gear was discovered in Late Prehistoric houses and middens, suggesting that rather than residential movement to resources (a forager strategy), residents obtained these foods and returned with them to their home base in logistical, task-oriented groups (a collector strategy). [2] The presence of net

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[1] An AMS date from the floor of House 2 dates to 2317 cal BP (CAMS-114833), but the presence of Late Period diagnostic artifacts, obsidian artifacts with low hydration readings, and an AMS date of 485 cal BP (PRI-07-146-6014) 20 centimeters above the house floor suggests that this date is too early. Sample CAMS-114833 was obtained on charcoal not identified to species, so it is possible that the date is subject to the "old redwood problem," meaning that if it came from redwood, it could produce a date much older than the house floor.

[2] As described by Binford (1980), the archaeological signatures of foragers and collectors differ. Foragers tend to be residentially mobile (a strategy involving moving from place to place often and "mapping on" to resources) and their technology generalized and expedient. In contrast, collectors tend to be logistically mobile (a strategy where people are more tethered to residential bases, and resource acquisition involves scheduling and storage of specific foods obtained by specialized task groups) and their technology specialized and curated. Collectors, with their focus on logistical pursuit of resources, prepare for an array of activities that will take place at different locations throughout the year, so more emphasis is placed on investment in offsite gear and specialized equipment. Tool

weights indicates specialized fishing gear and that people were settled enough (and willing to pay the costs involved) to make, store, and use nets. A restructuring of long-distance exchange relationships during the Late Period is indicated by a dramatic decrease in obsidian debitage and tools and decrease in source diversity (see Chapter 7). The increase in core technology, and focus on fewer and more local sources is consistent with the developing insularity of social groups and increased sedentism that is characteristic of the Late Prehistoric.

Contact Period (AD 1850-1902)

Contact Period site deposits are limited to a relatively small area in and around a house excavated in the easternmost limits of DNO-26. This is consistent with ethnographic description of the site being a "suburb" or offshoot of *Tatatun*, a major village site in present-day Crescent City (Drucker 1937). According to Drucker's Tolowa consultants, the village had two houses and a sweathouse, likely representing an extended family house cluster or "sweathouse group." The terminal occupation of Red Elderberry can be placed at 1902, when local white residents shot and killed its last resident, "a renegade," while fleeing into the forest (Ritter 1969a). According to an interview with a local resident (Ritter 1969b) the murdered man may have been "Chief Phillips," who was buried on a prominent knoll several miles downriver at a site known as "Chief Phillips Burial Rock" (CA-DNO-25).

The Contact Period house is a heavily burned, semi-subterranean structure that had remarkably well-preserved redwood plank floors, upright plank walls, an internal paved area, and a centrally located slab-lined hearth, and dates to AD 1850-1890 (Figure 22 through Figure 24). The house had clearly burned in a very hot fire, which contributed to its excellent preservation. Excavation involved removal of collapsed roof and wall boards and burned orange-colored soil laden with artifacts above the house floor (Figure 25). The house is virtually identical to ethnographically described sweathouses in northwestern California. Commonalities include the size of the house, the shape and depth of the hearth, and the fact that the house was entirely subterranean and lacked a central pit or storage shelf (Table 15).

A rendering of the Tolowa sweathouse is shown in Figure 26. The floor plan, hearth, orientation of wall planks, and exit location are based on sweathouse excavations, while the roof and house entrance location are based on ethnographic descriptions and information from Tolowa consultants. While not completely excavated, the house exit is depicted at the east side of the house based on the presence of large regularly spaced boulders which had only been placed on this side of the house. The house entrance is drawn at the river-facing south wall of the house, as entrances unerringly faced bodies of water and were positioned at a wall adjacent to the exit. The house may have been covered in earth as some other historically documented Tolowa sweathouses were (Figure 27).

The sweathouse artifact assemblage includes net weights, mortar bowls and pestles, Gunther Barbed points, Gunther snake points, Rattlesnake series points, small concave-based points, a Desert Side Notched point, steatite pipes and pipe stem fragments, a stone

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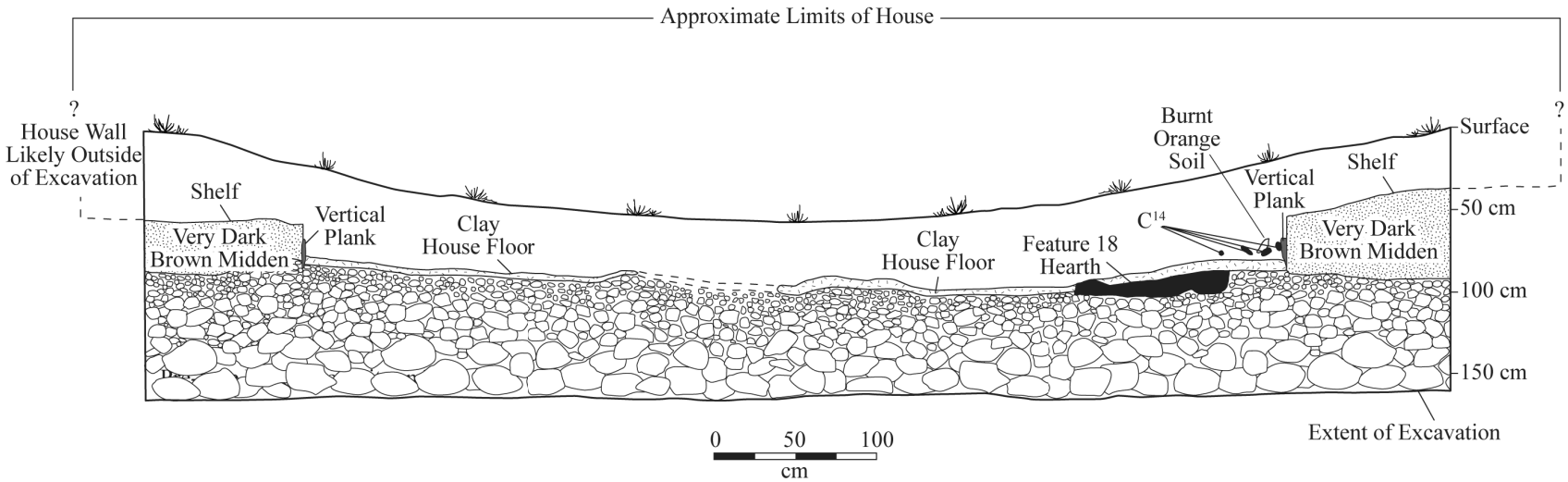
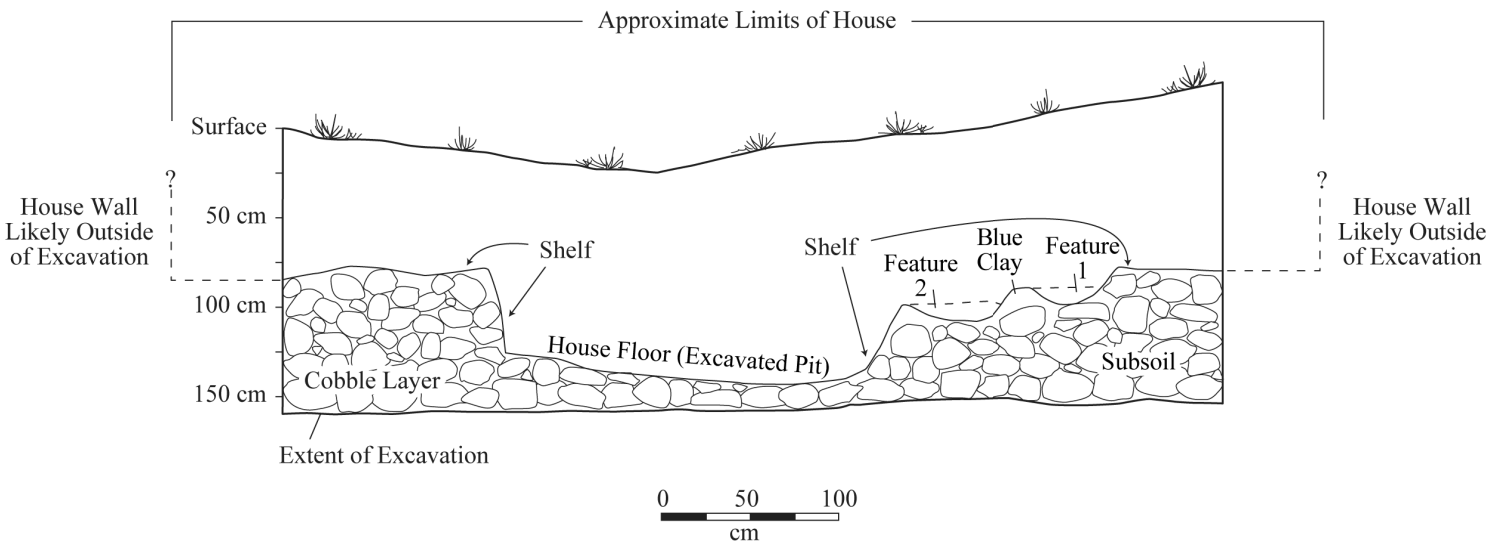
assemblages tend to be diverse. Therefore, collector "assemblages accumulate over longer periods and, owing to the greater depletion of local resources, represent activities occurring over a larger area, often great distances from the residential base" (Bettinger 1991:67).



Drawn by Wendy Masarweh (Tushingham 2009).

Figure 20. House 1 Profile, CA-DNO-26.



Drawn by Wendy Masarweh (Tushingham 2009).

Figure 21. House 3 Profile, CA-DNO-26.

View west.

Figure 22. House 4 Sweathouse Plan View.

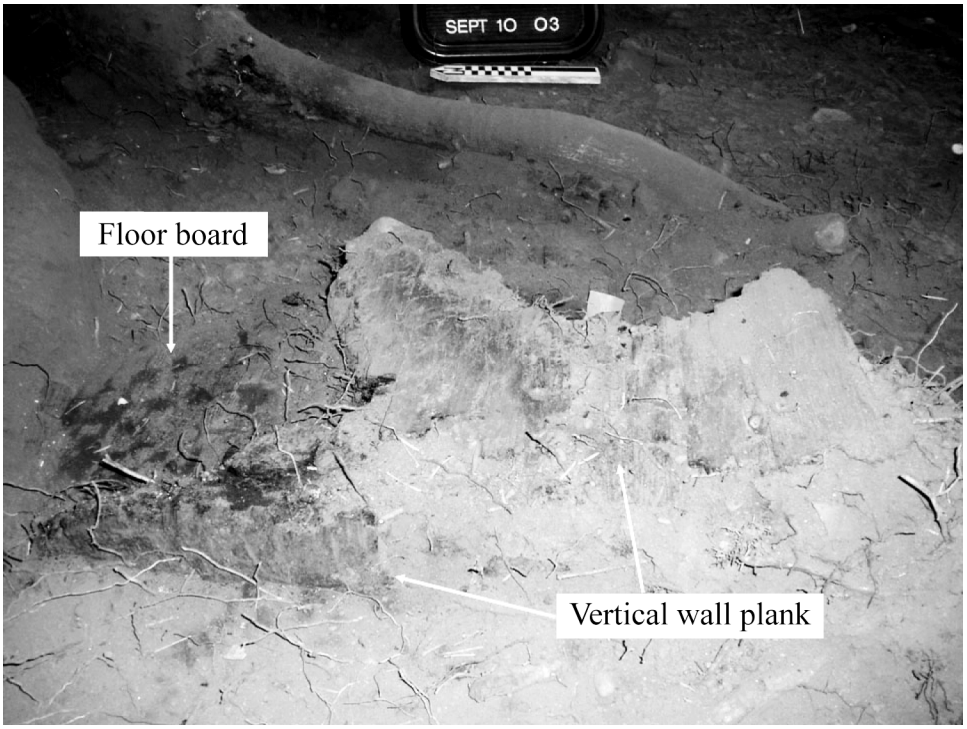
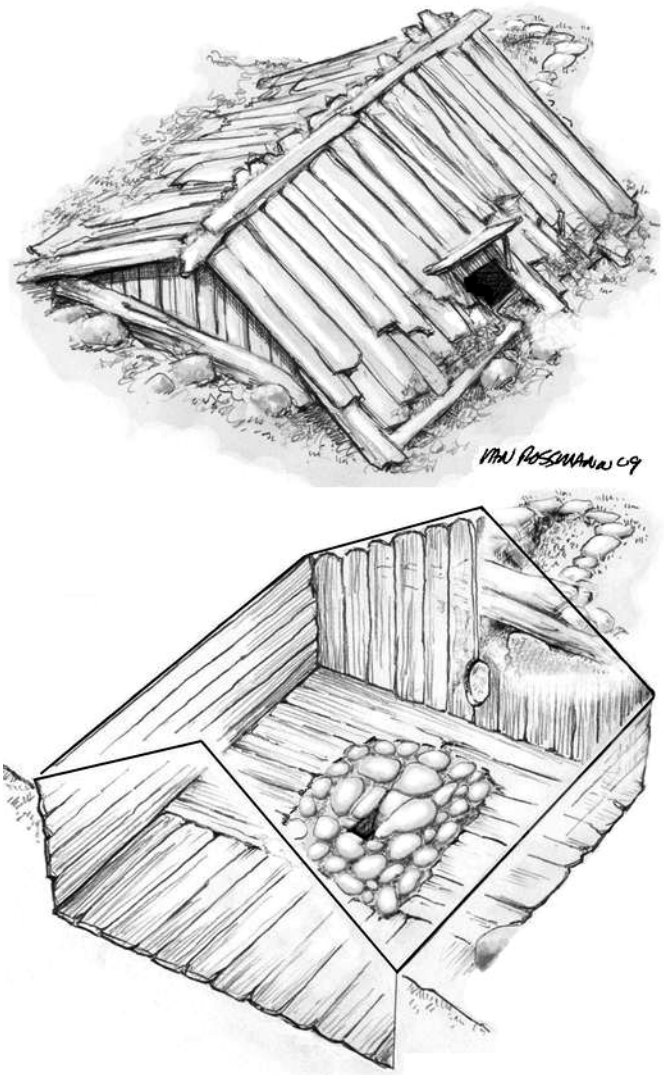


Figure 23. House 4 Sweathouse Vertical Wall and Floor.

View northwest.

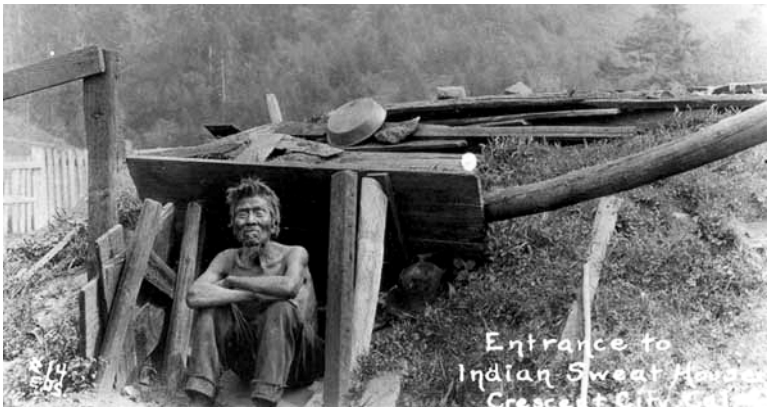
Figure 24. House 4 Sweathouse Paved Stone Feature and Hearth.

Figure 25. Sweathouse Excavations, 2004.



View northeast; Floor plan based on House 4 Sweathouse, other features based on ethnographic descriptions and information from Tolowa consultants. Drawn by Rusty Van Rossman (Tushingham 2009, n.d.a).

Figure 26. Interior and Exterior Reconstructed Tolowa Sweathouse.



Photograph by Fred Endert. From Gould (1978:131).

Figure 27. Tolowa Sweathouse at Village of *Šxme,* ca. 1910.

whetstone, brass shotgun shells, flaked historic glass tools and modified flakes, buttons and other items of personal adornment, and square nails (Figure 28). Overall, the associated assemblage is quite like that of the Late Period, with the addition of historically available material, often used in a traditional manner.

Analysis of toolstone indicates that mobility was probably further reduced, as obsidian use declined slightly and there was an increase in core technology. A miniature "socioceremonial" obsidian blade was recovered which is derived from Buck Mountain obsidian, the same distant source used for many of the larger obsidian blades used ethnographically (Hughes 1978). Connection with central California is indicated by southern point types (e.g., Rattlesnake series). Gunthersnake points—barbed triangulars with expanding bases—may reflect a technological influence from the southern Rattlesnake cluster.

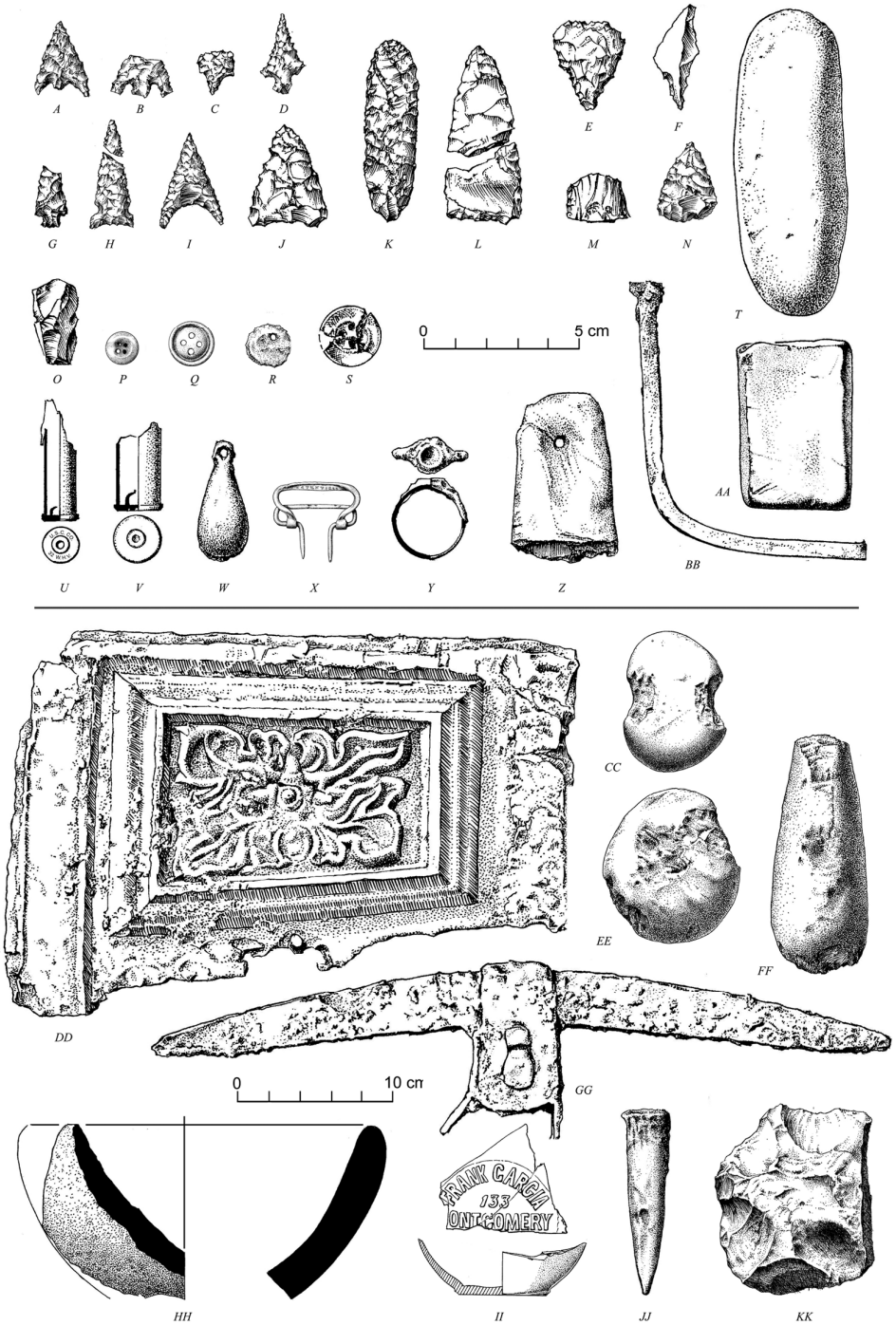
Table 15. Comparison of Ethnographic Family Houses and Sweathouse Characteristics with Archaeological House at CA-DNO-26.

	FAMILY HOUSES	SWEATHOUSES	CA-DNO-26 HOUSE
House size	15-21-foot frontages	12-foot frontages	11.8 x 11.8 feet
Storage shelf	Present	Absent	Absent
Interior excavated pit	Present	Absent	Absent
Interior stone pavement	Absent	Frequent	Present
Subterranean stone lined exit	Absent	Present	Present
Hearth shape	Round	Square or rectangular	Rectangular
Hearth depth	Shallow	1.5 feet deep	1.4 feet deep
Hearth construction	Stones laid out in circle	Slab-lined	Slab-lined

Notes: Ethnographic data from Driver (1939), Gould (1966a, 1978), and Kroeber (1925), also cited in Tushingham (n.d.a).

Continuity and Change

Comparison of the Contact Period artifact assemblage to that of the Late Period contexts has provided information critical to understanding the effects of Euro-American settlement on native populations (Tushingham 2005, 2009, n.d.a, n.d.b). Overall, it appears that Red Elderberry Place inhabitants employed similar subsistence activities, notably mass extraction and storage of salmon and intensive acorn processing techniques, while incorporating new (historic-period) materials and technology into their cultural system. The presence of marine shell, net weights, and concave-based harpoon tips suggests that mass extraction of resources and logistical mobility remained important strategies. The Contact Period diet was probably very similar to that of the Late Period, though the presence of a cottontail rabbit bone and increase in small to medium mammal bones and small seeds compared to earlier periods suggests some degree of dietary intensification. Identified subsistence remains not represented in earlier contexts include bitter cherry pits and cow bone. How people survived and adapted during this tumultuous time is an important research theme that is summarized in Chapter 7.



A-B. Gunther Barbed Projectile Points (PPT); C. Gunther Variant PPT; D. Gunthersnake PPT; E-F. Drills; G. Rattlesnake Corner Notched PPT; H. Desert Side Notched PPT; I-J. Harpoon Tips; K. Miniature Obsidian Socioceremonial Biface; L. Triangular Point; M-N. Bifaces; O. Glass microblade core; P. Porcelain button; Q-S. Iron Saunders Type Buttons; T. Small Pestle; U-V. Shotgun Sell Casings; W. Lead Fishing Weight; X. Clothing Clasp; Y. Ring; Z. Drilled Slate Object; AA. Possible whetstone; BB. Hand hewn iron nail; CC. Netweight; DD. Ornamental Cast Iron Stove Fragment; EE. Hammerstone; FF. Large Pestle; GG. Pick Axe Head; HH. Mortar Bowl Fragment; II. Glass Bottle Fragments; JJ. Metal Spike; KK. Chopper/ Shredder. Drawn by Rusty van Rossman (Tushingham n.d.a).

Figure 28. Representative Contact Period Artifacts.

Chapter 6: Ethnographic and Archival Data

This chapter provides a summary of ethnographic and archival data relating to the Tolowa. Included is a summary of early and mid-century ethnographic accounts, which overwhelmingly focused on coastal groups. A major effort of this study is to describe and explain interior river site organization with several lines of evidence: archaeological data, unpublished field notes, analogues with the coastal Tolowa and nearby river groups, and interviews with contemporary Tolowa, several of whom had parents and grandparents who lived in river villages. This information is included in the section on Gee Dee-ni', or Upriver, Tolowa below. Historical data on early Euro-American contacts in the region provides context for the Contact Period site occupation and demonstrates native persistence in the Smith River Valley. Red Elderberry Place inhabitants lived alongside at least two Indian-white families who were firmly entrenched in the area by the 1860s-1870s.

THE OREGON ATHABASCANS

The Oregon Athabascans of southwestern Oregon and northwestern California include the Chetco, Umpqua, Tutuni, Coquille, Galice Creek, Applegate Valley, and Tolowa, who shared a common language and culture[3] (see Figure 6). Villages were located primarily along the coast and rivers between the Umpqua River in Oregon and Wilson Creek in California, and were historically divided into tribal groups, mostly according to geography and dialect differences (DuBois 1936:49; Drucker 1937:222-223; Miller and Seaburg 1990:580):

> These Athabascans have been divided into a number of groups, partly on a geographical basis and partly as the result of post-European historic accidents. The proper division is the purely geographical one. The inhabitants of each drainage system formed something of a linguistic and cultural unit.

[3] Oregon Athabascan languages are similar lexically to "California Athabascan" languages, such as Hupa, Mattole, and Sinkyone, though they are mutually unintelligible.

> Throughout the region, there were sufficient variations of sound and usage from one river valley to the next to make the speaker's provenience readily recognizable. As with the language so with the culture. The kind and number of accretions to the common stock of traits of course differed as the alien neighbors of each group differed. The southernmost group, the Tolowa, acquired from the adjacent Yurok an overlay of customs different from that which the Upper Coquille people acquired from their Kusan neighbors. [Drucker 1937:222]

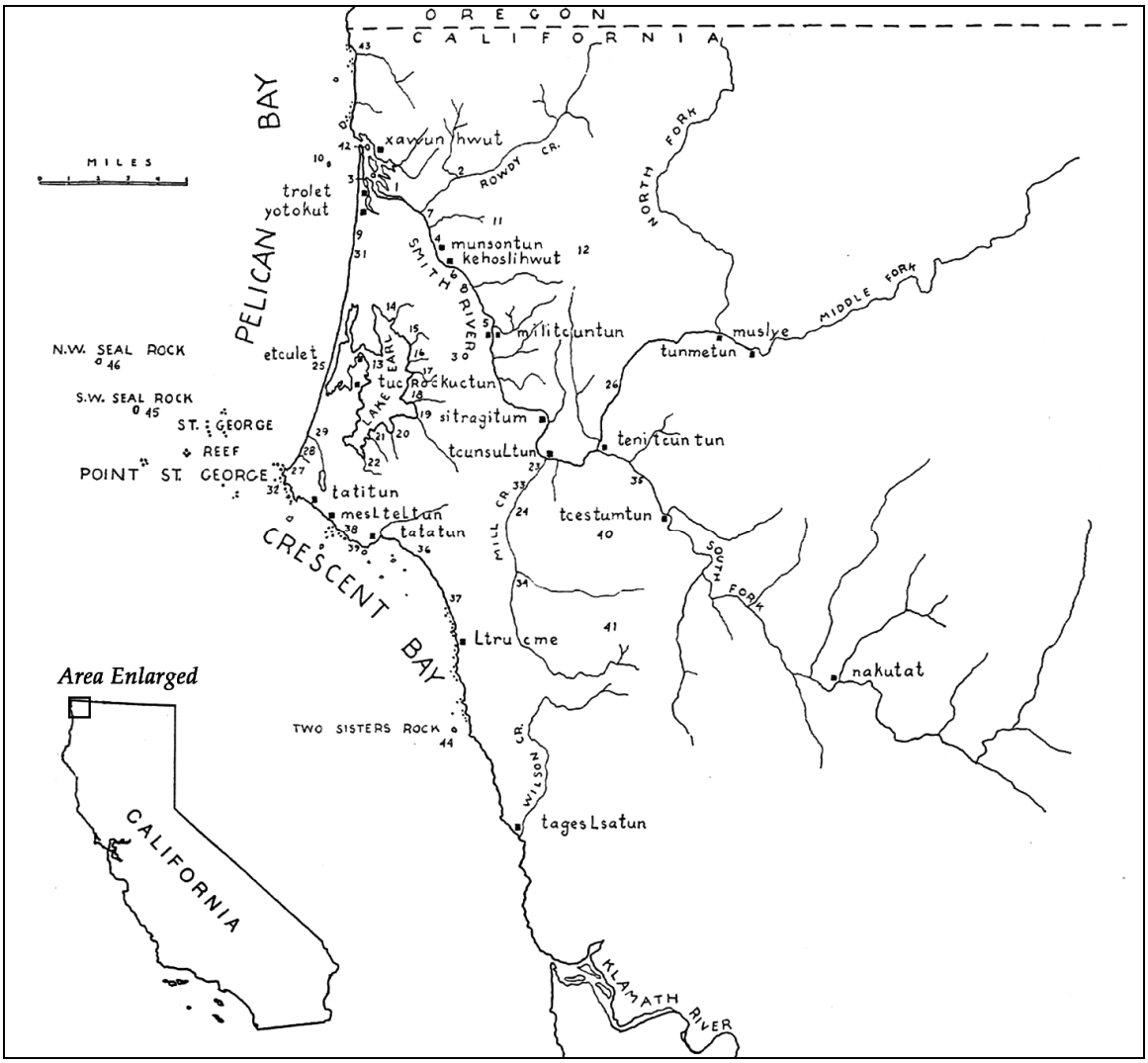
Groups in southern Oregon Athabascan territory later came to be known as the Tolowa,[4] in an area that includes most of Del Norte County, California, and parts of southern Curry County, Oregon. These lands cover roughly 640 square miles along the Pacific coast, from the Winchuck River in southwestern Oregon to Wilson Creek in northwestern California, and include the entire Smith River watershed and adjacent upland areas (Figure 29). While ethnographers and archaeologists have found historic tribal divisions to be useful, most recognize that these "tribes" were all part of the larger Oregon Athabascan society.

ETHNOGRAPHIC TOLOWA

As with the rest of aboriginal northwest California, Tolowa villages were sociopolitically autonomous. As noted previously, there was no "Tolowa Tribe" in the past. Unity and order within the system was derived from a complex system of torts, an unambiguous sense of law and ownership, economic ties between villages, and loyalty to certain village districts or *yvlh-'i~* ("that which is looked over;" Loren Bommelyn, personal communication 2007). The Tolowa also shared a common place of genesis at *Yontocket*, a coastal village near the mouth of the Smith River, and came together for World Renewal (Ne-Dosh) dances and other ceremonials.

Historic Tolowa settlement is unique within northwestern California, as it is generally characterized in the ethnography as "coastal oriented" (e.g., Gould 1978:130) compared to more "river-centric" groups such as the Yurok, who by comparison were densely populated upriver and had relatively few coastal villages. Drucker (1937:226) evaluated Tolowa population as "marginal" and offered an environmental explanation for this state of affairs; the Smith is much shorter and less navigable than the Klamath and, "lacking a good waterway, inland expansion was impeded by the dense tangles of forest and underbrush which still make cross-country travel difficult. There was a slight shifting inland, but the population never came close enough to the margin of subsistence to make large-scale expansion necessary."

[4] "Tolowa" is actually a Yurok and Hupa word (Curtis 1924:91) which may refer to a Tolowa village at Lake Earl named Tolokwe (Kroeber 1925:124-125). The Tolowa refer to themselves as "Huss" (Xvsh), which translates to "human being," or Dee-ni', which means "Tolowa folk" (Bommelyn personal communication; Gould 1978:136).



From Drucker (1937:Map 3).

Figure 29. Major Contact Period Villages in Tolowa (Southern Athabascan) Territory.

According to Drucker (1937:226) interior settlement was limited to hunting and gathering camps in the uplands and "minor" upriver suburbs, including *Munsontun*, *Kehoslihwut*, *Militcuntun*, *Sitragitum*, *Chvn-su'lh-dvn* (CA-DNO-26 or Red Elderberry, the major study site), *Tenitcuntun*, *Tunmetun*, *Muslye*, *Tcestumtun*, and *Nakutat* (Table 16). Ethnographically, most major towns were located on the coast and estuary and include *Yontocket*, *Troolet*, *Howonquet*, *Tatatun*, *Tatitun*, *MesLteLtun*, *Etchulet*, *TucRockuctun*, and *Ltrucme* (Table 17).[5]

[5] The Tolowa language has many written forms. For place names referred to in the text see Table 16 through Table 19, which list Tolowa names given in the orthography supplied by Loren Bommelyn (in the Practical Alphabet), and in the Unifon alphabet which is employed by the Tolowa Language Class (1972), Bommelyn (1989), and Reed (1999). Drucker (1937), Gould (cf. 1966), and Waterman (1925) used different writing systems as well.