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ARCHAEOLOGICAL INVESTIGATIONS AT CA-NEV-13/H, Locus F & G, DONNER MEMORIAL STATE PARK

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DONNER MEMORIAL STATE PARK, NEVADA COUNTY, CALIFORNIA

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DONNER MEMORIAL STATE PARK, NEVADA COUNTY, CALIFORNIA

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Archaeological Investigations at CA-NEV-13/H, Locus F & G, Donner Memorial State Park, Nevada County, California
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Editor, Richard Fitzgerald; Series Editor, Christopher Corey

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Close up of petroglyphs at CA-NEV-4, located on Donner Pass.

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PREFACE

Donner Memorial State Park lies on the eastern slope of the Sierra Nevada Mountains. Directly to the west above bucolic Donner Lake is Donner Pass, the principal route to the Central Valley. The Park, the lake, and the pass are all named after the ill-fated Donner party of 1846, the compelling and tragic story of the western bound emigrants that dawdled just enough along the California Trail to have to spend a disastrous winter camped at Donner Lake. This volume number 28 in our series of *Publications in Cultural Heritage* however, is not about the Donner party for which so many books and articles have been written, but rather about the earlier, original inhabitants of the region: the Washoe and their distant ancestors. Contained within is an archaeological study of CA-NEV-13/H, the 60-acre multi-component site with extensive prehistoric deposits, as well as the primary camp site of the Donner Party.

As documented in this report, test excavations in two of the seven site loci (loci F and G) yielded a surprisingly substantial assemblage of tools (projectile points, bifaces, flake tools, and a milling slab), thousands of pieces of basalt debitage, and 48 flakes of obsidian. It is the obsidian that reveals the most interesting angle on the prehistory of the area, as hydration analysis indicates a human occupation that dates perhaps prior to 10,000 years ago and certainly by 7,700 years ago. Moreover, while the geochemical analysis of the basalt artifacts indicated that this important toolstone was collected relatively nearby, the obsidian sourcing analysis indicated ten different sources from across northern California and northwestern Nevada. This diversity of obsidian is atypical of Tahoe Sierran sites and demonstrates, as quoted from this report, "the far reaching cultural interaction sphere of Donner Lake occupants..." (Bloomer and Jaffke 2011:94). The variety of obsidian represented and its general antiquity (ca. 7700-4000 years before present) shows that the Donner area served as a nexus for the well-documented long-distance trade network between California and the Great Basin.

In hindsight, it should come as no surprise that Donner Lake was a hub for trade, for it lies precisely on the east/west route over the central Sierra Nevada, namely Donner Pass. As John Muir observed, "the alp-crossing animals of every kind fall into the same trails… (and more rugged the terrain)… the more surely will the trails of white men, Indians, bears, wild sheep etc., be found converging in the best places" (1894:80). As one ascends the pass from Donner Lake, you quickly become aware of the original nineteenth-century trans-continental railroad to the south and to the north you can hear and see Interstate 80, both attesting to the truth of Muir's observation. Higher up, just about where a commanding view of Donner Lake can be had, there are several petroglyph panels; a close up of one which is featured on the cover of this volume. These abstract-representational lines are like a road sign and are a gentle yet forceful reminder of how long this passageway was traversed by the original Californians.

Richard Fitzgerald
Editorial Advisor

Acknowledgements

This project would not have been realized without the help of several key individuals. First and foremost, I would like to thank John Foster, for providing funding and overall project support for much needed work at CA-NEV-13/H. This large, expansive site has experienced a variety of disturbances, but archaeological excavations within Locus F and G, funded by the Archaeology, History and Museums Division of California State Parks, have shown that the site retains information that is important to answering contemporary prehistoric research questions. Although the importance of the site has long been inferred by the archaeological sensitivity and complexity of the region, the significance of the prehistoric component wasn't realized until 2005.

I would also like to thank Jim Nelson and Denise Furlong for organizing and executing a successful excavation. They brought together some of the finest archaeologists in the business, including Jerry Doty, Scott Green, Oliver Patsch and Todd Jaffke. Although it first appeared that there were not enough folks to conduct the scheduled work in the allotted time, this highly effective crew, directed by Jim and Bill Bloomer, completed the work…with time to spare. A thanks also goes out to John Foster, Kathie Lindahl and Kelly Long for taking time from their busy schedules to help us out for a few days. Lynda Shoshone, Washoe Representative and Monitor, also deserves special acknowledgement. Lynda participated and provided valuable insight throughout the project. I also appreciate the efforts of Rick Fitzgerald for managing the contract with Furlong Archaeological Consulting.

Denise Jaffkee
Author

ARCHAEOLOGICAL INVESTIGATIONS AT CA-NEV-13/H LOCUS F & G

Summary of Findings

California State Parks (Parks) contracted Furlong Archaeological Consulting to conduct archaeological test excavations at multi-component site CA-NEV-13/H, Locus F and G. This large and complex site is located in the northeastern portion of Donner Memorial State Park. Archaeological test investigations at CA-NEV-13/H, Locus F and Locus G, were completed in 11 days, from September 18 to September 28, 2005.

In total, 46 sample units were excavated to varying depths for an excavated volume totaling 13.85 cubic meters.

The prehistoric collection recovered from Locus F is quite substantial and included five basalt projectile points (i.e., Martis corner-notched, Elko corner-notched and lanceolate), 19 bifaces (18 basalt and one cryptocrystalline silicate [CCS]), one CCS drill, two basalt unifaces, seven flake tools (six basalt, one CCS), two basalt edge modified flakes and 2,199 pieces of debitage (2,162 basalt, 24 CCS, 13 obsidian). Hydration rim values from obsidian sampled from Locus F suggests that the area was visited as early as 8,000 years ago, but more consistently occupied from Early Archaic into the Middle Archaic, 6700 to 3600 BP (years before present).

The Locus G prehistoric assemblage is somewhat similar to Locus F and consists of 2,022 items, including two basalt projectile points (Elko corner-notched and lanceolate), 20 bifaces (18 basalt, two obsidian), one CCS drill, three unifaces (one basalt, two CCS), four flake tools (three basalt, one CCS), four basalt edge modified flakes, one CCS core, one piece of *itdemge* (Washoe word for milling slab) and 1,984 debitage (1,892 basalt, 57 CCS, 35 obsidian). It appears, based on obsidian hydration data, that Locus G was occupied during two distinct occupational periods, the earliest represented by a 8.5 hydration rim value and interpreted as Early Holocene, possibly more than 10,000 years ago.

Based on the results of this archaeological investigation at Locus F and G, along with findings from the data recovery effort at Locus F/G (Bloomer and Lindström 2007), the prehistoric component that makes up the western half of CA-NEV-13/H—consisting of Locus F, Locus G and Locus F/G—is significant and meets the criteria for the National Register of Historic Places (NRHP).

The results for this test investigation proved invaluable not only for addressing future project impacts, but also to provide important information regarding the prehistory of the region, most especially concerning our developing understanding of Early Archaic settlement patterns. The predominance of Early Archaic occupations at CA-NEV-13/H provides a unique temporal context for Tahoe Sierran obsidian studies. Interpretation of geochemical sourcing and hydration data from Locus F and G provide the basis for a discussion of the movement of obsidian through the High Sierran Truckee corridor, from sources as far distant as the North Coast Ranges, east-central California, northwestern Nevada, and northeastern California, with Donner Pass serving as a primary nexus for California and Great Basin interaction. CA-NEV-13/H was likely an integral part of a developing exchange system and remained a part of the system throughout prehistory.

Chapter 1: Introduction

This report documents the results of archaeological studies conducted at the National Register of Historic Places (NRHP) site CA-NEV-13/H, Locus F and G. This site is located within Donner Memorial State Park (Figure 1), T17N, R16E, Section 17 and 18 (Figure 2) and administered by California State Parks (Parks), Sierra District. Parks contracted with Furlong Archaeological Consulting and Lithic Arts to perform archaeological excavation in Locus F and Locus G to determine the overall significance and integrity of prehistoric deposits identified in the western portion of the site.

This report is organized into nine general sections. In the first of these, project objectives are summarized followed by an overview of the site and loci, specifically. The following section provides contextual background and includes discussion of the modern environment, paleoenvironment, prehistory and Washoe and Euro-American land use. This is followed by a summary of previous archaeology conducted at CA-NEV-13/H and Donner Lake vicinity. The next section, Tahoe Sierra Prehistoric Research Design, provides a synopsis of relevant contemporary research topics in the region. This is followed by a discussion of field and laboratory methods. The Excavation Results section reports on geomorphology and stratigraphy, site structure and assemblage diversity and artifacts recovered during this investigation. The Research Discussion section summarizes and discusses the findings of the test investigations in the context of the research issues presented earlier. The report is then concluded with a brief synopsis of findings, National Register significance recommendations and management protocols for CA-NEV-13/H.

Purpose and Objectives

It is the California State Parks policy to identify, protect and manage cultural resources located on lands managed by Parks and affected by projects, in a spirit of stewardship, for future generations. The objectives for managing cultural resources are to identify, evaluate the importance of, and seek the appropriate protective measures in accordance with existing legal requirements, regulations and professional standards.

Site CA-NEV-13/H is listed on the NRHP (#66000218) under Criterion A for Exploration Settlement and Social History with a period of significance established between 1825 and 1849; in reference to the Donner Party tragedy. The site—as defined since 1988 when boundaries were

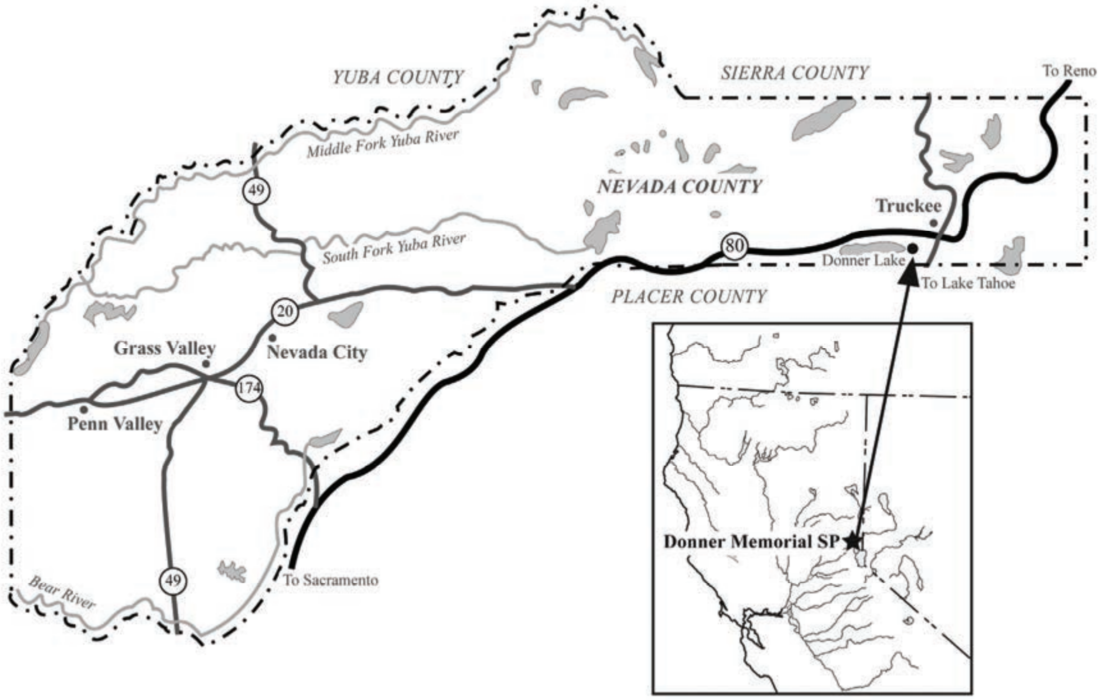

Figure 1. Project Vicinity Map.

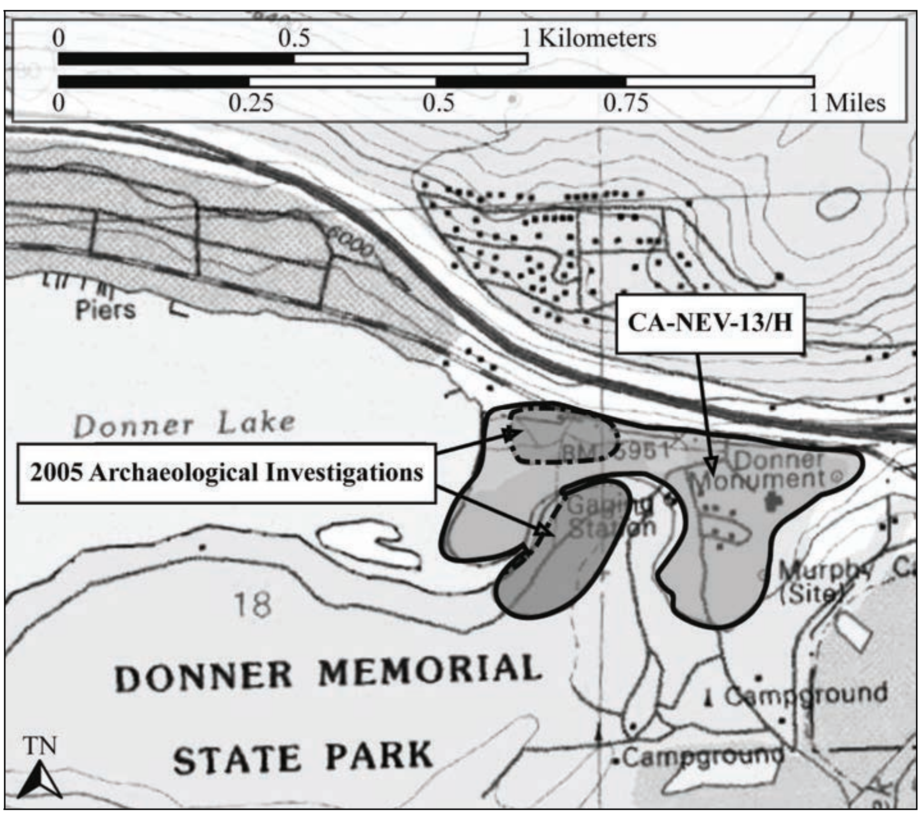

Figure 2. Project Location Map
(Truckee, CA 1992 7.5-minute USGS Quadrangle).

expanded to include the western areas and sites CA-NEV-12 and -540/H—has never been formally evaluated. Although the site is already listed on the NRHP, it was necessary to further investigate the site's information potential, especially in regards to regional prehistory.

Limited evaluation testing and subsequent data recovery efforts in 2004—in preparation for a Donner Dam retrofit project—revealed intact features in dateable contexts, an unexpected and rare find in the region. This prompted concern regarding management and protection from the cumulative impacts suffered by various projects within the site. Subsurface investigations at CA-NEV-13/H have been limited in scope and often focused on specific areas with particular research objectives. Due to personnel and funding constraints, the management strategy for this site has historically been to monitor and recover diagnostic artifacts, post-hoc. These collections were often curated with minimal or no analysis or reporting. It has been difficult, if not entirely impossible, to properly assess the cumulative impact of various projects to the site as a whole, and most especially the prehistoric component, without understanding the data and research potential that this site has to offer.

The archaeological investigation at CA-NEV-13/H, Locus F and G was designed to 1) determine whether these areas contain intact subsurface deposits; 2) evaluate the significance and integrity of archaeological deposits pursuant to 36 CFR 800.4; and 3) delineate loci boundaries from the results of subsurface excavation. The archaeological investigation focused on the following management goals:

- Ascertain the depth of the deposits at Locus F and G, the range and characteristics of cultural materials and natural strata present, and date the cultural deposits;
- Determine whether cultural deposits within the study area (see Figure 2) possess the integrity and data potential to address questions important to prehistory or history, thus qualifying them as contributing elements to the NRHP listed property as defined at 36 CFR 60.4 and the California Register of Historic Resources (California Register); and
- Provide management recommendations pertaining to site protection and interpretation.

CA-NEV-13/H SITE DESCRIPTION

Site CA-NEV-13/H is a large multi-component site with prehistoric and historic deposits spread over more than 60 acres across Sections 17 and 18 of Township 17 North, Range 16 East within Donner Memorial State Park (see Figure 2). Donner Creek courses through the site, cutting around remnant moraines and flowing between broad flat glacial terraces. The prehistoric component is evident north and south of the creek, while the historic component is primarily evident to the north. CA-NEV-13/H was listed on the National Register of Historic Places in 1978 because of its association with the historic Donner Party.

The historic component, primarily recorded within Locus A and Loci C–F (Figure 3), includes the Murphy Cabin site, the Pioneer Monument, blacksmith shop remains, telegraph features, the dam and bridge, several trash dumps and numerous artifacts (Brooke 2005; Gilbert et al. 2001; Schwaderer et al. 1987). Most are well documented and reflects a rich history beginning during the winter of 1846–1847 with the ill-fated Donner Party and continuing into the early twentieth century.

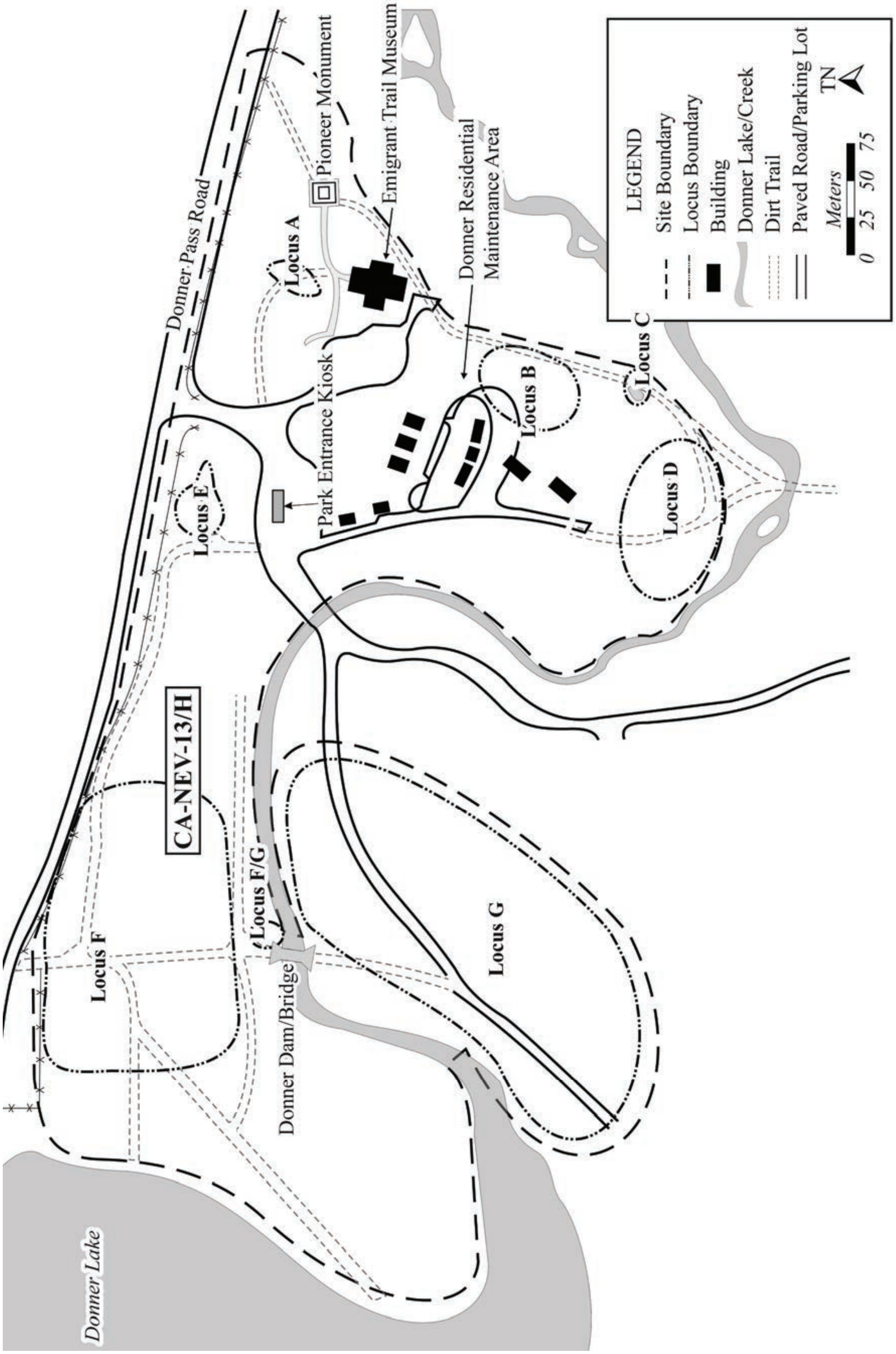

Figure 3. Multi-component Site CA-NEV-13/H, Donner Memorial State Park.

Prehistoric artifacts representing occupations from more than 6,000 years ago to historic contact have been noted throughout the site area with concentrations recorded at Locus A, B, F, F/G and G (see Figure 3; Bloomer and Lindström 2006a; Brooke 2005; Gilbert et al. 2001; Schwaderer et al. 1987). The prehistoric component is characterized by an abundance of basalt debitage and numerous bifacial tools. Obsidian, chert, quartzite and metavolcanic debitage are present in lesser quantities. Prior to the test investigations reported here, milling equipment such as portable milling slabs (*itdemge* – Washoe word) and bedrock milling stations (*lam*) with mortars and/or slicks had gone largely undiscovered. One *lam* with several large mortars sits at the north end of the Emigrant Trail Museum, but it was probably moved there from an unknown location. Our current test investigation is primarily concerned with Locus F and Locus G. Our results provide resolution to the interpretations of Bloomer and Lindström's (2006a) Locus F/ G investigation.

Locus F

Locus F is a loose association of prehistoric and historic artifact deposits covering a relatively large area in the northwestern corner of the site. The Locus F boundary was not previously defined. Most of the locus area is covered by a large prehistoric lithic concentration of basalt debitage and tools. Surface artifact density varies with clusters of debitage in open areas, but probably averages 1:1 square meter. Three historic artifact concentrations are also associated with Locus F; two within the prehistoric concentration. The historic remains at Locus F may be related to several historic structures reported in this area, including two hotels, a store, a blacksmith shop, a butcher shop, an express office and several dwellings (Lindström 1987:25–28).

Locus G

Locus G is an expansive prehistoric deposit covering most of the horseshoe bend terrace on the south side of Donner Creek. Basalt tools and debitage are the predominant artifacts. Projectile points, bifaces and cores have been reported and surface collected (Gilbert et al. 2001). One possible Humboldt Basal-notched projectile point indicated Locus G was occupied as early as 5000–3000 BP. Recent archaeological data recovery excavations in the dam road, south of Donner dam, have uncovered a basalt biface reduction deposit and *itdemge* near the creek (Bloomer and Lindström 2006a).

Locus F/G

Locus F/G is a small (approximately 400 square meters) patch of rocky ground on the north bank of Donner Creek where prehistoric artifacts are visible at the forest edge. This tight cluster of artifacts is bounded on the west by a wide foot path (the historic Donner Dam road) and by thick forest duff to the north and east. Locus F/G was identified as a lithic scatter by Susan Lindström during a survey for the Truckee Meadows Water Authority (TMWA) improvement upgrade of Donner Dam (Lindström and Marvin 2004).

Archaeological test investigations conducted by State Parks archaeologists suggested Locus F/G was a contributing element to the larger NRHP eligible site area (Jaffke 2005). Data recovery investigations conducted to mitigate the impacts from the dam upgrade project discovered a rich basalt artifact assemblage and two intact hearths (Bloomer and Lindström 2006a). Obsidian hydration data indicated Locus F/G was occupied discontinuously for about 6,000 years, from 6500 to 600 BP.

Chapter 2: Contextual Background

Environment

The natural setting of the project area is a forested riparian environment (Figure 4). Immediately west of the project area, Donner Creek exits Donner Lake and courses east through the project area (see Figure 2 and Figure 3). Here it cuts through a glacial landscape of narrow low moraine ridges and broad terraces. A wetland floodplain is present downstream from the project area at the eastern site boundary. The creek continues east for only a mile before turning southeast to confluence with the Truckee River.

The creek-side terraces are forested with sparse to moderately dense stands of Jeffrey pine (*Pinus jeffreyi*), white fir (*Abies concolor*) and lodgepole pine (*Pinus contorta*). The forest floor is predominantly open, covered with a thick duff. Granitic sands are exposed in larger openings

Figure 4. Forested Riparian Environment.

between forest stands. The sparse understory vegetation includes bitterbrush (*Purshia tridentata*), service berry (*Amelanchier utahensis*), woolly mules ears (*Wyethia mollis*) and sagebrush (*Artemesia tridentata*). Manzanita (*Arctostaphylos patula*) grows in open areas along the roadways and small numbers of aspens (*Populas tremuloides*) are found on wet ground.

The modern Donner Creek environment serves as a point of reference for looking back at past environments and landforms sculpted by paleoclimatic conditions, and experienced and used by prehistoric inhabitants. At just under 6,000 feet in elevation, the ecology along Donner Creek is characterized as predominantly *yellow pine zone* or *mixed conifer zone* (USDA Forest Service 2001).

Ethnobotanical plants recorded for the *yellow pine zone* are abundant (Jackson et al. 1994a:Table 6-2). A few plants, in addition to those listed above, that might have been most common to Donner Creek include wild onion (*Allium* sp.), gooseberries and currants (*Ribes* sp.), huckleberry oak (*Quercus vaccinifolia*), willow (*Salix* sp.), wild rose (*Rosa* sp.), bracken fern (*Pteridium aquilinum*), lilies (*Lilium* sp.), bromegrass (*Bromus* sp.) and needlegrass (*Stipa* sp.).

The predominant large mammals available to Donner Creek residents included mule deer (*Odocoileus hemionus*) and probably mountain sheep at higher elevations (*Ovis canadensis*; d'Azevedo 1986). Hares and rabbits were abundant throughout Washoe territory (d'Azevedo 1986). Other mammals probably included marmots (*Marmota flaviventris*), badgers (*Taxidea taxus*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), ground squirrels (*Citellus beldingi* and *lateralis*), chipmunks (*Eutamias* spp.) and gophers (*Thomomys* spp.).

The Truckee River was the conduit between two great fisheries at Tahoe and Pyramid Lake, which did not dry up during the Middle Holocene (Lindström et al. 2002). Cutthroat trout (*Salmo clarki henshawi*) and white fish (*Prosopium williamsoni*) were abundant in Tahoe, approximately 12 miles up the Truckee River from Donner Creek (Lindström 1992). Fish in the Truckee River would have been plentiful during times when the water poured from Tahoe's outflow. Cutthroat, suckers (*Catostomus* sp.), tui chub (*Gila bicolor*) and other small fishes probably inhabited Donner Creek. Remnant fish populations might have remained available in the Truckee River and Donner Creek during times of low water.

PALEOENVIRONMENT

In the past, glaciation and a cold/dry climate dominated the Donner Creek area until about 10,000 years ago. Glacial termination marks the beginning of the Early Holocene, a period of climatic change from approximately 10,000 to 7000 BP when the general climate was in a warming and drying trend, but with cool and moist winters. The Donner Creek area was initially occupied during the Early Holocene as the glacial landscape became more accessible with an increasing diversity of plant and animal resources common to coniferous forests. Flora and fauna at that time were the precursors to historic ecological communities.

The Middle Holocene, from 7000 to 4000 BP, saw an increased warm/dry climate, to the point of drought conditions. Precipitation fell primarily as summer rains with decreased winter snow. Tahoe's waterline fell at least 20 feet and it is likely that smaller lakes and streams became seasonally desiccated. Vegetation likely changed to drought tolerant xeric plants with animal populations adapted to a xeric ecology. Populations and the consistency of site occupations increased along Donner Creek during this time period. Increased site use may have been a response to reliable water at Donner Lake.

Eventually, more modern Late Holocene conditions prevailed setting the stage for continued habitation after 4000 BP. Late Holocene conditions were generally cool and moist with wet winters, but with periods of extended drought (Stine 1990, 1998). During most of this period, Tahoe Sierran landforms were essentially the same as they appear today. Vegetation and animal communities have been altered by historic activities, but, except for the extinction of grizzly bears, wolverines and mountain sheep, and the cutting of old growth forest, the predominant prehistoric character of the Donner Creek landscape remain largely representative of the Late Holocene paleoenvironment.

Detailed research on the topic of Tahoe Sierra paleoclimate is found in *The Lake Tahoe Environmental Improvement Program, Volume 1, Contextual Background: Lake Tahoe Outlet* (Lindström et al. 2002), and in *The Lake Tahoe Watershed Assessment*, Vol. 1, Chapter 2 (Lindström et al. 2000).

PREHISTORY

Current understanding of northern Sierra Nevada and western Great Basin prehistory is framed within a hypothetical sequence spanning nearly 12,000 years of environmental change and human adaptation (Elston 1986; Grayson 1993). The archaeological phenomena, which generally reflect the adaptive strategies used in prehistory to cope with changing environments and evolving social dynamics, are chronologically organized into five time periods (Western Great Basin Adaptive Sequence:Table 1). Within this overarching framework, a regional chronology for the Eastern Sierra Front has been developed through substantial programs of archaeological investigation throughout the northern Sierra and the Truckee Meadows (Elston 1971; Elston et al. 1977; Elston et al. 1994, 1995a; Moore and Burke 1992; Zeier and Elston 1986). The Eastern Sierra Front Chronology (Elston et al. 1994, 1995a) provides a relevant temporal framework for comparing and interpreting Tahoe Sierra archaeology (Table 1). A new taxonomic framework for ordering Tahoe Sierran archaeology has been recently proposed to augment the established chronological sequence (Lindström et al. 2002:Table 7). This new taxonomic framework adds spatial and cultural dimensions to the Eastern Sierra Front Chronology.

The earliest recognized period in western Great Basin prehistory, from ca. 11,500 to 10,000 BP, is marked by the presence of fluted projectile points. Most Great Basin fluted points are surface finds from Late Pleistocene/Early Holocene lakeshores. Grayson (1993) suggests that this is because plants and animals associated with shallow lakes and the surrounding steppe would have been the most abundant local food resources of that time.

Pre-Archaic sites date from ca. 10,000 to 7000 BP and are located on lakeshores, river terraces, and high ground above valleys (Basgall 1988; Davis and Rusco 1987; Martin 1998; Willig 1988; Zancanella 1988). The local archaeological record suggests that prehistoric populations occupied the Tahoe Sierra for at least 8,000 to 9,000 years. Soon after the Early Holocene retreat of Sierran glaciers, people probably entered the Tahoe/ Truckee Basin. The earliest well dated archaeological evidence of human presence is marked by a Pre-Archaic stone tool assemblage from South Lake Tahoe along Taylor Creek (Martin 1998). Subsistence adaptation at this time probably relied on high residential mobility in the pursuit of large game animals (Elston et al. 1995b) and non-intensive plant food processing and storage. The use of fluted points is thought to have continued into the Pre-Archaic, but the most distinctive tools in the Pre-Archaic toolkit are large, stemmed, edge-ground projectile points of the Great Basin Stemmed series and enigmatic flaked stone crescents. These are the temporal markers representing northern Sierra occupation during the Tahoe Reach Phase (Elston et al. 1995a).

Table 1. Western Great Basin and Eastern Sierra Front Chronologies and Tahoe Sierra Taxonomy.

WESTERN GREAT BASIN		YEARS B.P.*	EASTERN SIERRA FRONT*	TAHOE SIERRA**	TEMPORALLY DIAGNOSTIC PROJECTILE POINTS*
CULTURAL/ EVOLUTIONARY UNIT **	ADAPTIVE SEQUENCE*		CHRONOLOGY	SPATIAL/ CULTURAL UNIT	
Archaic Stage	Late Archaic Period	700	Late Kings Beach Phase	Washoe Tahoe Pattern	Desert series
		1300	Early Kings Beach Phase		Rose Spring series
	Middle Archaic Period	3000	Late Martis Phase	Tahoe Sierra Pattern	Martis Corner-notched, Elko Corner-notched and Elko Eared
		5000	Early Martis Phase		Martis Contracting Stem, Martis Split Stem (Gatecliff series), Steamboat
	Early Archaic Period	8000	Spooner Phase	?	Probably Martis Contracting Stem
Lithic Stage	Pre-Archaic Period	10000	Tahoe Reach Phase	?	Great Basin Stemmed series
	Fluted Point Period	11500	Washoe Lake Phase		Fluted

Notes: * Based on Elston 1986; Elston et al. 1994; Elston et al. 1995a.
** Based on Lindström et al. 2002: Table 7

The Early Archaic Period (ca. 7000 to 4000 BP) begins with a Middle Holocene warming trend, during which lakes and marshes receded, and drought tolerant vegetation communities expand. Elston et al. (1995b) predict that, as warming causes resource distributions to constrict, human subsistence strategies should become more logistical. Diet breadth should begin to increase, probably with the incorporation of more plant resources, and residential sites should be tethered to reliable water. Drying lowlands may have prompted people to travel into upland resource zones like the Tahoe Sierra where, in addition to hunting, prehistoric economies also incorporated seed processing and fishing. Unfortunately, archaeological sites dated to the Early Archaic are rare, and populations probably were small (Elston 1986). No diagnostic projectile point types have been identified for most of the Early Archaic Spooner Phase (Elston et al. 1995a). It isn't until near the end of this period, ca. 5000 BP, that the Martis Contracting Stem and Martis Split Stem atlatl dart points were thought to have appeared, although more recent research suggests that contracting stem forms were used throughout Early Archaic times (Milliken and Hildebrandt 1997; see discussion in *Research Design, Chronology* on page 24). These two points are considered equivalent to contracting stem and split stem points of the Gatecliff series (Elston et al. 1995a).

Late Holocene archaeology, beginning with the later Early Archaic, is better known, and Late Holocene chronologies are well developed (Elston et al. 1995a; Grayson 1993). The Martis Contracting Stem and Martis Split Stem projectile points represent a late aspect of the Early Archaic, but continue in the archaeological record, through the Early Martis Phase, to 3000 BP. Most of the archaeological sites in the western Great Basin date to the Late Holocene, suggesting that populations were increasing. Increased site numbers are also probably due, in part, to better preservation. Late Holocene climate, after ca. 4000 BP, saw a trend toward cooling and increased moisture (Lindström and Bloomer 1994). The Early Archaic at this time is characterized by diversified land use, with large sites located near permanent water. Big game hunting continued, but with intensified seed processing and storage (Elston 1986).

The Middle Archaic Period begins at about 4,000 years ago, during the Early Martis Phase, and continues through the Late Martis Phase to ca. 1300 BP (Elston et al. 1995a). The Martis Contracting Stem and Martis Split Stem points reflect an early aspect of the Middle Archaic, but Martis Corner-notched projectile points (ca. 3000–1300 BP) are the predominant Middle Archaic time marker. The environment at this time would have been predominantly cool and wet, becoming warmer and drier by about 1,500 years ago (Lindström and Bloomer 1994). With a return to more optimal living conditions, population densities increased. More intensive prehistoric use of the Tahoe Sierra began during this period, as mixed mode foragers-collectors ventured into the highlands on seasonal gathering, fishing and hunting forays. Elston (1986) notes that the Early/Middle Archaic transition was gradual, probably marked by changes in settlement and subsistence practices. He points to consistent site reoccupation as an indicator of a developing settlement strategy, and further notes that the nature of the residential sites and the occurrence of specialized cache sites, "suggest that some groups regularly exploited a limited territory" (Elston 1986:142). Big game hunting was still important, but resource diversification probably included an increase in the use of small mammals. A hallmark of Middle Archaic prehistoric culture in the Tahoe Sierra is the increased use of basalt in the manufacture of stone tools. In the north-central Sierran region, the "lithic landscape" is marked by at least 17 distinct basalt flows that were the focus of prehistoric quarrying activities. At this time, lithic technology became focused on the production of large bifaces, using toolstone procured from large quarries such as Alder Hill (McGuire et al. 2006) north of Truckee, Watson Creek on Tahoe's north shore (Bloomer et al. 1997) and Sawtooth Ridge along the Tahoe Reach of the Truckee River.

The Late Archaic period, about 1,300 years ago to historic contact, has been equated with the ethnographic Washoe, a distinct Native American culture described in ethnographic accounts written by early anthropologists. This period is marked by an overall drying trend, punctuated by cool-moist episodes alternating with extended severe drought that lasted until about 500 years ago. Such extreme climatic fluctuations may have allowed for year-round residence on Donner Creek at some times and prohibited even seasonal occupation at other times. The early half of this period (Early Kings Beach period; ca. 1300–700 BP) is marked by Rose Spring series arrow points, the later half (Late Kings Beach period; ca. 700–150 BP) by Desert Side-notched and Cottonwood arrow points. Bow and arrow technology replaced the atlatl and dart during the Late Archaic. At the same time, the Middle Archaic production of large bifaces was replaced by an emphasis on a core/flake technology and the use of simple flake tools. Resource diversification continued to increase, with greater emphasis on plants and small game.

WASHOE LAND USE

Washoe land-use strategies are ethnographic patterns that represent the latest manifestation of prehistoric Tahoe Sierra land use. Subsistence and settlement patterns were documented by Anthropologists (Downs 1966; Freed 1966; Price 1980) during a relatively short historic period of fluctuating paleoclimate and European intrusion that probably altered the course of Washoe activities. Therefore, Washoe land use is viewed not as analogy to the past, but as a guide for looking at prehistoric land use in light of paleoclimatic history and subsistence adaptation. Several recent research reports offer extensive treatments of Washoe ethnography and history, subsistence and land use (Lindström et al. 2002; Lindström et al. 2000; Lindström, in Bloomer et al. 1997:III-11-23; Lindström 1992; Rucks 1996). The following discussion is a brief overview.

Washoe land use is best characterized as generally following a "seasonal cycle of procurement" (d'Azevedo 1986:472) where temporary subsistence camps were located across the Tahoe Sierra to take advantage of available plant and animal resources throughout the year. The general tendency was to move from low elevation winter villages to high elevation summer villages and back again, but not everyone moved from their villages. The degree and duration of movement depended on seasonal resource abundance. Tahoe villages might have seen year-round occupation during warm/dry winters and gone unoccupied during summers when resources were scarce (Lindström and Bloomer 1994:28). In fact, d'Azevedo (1956:54) reports year-round occupation of a large habitation site near the confluence of Donner Creek with the Truckee River. This flexibility in subsistence transhumance translates to Washoe seasonal use, as well as periodic year-round occupation, of Donner Creek by various size groups and was probably characteristic of Donner Creek settlement throughout prehistory.

Hunting deer and mountain sheep was often done by one or two individuals with bow and arrows (d'Azevedo 1986:477–479). Small groups of hunters in pursuit of herds constructed hunting blinds with rock, poles and brush. Large group hunts were organized to drive deer and antelope herds towards waiting hunters or into corrals where they were shot. Prior to the advent of bow and arrow technology, about 1,300 years ago, atlatls (throwing sticks) were used to throw darts fitted to long shafts. Large drives were also used to hunt rabbits, driving hundreds of animals into long nets. Other small mammals, such as porcupine, beaver, badger, marmots and squirrels were shot or trapped. Mice, rats, gophers and moles were also taken. Most birds were eaten, but reptiles were not.

Fish were a predictable and consistent year-round Washoe resource (d'Azevedo 1986; Lindström 1992). Tahoe and its tributaries flow from spring through summer, and spring and fall trout runs along the Truckee River were prime Tahoe Sierra fisheries (d'Azevedo 1986:473). Seasonal trout runs extended up Donner Creek to Donner Lake when water levels were adequate. Dried fish were transported to winter villages and could have been transported to seasonal camps at higher elevations where fish were not available.

Gathering plants for food, medicinal use and raw material for many manufactured items was an intensive effort from spring through fall (d'Azevedo 1986:473–477). Fresh greens are typically abundant in the spring. Roots, bulbs and seeds are harvestable during summer, while pine nuts were the most abundant and valuable local plant resource in the fall. Acorns were also a valuable fall resource, but had to be gathered by trekking west over the Sierra crest to oak groves on the western slopes. Therefore, acorns were not a staple for the most distant Washoe groups, but were probably available to Donner Creek residents. Insects, worms, larvae and honey were also collected.

Washoe place names are common throughout the Donner/Truckee area (d'Azevedo 1956). Donner Lake was called *datsasut* and the Truckee River is *awakhu wata*. The year-round village near where Donner Creek meets the Truckee River is *dasasut malam detdeyi*. A large village at Truckee is known as *kubuna detdeyi*.

EURO-AMERICAN LAND USE

Euro-American land use in the vicinity of Donner Creek has been extensive from the mid-1800s up to present day. The discussion here is brief, serving to set the context for envisioning Washoe interactions with Euro-American immigrants. More complete treatments of Donner Memorial State Park history are found in Hardesty 1985, Lindström 1986, Nesbitt 1990, and Woodward 2001.

In 1844 the Stevens-Murphy-Townsend Party established the Truckee River Route of the Overland Emigrant Trail just 150 meters north of the project area along the present day Donner Pass Road. Two years later, members of the Donner Party were trapped by deep winter snow and made camp on Donner Creek, 400 meters east of Locus F/G. The 1864 Dutch Flat/Donner Lake Wagon Road and the 1868 transcontinental Central Pacific Railroad followed the early emigrant route, facilitating the steady settlement and development of Donner Lake and the town of Truckee. Donner Pass Road, also known as the Lincoln Highway (1913), the Victory Highway (1920s) and US Route 40 (1928), has always been a major transportation route.

Historic development and industries around Donner Lake included logging, ice making, fishing and tourism. The outlet of Donner Lake has been altered by historic-era activities since the mid-1800s. Early dams were constructed along the lake's outlet drainage, taking advantage of prominent ridges and constrictions (glacial moraines), to provide irrigation water for power saw mills, and provide storage areas for ice production. Water reclamation was facilitated in 1889 by construction of the dam at Donner Lake's outlet, raising the lake level six feet (Lindström and Marvin 2004). The current dam and bridge were constructed in 1927 to increase water storage as part of the Newlands Project, raising the lake level about 12 feet above its natural level. The lake still contributes water to irrigation and domestic supplies, but its primary use is recreation.

The Pioneer Monument, within Locus A, was completed in 1918 to honor the 1840s California emigrants. Donner Memorial State Park was established at the monument and added to the park system by 1928 (Nesbitt 1990). The park was expanded to include the eastern shores of Donner Lake in 1948, incorporating all of CA-NEV-13/H. The park's Emigrant Trail Museum opened in 1962.

Chapter 3: Previous Archaeology

Previous archaeological studies conducted at CA-NEV-13/H are the foundation of current investigations and provide a local context for interpreting new finds within the site. On a larger scale, previous archaeological studies in the Donner Lake vicinity and beyond set the archaeological and prehistoric contexts for regional interpretations.

CA-NEV-13/H

Site CA-NEV-13/H has a long and varied history of archaeological investigations. As early as 1952, the prehistoric lithic scatter at Locus G was originally recorded as CA-NEV-12 by Elsasser and the Locus A lithic scatter was recorded as CA-NEV-13 by Barker and Pilling (Schwaderer et al. 1987; Schwaderer 1988). Archaeological investigations languished after these initial recordings until Riddell visited the site in 1980 to update the CA-NEV-13/H site record, incorporating the historic Chinese component at Locus E. In addition, Riddell excavated two 2-square-foot excavation units south of Locus E to test the archaeological deposit in conjunction with development of the current park entrance station. Riddell's notes (1980) record two basalt scrapers, 36 basalt flakes, two silicate flakes and two obsidian flakes recovered from 0 to 36 inches below surface. Numerous Chinese ceramic fragments, glass and metal were also recovered.

The 1980s was a time of several archaeological studies at Donner State Park. In 1984, Hardesty (1985; Lindström 1986) excavated the historic Murphy Cabin at Locus C. After the excavations, the Murphy Cabin and a prehistoric lithic scatter were formally recorded as CA-NEV-540/H (Hines 1986). A year later, the three sites (CA-NEV-12, 13/H, and 540/H) were combined to make one large site designated as CA-NEV-13/H (Schwaderer et al. 1987). Nesbitt's (1990) review of *The Cultural Resources of Donner Memorial State Park* provides a synthetic history and overview of CA-NEV-13/H archaeology up to that time.

Archaeology within Donner Memorial State Park was uneventful throughout the 1990s until near the turn of the twentieth century. In 2001, State Parks Sierra District archaeologists conducted an intensive reconnaissance of the park to update the CA-NEV-13/H site record, redefine locus and site boundaries and record Global Positioning System (GPS) data for the primary features and boundaries within the site area (Gilbert et al. 2001). In addition, seven shovel probes and one 50-x-50-centimeter excavation unit were dug west of Locus B and C in conjunction with small park maintenance projects (Gilbert et al. 2001). Prehistoric artifacts recovered include a basalt Rose Spring projectile point, an obsidian scraper, 15 basalt flakes, five obsidian flakes and one CCS flake. Additional survey north of Donner Creek with another site record update (Brooke 2005) was conducted from 2004 to 2005 in conjunction with the proposed development of a new High Sierra Crossings Museum (Bloomer et al. 2006). The test investigation for the proposed High Sierra Crossings Museum, located in the vicinity of the current Emigrant Trail Museum, was conducted in 2006 (Bloomer et al. 2007). Excavation results indicate the prehistoric and historic deposits between loci in the northeastern site area are generally characterized by low artifact density and low artifact diversity.

Additional recent investigations include the archaeological test excavations conducted by Sierra District archaeologists at Locus B to investigate the archaeological deposit in an area of planned disturbance (Green and Solis 2005; Jaffke 2006). The recovered prehistoric artifact assemblage from three 1-x-1-meter test units includes three basalt bifaces, nearly 200 basalt flakes, two obsidian flakes and two CCS flakes to 70 centimeters deep. A test investigation was also conducted by Sierra District archaeologists at Locus F/G in conjunction with the Truckee Meadows Water Authority (TMWA) improvement upgrade of Donner Dam (Jaffke 2005). The test investigation led to a data recovery investigation conducted by Bloomer and Lindström (2006a). The results of the Locus F/G investigations are summarized in the Introduction, Locus F/G description.

DONNER LAKE VICINITY

Archaeological investigations at two prehistoric sites (CA-NEV-199 and -9) on Donner Creek, east of CA-NEV-13/H (Figure 5), were conducted from 1977 to 1983. Investigations of two other prehistoric sites (CA-NEV-529 and -530/H), at the west end of Donner Lake (Figure 5), were conducted in 1988 and 1989. The artifact collections from subsurface excavations at each site provide relevant comparative data from the Donner Lake vicinity.

Site CA-NEV-199 was located on a small rise above the north bank of Donner Creek, about one mile east of Donner Lake. A large portion of the site was probably removed during the 1960s construction of Highway 80 (Rondeau 1982). Test excavations were conducted in 1977 on a remnant of the site north of the highway in conjunction with the expansion of the California Agricultural Inspection Station (Keesling and Johnson 1978). Additional data recovery excavations were conducted in 1980 to mitigate construction impacts (Rondeau 1982). Results of both the test and data recovery investigations uncovered an artifact rich deposit from 50 to more than 100 centimeters deep, suggesting probably seasonal and long-term site habitation. The artifact assemblage is predominantly basalt with lesser frequencies of obsidian and CCS toolstone. Projectile points, bifaces and debitage are abundant in the collection, representing a predominance of basalt biface reduction in tool manufacture and maintenance. A large number of well made scrapers were also recovered. The groundstone collection includes both *gamum* (handstone) and *itdemge* (milling slab). Chronologically diagnostic projectile points and obsidian hydration data indicate initial occupations before 7000 BP with primary occupations from 5000 to 1300 BP, continuing to probably 700 years before Euro-American contact.

Site CA-NEV-9 was located on the south side of Donner Creek in a developing commercial zone along Highway 89, approximately half-a-mile from the confluence of Donner Creek with the Truckee River. Test excavations were conducted in 1983 on a remnant portion of relatively undisturbed site area in conjunction with the construction of a McDonald's Restaurant (Lindström 1983). The collected artifact assemblage, like that from CA-NEV-199, is composed primarily of basalt bifacial tools and debitage. Unlike CA-NEV-199, the CA-NEV-9 artifact quantities are low and there are no groundstone tools. The

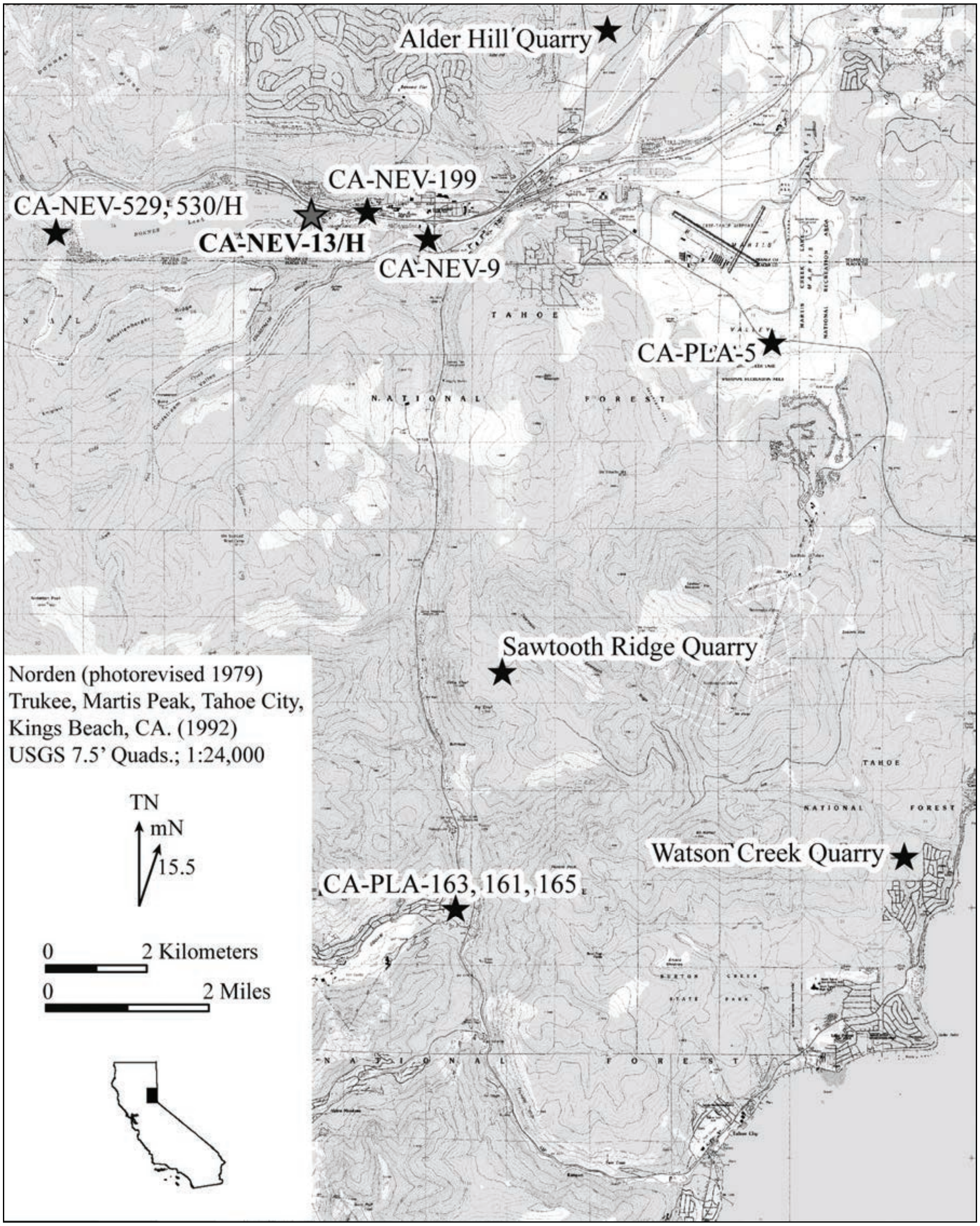

Figure 5. Select Regional Archaeological Sites.

maximum depth of the archaeological deposit was 80 centimeters below surface. Although short term habitation may have occurred here, the predominance of basalt bifaces and debitage with a lack of groundstone suggests basalt bifacial tool manufacture was the primarily activity. Chronological data derived from four large Martis Corner-notched and Martis Contracting Stem projectile points indicates primary occupations from 5000 to 1300 BP.

Sites CA-NEV-529 and -530/H are relatively small sites on the north side of Summit Creek, approximately one-quarter-mile west of Donner Lake. Test excavations conducted in conjunction with a housing development recovered a rich and varied flaked stone assemblage from CA-NEV-529, indicating a wide range of activities were conducted during habitation (Lindström 1990). Archaeological deposits here ranged from 30 centimeters on bedrock to 80 centimeters in a saddle between high points. Although only one Rose Spring projectile point was recovered, representing one period of occupation at CA-NEV-529 from 1300 to 700 BP; obsidian hydration data reflect an ancient and sporadic occupational history. Hydration data clustering from 7.4 to 6.0 microns indicate occupations before 7000 BP, while a second data cluster from 4.7 to 3.7 microns represents occupations from probably 4000–2500 BP. The artifact assemblage from the 40 centimeters deep deposit at CA-NEV-530/H is much smaller, reflecting infrequent use, probably by CA-NEV-529 residents. One basalt Martis Contracting Stem projectile point indicates site use from 5000 to 3000 BP.

REGIONAL ARCHAEOLOGY

Beyond Donner Lake there have been numerous important investigations of prehistoric archaeological sites. Two large probably intermittently year-round village sites (CA-PLA-5, and CA-PLA-163 through CA-NEV-165) and three basalt quarries (Alder Hill, Sawtooth Ridge and Watson Creek) are highlighted here for comparisons with CA-NEV-13/H site data (see Figure 5). Otherwise, the *Archaeology of the Tahoe Reach of the Truckee River* (Elston et al. 1977) identifies multiple sites with representative photographs and basic discussions of the regionally characteristic basalt assemblages. More recently, a *Contextual Background for the Lake Tahoe Outlet* (Lindström et al. 2002) presents a comprehensive discussion of the current prehistoric research design for the Tahoe Sierra.

Site CA-PLA-5 is a long and narrow high density basalt lithic scatter situated on a flat terrace overlooking the confluence of several branches of Martis Creek in the center of Martis Valley. Extensive surface and subsurface investigations were conducted in 1996 in conjunction with a Southwest Gas Corporation pipeline construction project along the shoulder of Highway 267 (Ataman et al. 1999). The archaeological deposit here is typically shallow, at less than 60 centimeters deep; but the artifact assemblage is rich with abundant projectile points, bifaces, flake tools and groundstone. Massive amounts of basalt debitage represent a focus on basalt tool manufacture. In addition, a rock lined hearth was found at 20 centimeters below surface and fire cracked rock scatters represent the presence of other hearths. Chronologically diagnostic projectile points and obsidian hydration data indicate site occupations spanned most of Tahoe Sierra prehistory from initial occupations before 7000 BP to about 500 BP.

Sites CA-PLA-163, -164, and -165 are collectively known as the Squaw Valley sites, set at the mouth of Squaw Valley on the south terrace above Squaw Creek. Test and data recovery excavations were conducted at these sites in 1999 in conjunction with a housing development project (Bloomer and Lindström 2006b). Although each site is not exceptionally large in area, collectively they make a complex of rich habitation sites probably concurrently occupied. Site deposits predominantly ranged from 40 to 100 centimeters deep. Like CA-PLA-5, the artifact assemblage is primarily basalt with abundant projectile points, bifacial tools and debitage reflecting tool manufacture. Groundstone is also common in the assemblage, including many *lam* (Washoe word for bedrock milling feature) on granite boulders. Four subsurface hearths were discovered at two of the sites with 14C ages ranging from 2860 to 500 BP. Projectile points and hydration data represent site occupations beginning about 7000 BP and ending not long after 700 BP, with an occupational peak between 2800 and 1800 BP.

Regional basalt quarries of primary interest include Alder Hill, Sawtooth Ridge and Watson Creek (see Figure 5). The basalt at each of these sources has a distinct geochemical signature read by X-ray fluorescence (XRF) trace-element analysis. In addition, the archaeologically recorded distribution of Alder Hill basalt artifacts is different from the archaeological distributions of Sawtooth Ridge and Watson Creek basalt artifacts (Bloomer et al. 1997). Investigations at the Alder Hill Quarry have recorded only a portion of the prehistorically extensive quarry deposits (Lindström 2000). Recent excavations at the larger loci within the quarry indicate initial occupations and quarrying during the Early Holocene (McGuire et al. 2006). Test investigations at the Watson Creek Quarry (Bloomer et al. 1997) recorded residential and reduction loci as part of a US Forest Service, Lake Tahoe Basin Management Unit (LTBMU) forest management project (Lindström and Waechter 1996). The Sawtooth Ridge Quarry is probably extensive, but unfortunately is not well recorded. In fact, basalt cobbles with a geochemical signature matching Sawtooth Ridge have been reported from natural cobble deposits at CA-PLA-718/H along the shore near Tahoe's outlet into the Truckee River (Bloomer et al. 2002).

Chapter 4: Tahoe Sierra Prehistoric Research Design

The Tahoe Sierra prehistoric research design has developed over many years as a result of numerous investigations that have contributed to archaeological knowledge about regional prehistory. The research design provided for this project represents the most current framework that drives our data collection and interpretations of prehistoric resources. The research design provides a complete context for investigations, with appropriate modifications, to relate to Donner Lake prehistory and geography within the larger Tahoe Sierra.

Prehistoric archaeologists are concerned with human behavior, specifically the development of human behavior throughout prehistory. What we have learned about prehistory has shown us that human populations have altered their life-ways and land-use strategies through time, and that there were probably correlations between paleoenvironmental change and changes in human behavior. It was also probably true that demographic constraints, as well as social and political pressures influenced the courses of prehistory. However, because archaeology deals primarily with data sets derived from ancient material objects such as stone tools, the patterns that appear to reflect environmental or resource opportunities and constraints, and their concomitant human responses (site location, diversity in tool assemblages and the composition of food remains), are the most easily observed and, therefore, occupy a large part of archaeological inquiry.

It is appropriate then, that our knowledge is modeled in terms of land-use adaptive strategies (i.e., settlement and subsistence) and technological organization of tool kits within the overarching organizer of time. If not for chronology, we would have little order for developing archaeological ideas about the development of prehistoric culture. The major body of archaeological research currently practiced in the Tahoe Sierra and western Great Basin works with these assumptions to explain prehistoric human behavior, whether couched in an appropriate blend of middle range theory with optimal foraging theory (Elston et al. 1994, 1995a; Lindström 1992; Moore and Burke 1992; Zeier and Elston 1986), or more strict interpretations of evolutionary ecology (Zeanah et al. 1995).

In essence, the archaeological record is viewed as largely a reflection of human adaptation to environmental, as well as cultural influences, and that the organization of human behavior was not static, but fluid. Archaeological sites like those at Donner Lake represent repeated occupations, possibly year-round, as well as in different seasons for different purposes over a long and relatively continuous span of time. Therefore, we place a high value on the spatial and temporal associations of archaeological phenomena as primary analytical components for archaeological interpretation. Consequently, the effects of geomorphological processes on site formation weigh large in decisions of component organization and interpretations of site structure.

Research issues developed to guide archaeological investigations at Donner Lake stem from these basic theoretical underpinnings and offer informative contexts for archaeological interpretation. The issues are paleoenvironment, chronology, land use, lithic technology and toolstone procurement.

PALEOENVIRONMENT

Paleoenvironmental research through the analysis of archaeological assemblages is essentially an investigation of cultural and environmental associations (Lindström and Bloomer 1994). Donner Lake is a moderate elevation riparian forest environment, a rich environment where snow can cover the ground all winter, but the spring, summer and fall are warm and teaming with plant and animal resources. Occupation was possibly year-round, as well as seasonal, with environmental fluctuations affecting the availability of resources and the duration of site use.

The approach for addressing paleoenvironmental research issues during archaeological investigations at Donner Lake focuses primarily on geomorphology to interpret soil and site formation within the forest environment, to provide insights into spatial contexts for interpreting artifact associations and site structure. Geomorphic studies take into account models of general climatic conditions applied to the forest sediments during periods of occupation. In addition, we hope to find faunal and botanical remains reflecting the available plant and animal resources and, therefore, the seasons of occupation. Unfortunately, we have found that the preservation of faunal and botanical remains is typically poor in forest soils.

CHRONOLOGY

Archaeological inquiry must be placed within the framework of time. To that end, archaeologists have developed an evolving taxonomic chronology for Tahoe Sierran prehistory (see Table 1). It is evolving because radiocarbon date associations are few, but accumulating, while pattern variations and inconsistencies have appeared as we continue to work with projectile points and obsidian hydration data considered indicative of time. In an effort to contribute to rigorous chronology building, a high research priority is placed on single component deposits. Single components might be single task specific locales, or limited occupation episodes isolated from or within multi-component sites, or more developed long term occupation deposits that can be temporally nested within a specific chronologic period or phase.

A focal issue concerns the scarcity of Pre-Archaic and Early Archaic archaeological remains. Even though these early populations were probably small and a low density archaeological record is expected, prehistoric chronological data gathered from Tahoe Sierran sites increasingly indicate that initial occupations predate the Middle Archaic, before 5,000 years ago. Pre-Archaic populations were probably present in the Tahoe Sierra by about 9,000 years ago and resources would have been plentiful. The low visibility of early culture in the Tahoe Sierra may be partly attributed to natural processes such as erosion and deposition, which may obscure early archaeological remains. On the other hand, it is likely that diagnostic artifacts have been temporally misinterpreted and that developing obsidian hydration data sets are just beginning to adequately represent the earliest temporal associations.

Types of chronological information available at archaeological sites throughout the Tahoe Sierra include obsidian for hydration analysis and time diagnostic artifacts. Charcoal bearing hearths and ovens are less common, but are beginning to be discovered with increasing frequency.

Chronological research issues for Donner Lake sites and most other sites in the Tahoe Sierra concern general occupational history, while attempting to distinguish single temporal components in the deposit. The occupational histories are compared to other sites in the Donner Lake area and to the cultural patterns and taxonomic chronology proposed for the Tahoe Sierra and the eastern front. Methodologically, temporal interpretations of obsidian hydration data are compared to chronological interpretations based on the projectile point types to better calibrate both data sets as temporal indicators.

Radiocarbon 14C Dating

Carbon samples associated with interpretable archaeological contexts are hard to collect in Tahoe environments because of ground turbation and poor preservation. Charcoal samples in feature contexts are most reliable for determining the age of depositional strata and associated artifact assemblages. Fortunately, recent archaeological investigations near the mouth of Squaw Valley at site CA-PLA-165 recorded several radiocarbon dates from three Middle Archaic subsurface hearths and ovens (Bloomer and Lindström 2006b); thereby, pointing up the real potential for uncovering chronologically significant subsurface features. Also, extensive excavations in Martis Valley at CA-PLA-5 and CA-PLA-6 recorded 19 14C dates, but only one was from a subsurface hearth feature context (Ataman et al. 1999). All others were charcoal samples from excavated unit strata, sediment samples and backhoe trench sediments. Nevertheless, dates from the unit strata facilitated chronological interpretations of site occupations.

Obsidian Hydration

Obsidian hydration data have the potential to date artifacts, archaeological strata and sites. However, before hydration data can be used to achieve chronological objectives, it is necessary to recognize and account for the variables that can affect the patterning of hydration data (i.e., sampling strategies, environmental variables, technological variables and the application of hydration rate formulae, projectile point chronology and post-depositional processes).

Obsidian hydration and projectile point types are routinely interpreted as chronological indicators. In the past few years, hydration data for time sensitive projectile points have been compiled for distinct north Sierran regions and single component archaeological sites. These data compilations serve as foundations for temporal interpretations, but have also indicated potential problems with current temporal interpretations of projectile points and/or hydration data (Bloomer 1993; Bloomer et al. 1997).

Hydration data are interpreted in the Tahoe region by comparison with three previously developed data sets from three separate north Sierran research areas, incorporating data from multiple sites (Table 2). The most recent study comes from Bagley Valley, south of Markleeville, California (Ataman et al. 2001). Hydration data for Bagley Valley projectile points representing specific temporal periods were combined irrespective of source to calculate hydration means for phases of the Eastern Sierra Front Chronology. A similar method was followed in an earlier compilation of Bodie Hills source projectile point hydration data from numerous north Sierran sites and isolate locations (Bloomer 1993; Bloomer et al. 1997). These data were reevaluated, updated and modified slightly for recent Tahoe Outlet investigations (Bloomer et al. 2002). The third data set consists of debitage rim measurements from a single Pre-Archaic age component at LTBMU Site 05-19-795, South Lake Tahoe, California (Martin 1998).

Data means for each chronological period provide a relative distinction between the two Late Archaic Kings Beach periods. Data means also distinguish the Late Archaic Kings Beach period from Middle Archaic Martis periods. On the other hand, distinctions within Middle Archaic Martis periods are not well defined. In fact, overlaps in Late Martis and Early Martis projectile point hydration ranges are typical within Tahoe Sierra data sets (Table 2). This problem has been discussed in conjunction with other recent investigations (Bloomer et al. 1997:II-41). Basically, the overlap suggests that dart size contracting stem and corner-notched projectile points have no temporal distinction in the northern Sierra. Or, that obsidian hydration is not consistent in rim formation (e.g., hydration might stop for some artifacts and never start again).

Fortunately, FS 05-19-795 hydration data provides a good foundation for expected Tahoe Sierra Pre-Archaic hydration rim values at greater than 7.0 microns, while Late Archaic hydration data is relatively consistent at less than 2.5 microns.[1] Given both ends of the spectrum, the 7.0 and 2.5 micron data points are used as anchors to create a hypothetical hydration rate curve (Figure 6) for the chronological interpretation of hydration rim values. The hydration data sets in Table 2 provide an analytical perspective and the hydration rate curve is an analytical tool that we can use to interpret Tahoe Sierra and Donner Lake hydration data.

Table 2. Obsidian Hydration Chronology – Three Data Sets [Range μ] mean μ, SD μ.

Eastern Sierra Front Chronology	Washoe Lake	Tahoe Reach	Spooner	Early Martis	Late Martis	Early Kings Beach	Late Kings Beach
Northern Sierra (Bloomer et al. 1997)	no data	[3.1]	no data	[1.2-4.0] **2.8**, 0.9	[0.9-5.6] **2.8**, 1.3	[1.1-2.5] **1.8**, 0.6	[0.8-2.0] **1.3**, 0.3
Bagley Valley (Ataman et al. 2001)	no data	no data	no data	[2.6-5.7] **4.1**, 1.1	[1.1-7.1] **3.9**, 1.5	[1.2-3.7] **2.5**, 0.7	[0.8-4.1] **1.9**, 0.9
FS 05-19-795 (Martin 1998)	no data	[6.0-8.7] **7.0**, 0.8	no data	no data	no data	no data	no data

[1] An updated (November 2010) analysis of 32 Rose Spring series projectile points from the Tahoe Sierra returned a 2.2 micron mean - interpreted at approximately 1000 BP on the hydration curve.

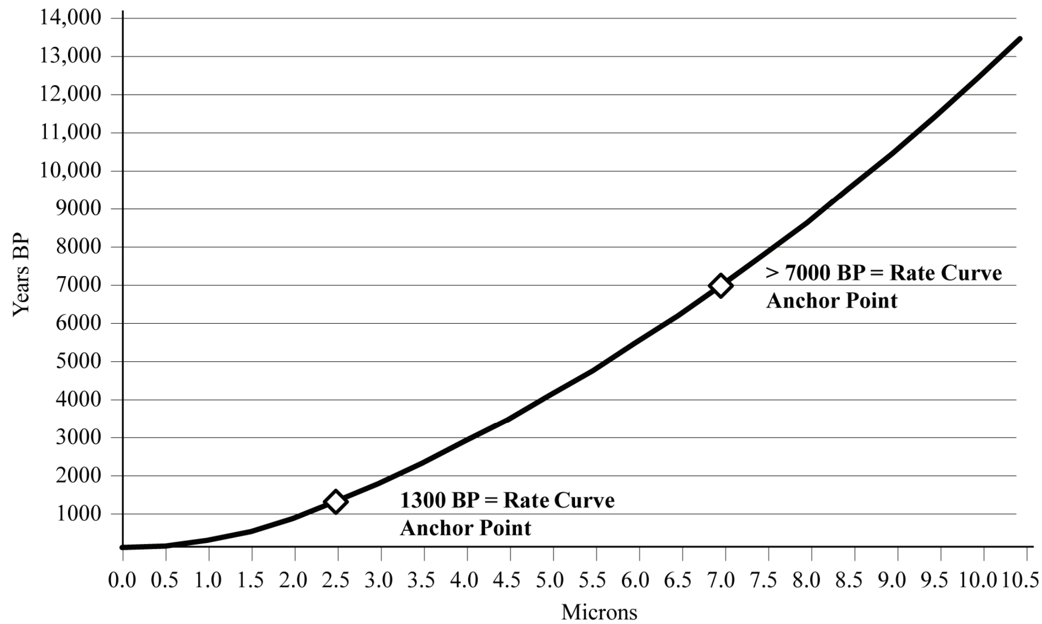

Figure 6. Hypothetical Obsidian Hydration Rate Curve for the Tahoe Sierra.

Time Diagnostic Artifacts

Single artifact types and cultural material assemblages have varied typologically, stylistically and/or functionally over time. Unique combinations of these artifact classes characterize certain time periods. Flaked stone tools are ubiquitous in Tahoe Sierran archaeological contexts and are therefore the focus for assemblage comparisons. Moore and Burke, in their 1992 Truckee Meadows study, characterized Middle Archaic Martis assemblages as composed of dart size stemmed, notched and leaf shaped projectile points in the Martis and Elko series, large bifaces, relatively large flake tools, perforators and gravers. Late Archaic Early Kings Beach phase assemblages are composed of arrow size stemmed and notched projectile points in the Gunther and Rosegate series, and large and small triangular bifaces, while flake tools and perforators are rare. The Late Kings Beach phase of the Late Archaic is characterized by notched and unnotched arrow size Desert series points, two distinct kinds of small bifaces, as well as rare occurrences of flake tools and perforators that are similar to Early Kings Beach kinds. Moore and Burke (1992) describe each of these assemblages and the important distinctions in tool manufacture technology in detail. Subsequent Truckee Meadows (Elston et al. 1994, 1995a) and Martis Valley research (Ataman et al. 1999) has reiterated these assemblage characteristics, pointing up the fact that flaked stone tool assemblages comprise time diagnostic tool kits. Tool kits changed through time with shifts in subsistence, technological innovation and evolving land-use strategies.

Within flaked stone assemblages, projectile point types are the primary time diagnostic artifacts driving chronological interpretation. More than 30 years ago, Elston, in his *A Contribution to Washo Archaeology* (1971), applied well-dated named western Great Basin projectile point types (Clewlow 1967; Lanning 1963; O'Connell 1967) to provide chronological analogs for morphologically similar large basalt Sierran projectile points first described by Heizer and Elsasser (1953; Elsasser 1960). Several Martis point types were defined to incorporate Heizer and Elsasser's (1953; Elsasser 1960) previously unnamed types that were indicative of the Middle Archaic "Martis Complex." Over the years, Martis types and their use as chronological indicators have undergone periodic revision based on research along the upper reach of the Truckee River (Elston et al. 1977) and along the eastern Sierran front (Elston et al. 1994, 1995a). To date, the Martis series includes large corner-notched points, large side-notched points, a large contracting stem and a split stem form (Elston et al. 1994, 1995a).

The western Great Basin and Martis point types have been used ever since as chronological time markers within the Tahoe Sierra (Ataman et al. 1999; Bloomer et al. 1997; Bloomer et al. 2002; Cleland 1988; Elston 1982; Elston et al. 1977, 1994; Lindström and Bloomer 1994; Zeier and Elston 1986, 1992). The projectile point types and chronological framework applied today are generally similar to past schemes, but have evolved to become the Eastern Sierra Front Chronology (see Table 1; Elston et al. 1994, 1995a).

The title, *Eastern Sierra Front Chronology*, highlights the fact that this temporal scheme is primarily applicable to the eastern Sierra. It has proven useful in application from the valley floors of the Truckee Meadows in Nevada, west and up to the Tahoe region. It is also applicable over the crest on the western Sierran slope to about the 6,000 foot contour. Below there on the western front, projectile point morphologies change and the applicability of the Eastern Sierran Front Chronology diminishes.

For many years researchers working in the western Sierran foothills have called for abandonment of the western Great Basin and Martis point types (Markley 1982; Clewlow et al. 1984; Jackson et al. 1994a; Jackson and Ballard 1999). This is because the Sierran projectile point key (Leventhal 1977; Zeier and Elston 1986), used to distinguish the temporally diagnostic named types, does not fit west side projectile point morphology as well as it should. Throughout the 1970s and 1980s the western researchers had little alternative to the Sierran key and chronological scheme. More recently, Jackson et al. (1994a) have developed a western Sierran descriptive typology to fit into their North Central Sierra Chronology and applied it to studies of the American River Watershed cultural chronology (Jackson and Ballard 1999). The North Central Sierra Chronology is a needed alternative for western Sierran archaeology, leaving the Eastern Sierra Front Chronology to the Tahoe Sierra and eastern Sierra front.

Martis and Elko Series Projectile Points

The application of certain projectile point types in the Tahoe region and across the eastern Sierra front is also undergoing critical review. One of the main issues is the use of Martis and Elko series classifications for large notched projectile points that have essentially the same morphology and age. These point types have been kept distinct to maintain the Elko series connection with Great Basin chronology, as well as the potential for analyzing point type distributions as an indicator of regional interaction and influence.

The Martis series is considered to be the regional Tahoe Sierra analog of the western Great Basin Elko series (Elston et al. 1994). But in the Sierran projectile point key, Elko Corner-notched points are distinguished from Martis Corner-notched by only one dimension, a distal shoulder angle (DSA) less than 195 degrees (Leventhal 1977). The actual visible morphological distinction between Elko and Martis is obscure and DSA measurements on a single point can indicate Elko for one shoulder and Martis for the opposite shoulder. Recent research suggests the DSA distinction has little or no interpretive value, other than to assess the technological constraints of flake blank selection. For example, thick basalt blanks may be harder to notch and so end up as Martis series, while thin blanks are more readily notched to Elko forms (Ataman et al. 1999:6-30–6-33). The results of basalt projectile point replications have also indicated that thin flake blanks are easier to notch, and would therefore be more likely to be made into Elko forms (Edwards 2000).

The implication is that basalt Martis and Elko projectile points are essentially the same and should be classified together as either Martis or Elko series because their morphology reflects the technological constraint of basalt flake blank thickness and not the cultural influence of desired form. Yet, flake blank selection is a behavior that may be regionally variable. Also, there is evidence of distributional variability in basalt point morphology between the Tahoe Sierra and the low elevation valleys on the eastern Sierra front, even if only based on DSA angles. A review of large basalt corner-notched projectile point morphology reported for assemblages from sites along the Highway 395 corridor (Elston 1979) shows that large basalt flake blanks were predominantly made into Elko points. In the Truckee Meadows the numbers of basalt Martis Corner-notched and basalt Elko Corner-notched points are nearly equal, but Elko Corner-notched points, including all toolstones, are slightly more common (Moore 1992; Zeier and Elston 1986). In contrast, Martis forms are much more numerous than are Elko forms for large collections from the Tahoe Sierra (Ataman et al. 1999; Bloomer and Lindström 2006b; Elston et al. 1977). Therefore, even if flake blank thickness is the determinate morphological variable in the manufacture of large basalt Martis projectile point forms, the Martis series appears to reflect regional identity.

Most important, because the Martis Corner-notched is the primary projectile point type representing Middle Archaic occupations throughout the Tahoe Sierra, it is considered most distinctive of the Middle Archaic Period–Late Martis phase in this region. The Elko series has outlived its past usefulness as the initial temporal link between Martis series projectile points and the regional chronology. Yet, Elko is retained as a heuristic point type classification to represent western Great Basin regional influence for distributional analysis of Tahoe Sierran regional interaction spheres.

The Martis series also includes contracting stem forms representing the morphological projectile point variability evident within the Middle Archaic–Early Martis phase assemblages, while the Elko series in Sierran assemblages no longer includes contracting stem forms. Dart size contracting stems with a small basal width to maximum width ratio of less than or equal to 0.35 were previously classified as Elko series (Elston et al. 1977; Leventhal 1977). Recently, Elston revised his regional point type classification scheme to subsume the narrow Elko Contracting Stem form into the Martis Contracting Stem type (Elston et al. 1994:15-16). Elston reclassified the narrow contracting stem forms following Thomas's lead (1981), where Thomas changed the Elko Contracting Stem point form to Gatecliff Contracting Stem because contracting stem points were stratigraphically associated with Gatecliff Split Stem points instead of the later Elko Corner-notched points.

The elimination of Elko Contracting Stem forms bolsters Elston's contention that contracting stem point forms are older than the Elko series notched and eared forms (Elston et al. 1994). In fact, other ongoing research suggests that contracting stem forms were used from Early Archaic times (Milliken and Hildebrandt 1997), probably with antecedents in the Pre-Archaic Great Basin Stemmed series.

Gunther and Rose Spring Series Projectile Points

At the other end of the temporal spectrum, it is unfortunate that Gunther series point types have slipped into use in the eastern Sierra chronology. Most morphological attributes of the Tahoe Sierran arrow size shouldered contracting stem forms are more like Rose Spring contracting stem forms than the Gunther series. In fact, what has passed for Gunther on the eastern Sierran front (Zeier and Elston 1986) is now classified as Rose Spring series, and as small stemmed points, all along the eastern Sierran Nevada/Cascade front (Delacorte 1997). Hence, the Rose Spring series is used here to classify arrow size corner-notched and contracting stem point forms that lack the typical barbed shoulders and other distinctive attributes of the western Sierran Gunther series. Projectile point types used in the Tahoe Sierra as temporal indicators of Eastern Sierra Front Chronology are listed in Table 1.

LAND USE

Basic issues of site structure and assemblage diversity are interpretable within the contexts of subsistence activities and site function, as a reflection of larger land-use settlement patterns (e.g., seasonal mobility). Questions about site activities, resource availability, foods, food processing and seasonality are key issues, designed to provide the archaeological foundation for addressing temporal and spatial associations of the local land-use patterns as well as for addressing the connections between Donner Lake land use and the larger Tahoe Sierra. In this way, land-use issues addressed by inquiry at the Donner Lake site plugs into the bigger picture of region-wide settlement and subsistence (Lindström et al. 2002). Attention is also given to subsistence and demographic shifts, and their correlation with environment and other archaeological patterns.

The Donner Lake/Truckee River vicinity is archaeologically rich, with a high density and diversity of site types (Elston et al. 1977). Site types include residential complexes, probable fishing camps, milling stations, lithic reduction workshops and quarries. Together these sites suggest a diversity of settlement and subsistence activities occurred across the landscape.

The current investigations at CA-NEV-13/H, Locus F and Locus G, comprise a small part of a large complex site. Nevertheless, this area sits in spatial and temporal association with other CA-NEV-13/H loci, as well as with other similar age occupation and task sites located throughout the Donner Lake vicinity and along the Truckee River. Hence, the prehistoric settlement at Donner Lake probably held a central place in the larger picture of Donner Lake and Truckee River land use.

LITHIC TECHNOLOGY

Lithic technology research at Donner Lake is primarily concerned with flaked stone. Flaked stone technology is studied to interpret the use of flaked stone within multiple and interconnected systems of toolstone procurement, tool manufacture, tool use, maintenance, reuse, discard and scavenging reuse. Technological systems reflect adaptations to subsistence needs, as well as toolstone availability. Therefore, flaked stone technology evident at a place crosscuts multiple research domains by reflecting adaptation in settlement, subsistence, toolstone procurement and general land-use patterns.

Biface technology was generally predominant throughout the Tahoe Sierra, with an intensification of large biface production during the Middle Archaic. The large percussion bifaces were used as reliable multipurpose tools, as well as serving as flake cores. Core reduction technology was primarily used to produce large flakes, which in turn were used to manufacture bifacial tools and flake tools. The emphasis on percussion bifacing persisted until the end of the Middle/Late Archaic transition, when the production of large bifaces was partially replaced by greater emphasis on a small core/flake technology and the use of small bifaces. Percussion reduction decreased in favor of using primarily pressure reduction.

To a certain extent, the technological shift from biface technology to core/flake technology coincides with the advent of the bow and arrow at the Middle/Late Archaic transition. At that time, atlatl long darts tipped with large projectile points were replaced by arrows tipped with small projectile points. Projectile point manufacture gradually shifted from using percussion and pressure reduced biface preforms to using primarily pressure reduced flake blank preforms (Ataman and Drews 1992:206; Ataman et al. 1999:7–11; Moore 1992:B31–B36). This technological shift in point manufacture reflects the change from a biface based technology to a flake/core technology.

The distinction between Middle Archaic and Late Archaic flaked stone toolkits is a shift from using larger dart size atlatl projectile points, large bifaces and large retouched flake tools, to using small arrow points, smaller bifaces, and probably flake tools with little or no retouch. Toolstone use also changed during the Middle/Late Archaic transition. Basalt was the primary toolstone used during the Middle Archaic, with a moderate use of obsidian and little use of chert and the other cryptocrystalline silicates. Chert was often used only to manufacture large retouched flake tools. In Late Archaic assemblages, chert usually predominates and obsidian is secondary.

Tool manufacture is the most basic issue addressed by technological analyses of flaked stone assemblages. The goal is to interpret flaked stone tool use within the systems of tool manufacture, known as reduction trajectories. Biface, core and flake blank reduction trajectories for basalt, obsidian and cryptocrystalline silicates have recently been outlined for Tahoe Sierra assemblages (Ataman et al. 1999; Bloomer et al. 1997). These trajectories are applicable to comparative studies throughout the Tahoe Sierra, but were likely varied across the region and through time. Describing the technological character of the local assemblages places them within the regional systems of toolstone use to provide a foundation for modeling procurement, manufacture and transport.

Technological data sets and interpretive discussions serve as a basis for assemblage comparisons across the Tahoe Sierra to facilitate future discussions about the role of local tool manufacture and subsistence activities within regional land-use and settlement patterns. Fundamental questions address the kinds of toolstone used, the forms of imported toolstone, the kinds of tools made and their manufacture trajectories. Broader analyses look at intrasite temporal and spatial variability, correlations with environmental and cultural changes, and the patterns of toolstone procurement and tool manufacture across the region. To fully realize the research potential of lithic studies, it is necessary to combine technological analyses with geochemical basalt and obsidian source analyses, thereby providing distribution data for procurement patterns, reduction strategies, tool use and tool use-life.

TOOLSTONE PROCUREMENT

The study of the patterns of local and regional toolstone acquisition is an important aspect of flaked stone technology and Tahoe Sierra prehistory. These patterns are revealed by the ability to detect a distinctive geochemical signature and thereby determine the original geological source of basalt and obsidian using XRF analysis. An analysis of lithic raw material distribution and use provides clues as to how toolstone was moved over the landscape and addresses larger issues concerning settlement dynamics, population movement and/or resource movement via prehistoric travel and trade. Toolstone selection has varied through time and is considered to have been affected by technological requirements and restricted access to previously available materials, with an increased reliance on local materials and scavenging as the availability of exotic materials decreased.

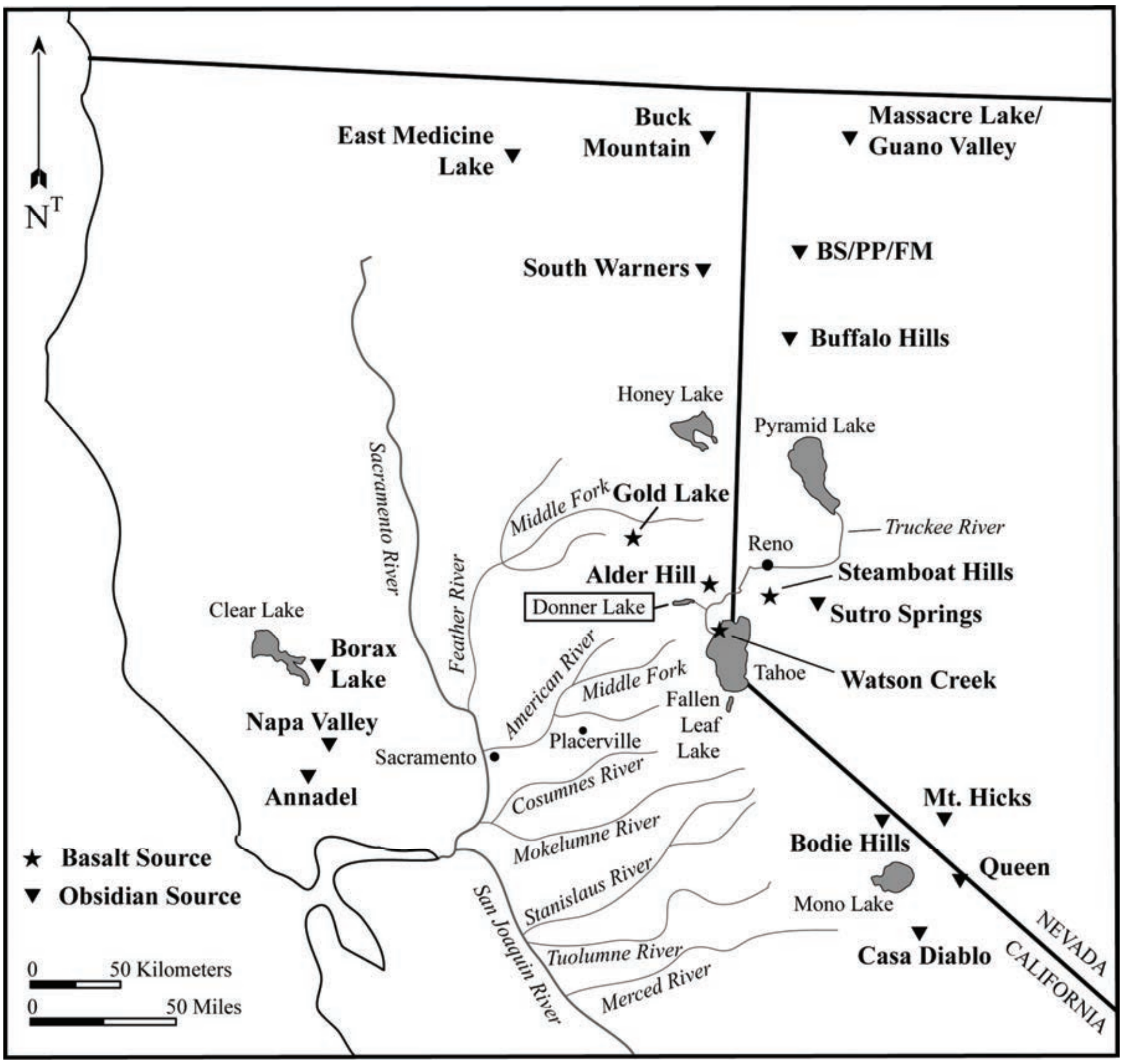

Figure 7. Basalt and Obsidian Source Locations.

Sourcing studies identify the kinds of basalt and obsidian being transported to Donner Lake and, therefore, the directionality of transport. This data leads to interpretations of land-use patterns and the spatial interaction sphere for Donner Lake inhabitants. The form of the transported basalt and obsidian is important in assessing how procurement was organized as part of the land-use strategy. The presence of only projectile points from a specific distant source might suggest exchange, while cores, early stage bifaces and manufacture debitage indicate procurement and processing were conducted as part of regularized land use.

A comprehensive overview of north Sierran basalt quarry and source studies is presented in a report of investigations at the Watson Creek basalt quarry (Bloomer et al. 1997), located approximately ten miles southeast of Donner Lake. Seventeen quarries and five geologic sources have been recorded in the northern Sierra (Bloomer et al. 1997:Map I-3). Those 17 quarries represent 14 distinct chemical groups. Five primary basalt sources occur at varying distances from Donner Lake, including Alder Hill, Sawtooth Ridge, Watson Creek, Steamboat Hills and Gold Lake (see Figure 7).

Obsidian across the Tahoe Sierra came primarily from Bodie Hills, approximately 100 miles southeast of Donner Lake. Numerous other sources occur at equally distant locations around the Bodie Hills vicinity, in northwestern Nevada and northeastern California, and west to the Napa/Clear Lake region (see Figure 7). Obsidian frequencies of the lesser sources vary across the Tahoe Sierra, relative to the varying distances from those sources (Markley and Day 1992).

Chapter 5: Methods

Methods used to effectively and efficiently assess the research potential and eligibility of resources within Locus F and Locus G included a combination of professional field personnel, archaeological fieldwork, geomorphology and artifact analyses. Laboratory artifact processing and obsidian and basalt studies are also discussed.

FIELD PERSONNEL

The foundation of the field crew was provided by Furlong Archaeological Consulting and consisted of co-principle investigator/field directors William Bloomer (Lithic Arts) and Jim Nelson (Furlong Archaeological Consulting). Furlong also contracted with Jerry Doty and Oliver Patsch to provide technical expertise in excavation and feature recordation. In addition, State Parks cultural resources staff, working part time, included Denise Jaffke, Scott Green, Kathie Lindahl and Kelly Long. Todd Jaffke volunteered a full day of excavation talent.

Lynda Shoshone served as the Native American consultant to provide coordination with the Washoe Tribe.

Visitors included John Foster (Parks), Jeff Rosenthal (Far Western Anthropological Research, Inc.) and Henry Davis.

ARCHAEOLOGICAL FIELDWORK

Archaeological test investigations at CA-NEV-13/H, Locus F and Locus G, were completed in 11 days, from September 18 to September 28, 2005. Field methods were based in part on the results of previous CA-NEV-13/H investigations conducted at Locus F/G (Bloomer and Lindström 2006a; Jaffke 2005), as well as in the vicinity of Locus E (Riddell 1980) and on the edge of Locus B (Green and Solis 2005). The number and sizes of surface and subsurface units excavated during fieldwork were tailored to most efficiently and effectively investigate archaeological deposits. In total, 46 sample units were excavated to varying depths for an excavated volume totaling 13.85 cubic meters (Table 3; Figure 8 and Figure 9).

Surface Investigations

Surface investigations within Locus F and Locus G began with a pedestrian surface survey, walking within two-to-five-meter-wide transects back and forth across the loci. All surface artifacts were pin-flagged. Surface

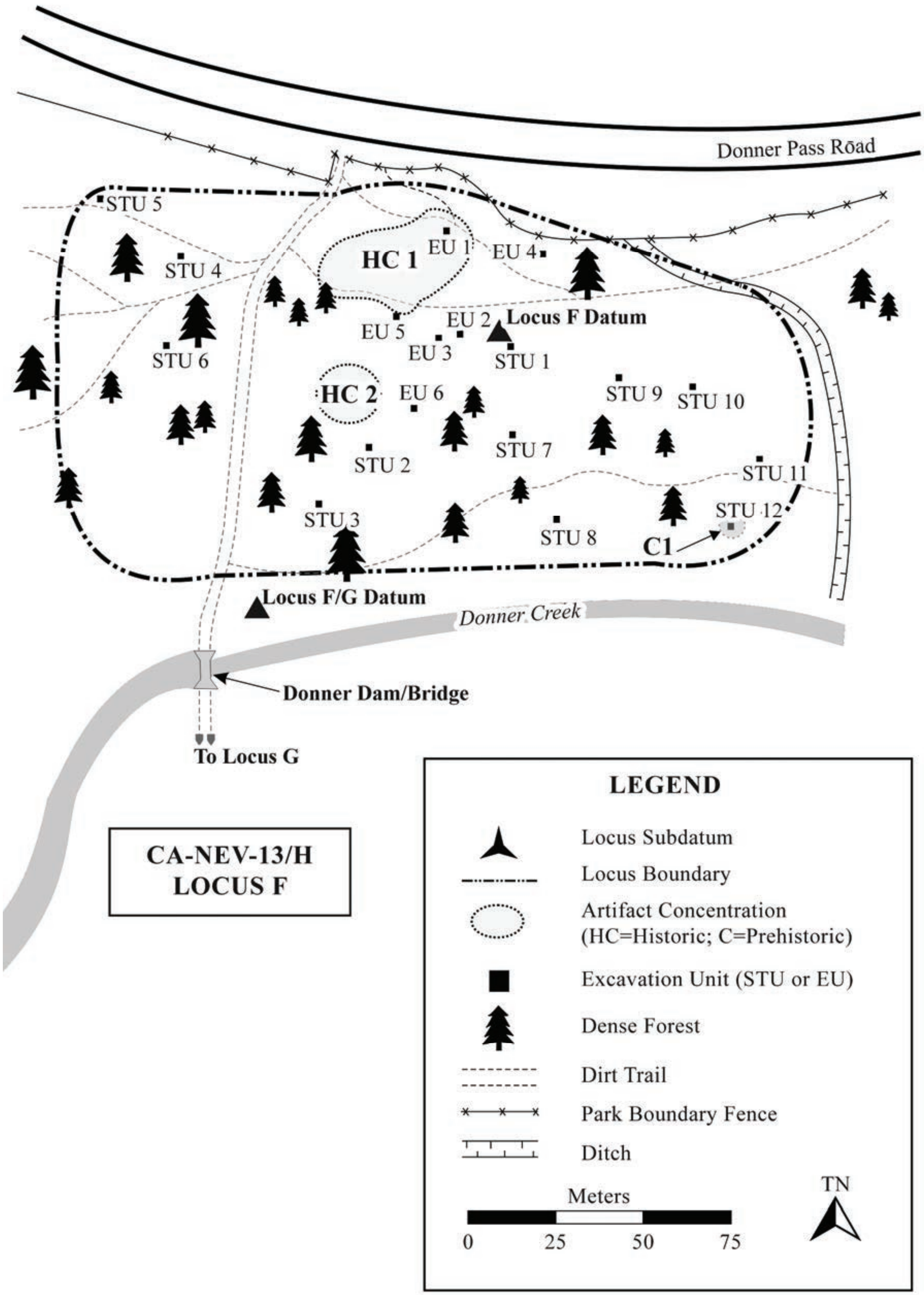

Figure 8. Locus F Map Depicting Excavation Units.

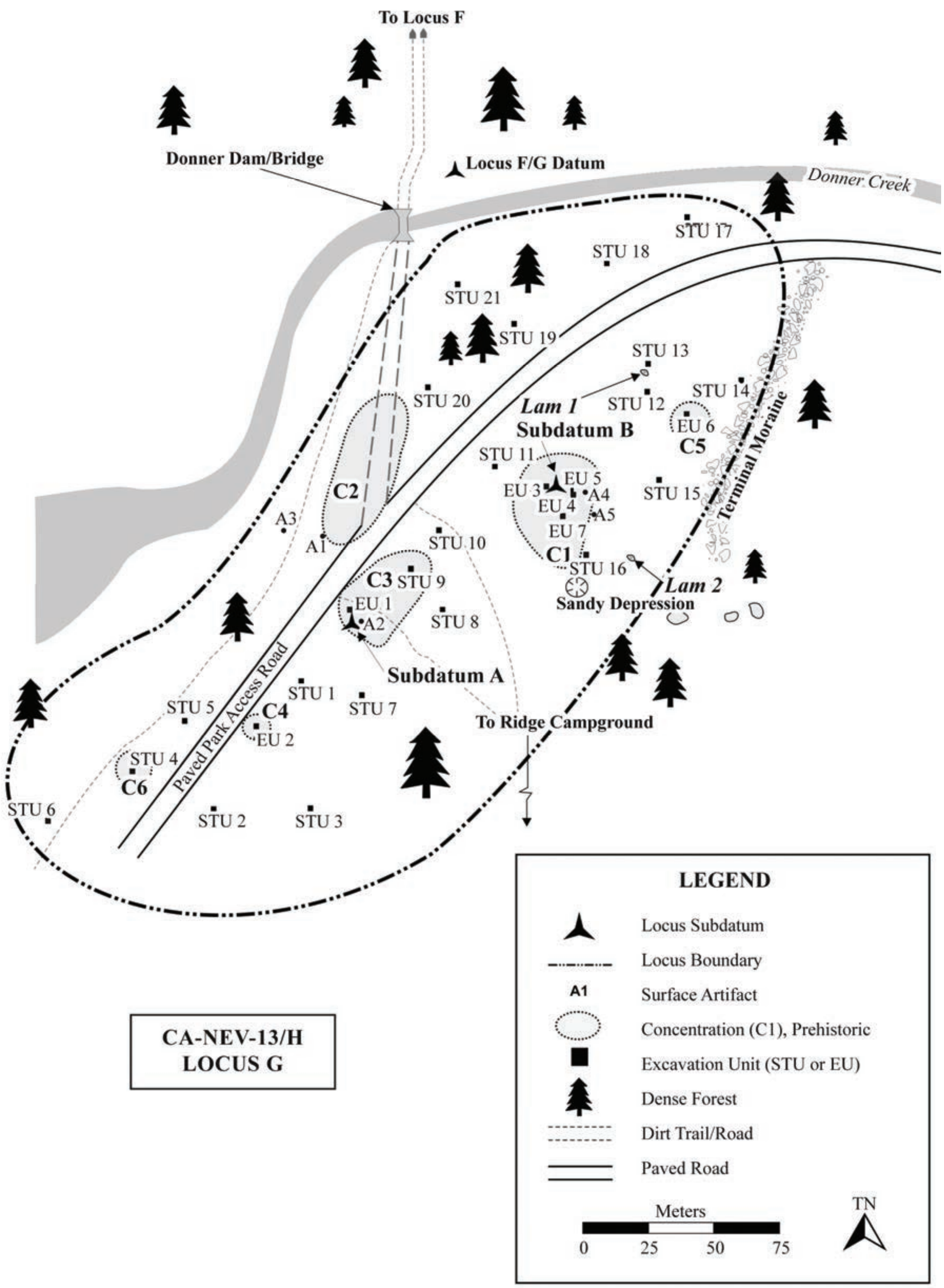

Figure 9. Locus G Map Depicting Excavation Units.

artifact distributions were mapped and tools were collected. Two surface concentrations of historic artifacts (Historic Concentration [HC] 1 and HC2) were defined in Locus F. Five surface concentrations of prehistoric artifacts (C1–C5) were defined within Locus G.

Surface investigations continued with the excavation of 33 1-x-1-meter, 10-centimeter-deep surface test units (STU; Table 3), placed in areas of high and low artifact density (see Figure 8 and Figure 9) to investigate and document surface artifact densities and diversity. Surface artifact distributions represent site structure and typically reflect subsurface artifact distributions in granitic sandy silt forest sediments. Prehistoric artifact concentrations C1 in Locus F and C6 in Locus G were defined based on the high number of artifacts discovered during STU excavations, below thick duff. STU 2 in Locus G was excavated to 20 centimeters deep because of thick decomposed organics above mineral soil in the 0–10-centimeter excavation level.

Table 3. Surface and Subsurface Excavation Unit Types, Sizes and Volumes.

UNIT TYPE	UNIT SIZE (M)	NUMBER	SCREEN MESH (-INCH)	VOLUME (M^3)
LOCUS F				
STU	1x1	12	¼	1.2
EU	1x1	6	¼	5.4
Subtotal	-	18	-	6.6
LOCUS G				
STU	1x1	21	¼	2.2
EU	0.5x1	1		0.55
EU	1x1	6	¼	4.5
Subtotal	-	28	-	7.25
Total	**-**	**46**	**-**	**13.85**

Subsurface Investigations

Subsurface investigations within Locus F and Locus G targeted high artifact densities. All excavation units (except for Locus G, Excavation Unit 5) were 1 x 1 meters square with excavated sediments sifted through ¼-inch mesh screen.

Locus F

Excavation Unit 1 (EU1) was placed over a high density of historic artifacts (Feature 1) at the northeast end of concentration HC1. This unit was dug to 50 centimeters below surface, exposing a pit feature filled with historic artifacts. EU 5 was placed to sample the south edge of the HC1 concentration. It was excavated to a depth of 100 centimeters, recovering both historic and prehistoric artifacts. EU 2–4 were placed to sample the prehistoric deposit in areas of good surface visibility. Depths ranged from 80 to 110 centimeters. EU 6 was placed to sample between high density areas, below thick forest duff. This unit was excavated to 100 centimeters deep, recovering the highest number of artifacts in Locus F.

Locus G

Excavation units EU1, EU2 and EU 6 were placed to sample small prehistoric artifact concentrations. EU 3, EU4 and EU7 were excavated to maximize the investigation of concentration C1, which appeared to have been a primary activity area with a high potential for important subsurface deposits and features. EU5 was an 0.5-x-1.0-meter unit, excavated as a northern extension of EU4. EU5 sediments were sifted through ⅛-inch screen mesh to maximize the recovery of small size artifacts.

LAM RECORDATION

Lam 1 and *Lam* 2 were recorded in the field by Jerry Doty. Denise Jaffke artistically rendered Jerry's technical field illustrations.

GENERAL FIELD METHODS

All excavation units and surface test units were provenienced at their southwest corners from the Locus sub-datums.

Unit/level records were completed by unit excavators. All prehistoric and historic artifacts recovered in ¼- and ⅛-inch size screen were collected, sorted by artifact type, placed in plastic bags and tagged with the appropriate provenience. All artifacts from a specific unit/level were stored in provenienced paper bags, which were put in archive boxes for transport to the Furlong laboratory in Yankee Hill, California, for processing and cataloging in preparation for analyses.

STUs were backfilled immediately after excavation. All open EUs were covered with plywood when not being excavated. EUs were backfilled at the end of excavation and stratigraphic analysis.

Digital photographs documented excavation unit stratigraphy, cultural strata, features and the general day to day progress of the investigation.

Geomorphology and stratigraphic analysis were conducted in-field in conjunction with subsurface excavations.

LABORATORY COLLECTIONS PROCESSING AND CURATION

All prehistoric and historic artifacts collected were prepared for curation and cataloged according to standards specified by State Parks' Archaeological Collections Research Facility in West Sacramento and in accordance with 36 CFR § 79. The collections are stored under accession number P1443. A comprehensive artifact catalog is presented in Appendix B.

All artifacts were washed with tap water and bagged in 4.0-millimeter sealable plastic bags. With the exception of debitage and bone fragments, each artifact was given a unique catalog number. A label, printed on acid-free paper, was inserted in each bag, indicating the site, accession and catalog numbers, as well as provenience, artifact type, descriptive characteristics, count and weight. The catalog number was written in ink on each diagnostic or formed tool in a discrete location. Artifacts were organized by STU/EU and category (e.g., projectile point, debitage), arranged by accession and catalog numbers and placed in bin boxes. A master catalog with basic fields for each entry, in digital and printed formats, accompanies the collection along with a digital copy of this report. Basic fields for each entry include the accession number, catalog number, locus, unit type and number, provenience (as appropriate), unit size, mesh size, depth, artifact class, artifact type, material, count, weight and comments.

FLAKED STONE ANALYSIS

Technological analyses were conducted for the flaked stone tools and debitage, incorporating a suite of morphological characteristics and technological attributes to study assemblage composition and tool manufacture and maintenance patterns. Results of the flaked stone tool analysis describe the typologically time diagnostic projectile points that serve to support chronological interpretations and a tool assemblage that is a representative expression of site activities. Technological debitage analysis details the kinds of flaked stone tool making and maintenance activities conducted across the site. General methods of flaked stone analysis applied to all tools are described first. Tool type definitions follow, with specific analytical methods for each tool type. Debitage is also defined with a discussion of technological debitage analysis.

General Methods

Analytical data includes *toolstone type*, *condition*, *metric dimensions*, *blank type*, *breakage type*, *extant flaking technique*, and *use wear* with specific comments for each artifact. Additional recorded typological descriptions and morphological attributes are discussed below for each tool type. The analytical data are tabulated for each tool type in Appendix C.

Toolstone type is recorded as basalt (BAS), cryptocrystalline silicate (CCS—including chert, sinter and opalitic wood) and obsidian (OBS). Condition classifies the artifact as a whole specimen, or as one of several fragment types. Condition was recorded as whole (WHL), nearly complete (NCO), proximal (PRX), medial (MED), distal (DST), undifferentiated end (END), lateral margin (LAT), undifferentiated margin (MRG), or undifferentiated fragment (FRG). The recorded metric dimensions include length, width, thickness, and weight.

Blank type describes the form of the unworked piece of toolstone at the beginning of artifact manufacture, and so, is important for understanding toolstone procurement and the initial steps in tool manufacture. Blank types might include cobble, pebble, block, flake, or any of the technologically diagnostic flake types defined below in the discussion of debitage analysis. Indeterminate blanks are worked beyond the point where original blank morphology is visible.

Breakage types often indicate whether an artifact was broken during manufacture or maintenance reduction, use, or as a result of post depositional processes. Unfortunately, general bending fractures are the most common break type. They can result from reduction, use, or post depositional trampling, and so are not diagnostic. Transverse bending fractures, perverse fractures, outrepassé removals, material flaws, and some thermal breaks indicate manufacture failure. Bending fractures are typically flat and perpendicular, caused by tension or compression from impact shock or trampling that bends the artifact beyond its limits. If concentric rings are visible on the break, they emanate from the center of one face. Transverse bending fractures are the same as general bending fractures, except that the concentric rings emanate from one lateral edge indicating that intentional percussion initiated bending. Perverse fractures are spiral or twisting breaks, initiated as a flake removal at the artifact's edge. An outrepassé is an "overshot" flake removal that went too far across the artifact's face, removing the opposite margin. Material flaws are vugs, irregularities or natural fracture planes within the unworked toolstone, which become apparent during reduction. Thermal breaks, such as internal crenulations and curvilinear fractures, result from failed heat treatment during the manufacture process. Thermal breaks, such as pot lids and surface crazing, result from post depositional exposure to direct flame.

Use is sometimes indicated by bending fractures with finial terminations, which extend the fracture scar beyond the bending plane, lipped onto one face of the artifact. This lipped extension is often caused by a forceful impact at the tip of an artifact such as when a projectile point hits a hard object. Burination scars along a lateral edge, or facial, also reflect use impact. General percussion fractures might also reflect use, or failed reduction.

Extant flaking technique concerns the method of flake removal, indicated by the types of negative flake scars apparent on the discarded artifact. Flaking techniques, including percussion, pressure, a combination of percussion and pressure, and bipolar, are recorded to identify reduction patterns that might vary by site area and through time. Sometimes, especially during the finishing stage of biface reduction, pressure flaking can obliterate the evidence of previous percussion reduction. Microflaking typically results from use of an artifact's edge for scraping or cutting. Other use wear along a tool edge is macroscopically evident as micro-step fractures, crushing, rounding, and polish.

Projectile Points

Projectile points are typically bifacial tools with a pointed tip and basal hafting elements, such as notches or a stem, used to attach the point to an arrow or dart shaft. Most points are extensively shaped and well formed, using pressure reduction techniques during final shaping. Point type classifications and chronological interpretations are based on the foundation laid by Elston et al. (1994, 1995a). Metric attributes were recorded as defined by Thomas (1970, 1981). Bifacial tool fragments that might be projectile point parts, such as distal tips and medial sections, were classified as biface fragments.

Bifaces

Bifaces are flaked stone tools that are relatively ovate in shape, but pointed at one or both ends, with lenticular cross-sections at their greatest width. Bifaces differ from projectile points in that they have no distinct hafting elements, such as notches or a stem, for attachment to arrow or dart shafts. Finished bifacial tools are typically well shaped using percussion and/or pressure reduction techniques, which leave flake scars across both faces of the biface.

During manufacture, bifaces go through several technological stages of reduction from initial shaping to the final form. Therefore, bifaces in this collection have been classified by manufacture stage to study tool production. In addition, each biface is recorded as to whether or not it was discarded as a manufacture failure.

Biface stage classifications follow a five stage adaptation (Bloomer et al. 1997:Appendix H) of Callahan's (1979) more comprehensive stage classification system. In brief, stage categories are based on percussion and pressure flake scar patterning, which reflects the extent of reduction through the continuum of biface manufacture. Completeness of shape is also a variable, in that the shape becomes refined through manufacture from an irregular flake blank to a symmetrical and straight edged final form. At any point along the reduction continuum, a biface might have been used as a tool, with subsequent reduction directed towards continued manufacture or maintenance.

Stage 1 bifaces are essentially flake blanks showing only minimal reduction, which served to remove large irregularities. Stage 2 bifaces have undergone initial shaping and edge preparation to make a bifacial edge for further reduction and thinning. Initial biface thinning and shape regularization occurs during stage 3. Stage 4 bifaces show secondary thinning and are typically well shaped. Final shaping occurs during stage 5, usually with pressure reduction. Small fragments of extensively well shaped bifacial tools are often classified as stage 5. Small fragments with less distinct reduction attributes are classified as general early stage (stages 1–3) or general late stage (stages 3–5).

Drills

Drills have a unique morphology, consisting of a long or short and narrowly constricted well shaped bit, used to bore a hole or perforate. The bit cross-section is typically thick. Although, in this collection the drills are flakes with small, wide and flat projections. The drill base is typically broader, shaped or unshaped, for holding or hafting. Morphological attributes specifically recorded for the drills include bit modification, bit cross-section shape and base modification.

Unifaces

Unifaces are intentionally flaked and sometimes extensively shaped so that original flake blank morphology is obscured. Unifaces typically have well shaped steeply angled unifacial use edges. Attributes recorded for unifaces include number of modified edges and primary edge shape.

Flake Tools

Flake tools are reduction flakes, which have been intentionally modified by percussion or pressure to manufacture a use edge, as well as flakes with less invasive edge modifications that could have been produced directly by use. Attributes recorded specifically for flake tools include number of modified edges, primary modification and primary edge shape.

Edge Modified Flakes

Edge modified flakes (EMF) are reduction flakes, which have been intentionally modified by percussion or pressure, but show no apparent use wear. Therefore, EMFs might be flake tools, but are more often tool manufacture failures. Attributes recorded specifically for EMFs include number of modified edges, primary modification and primary edge shape.

Cores

Cores are masses of toolstone from which usable flakes were removed by percussion. Core type was recorded as multi-directional, bifacial, unidirectional or bipolar. Each type describes the flake scar patterning that reflects the technique used for producing flakes. Bipolar cores were struck while resting on an anvil, removing thin straight flakes from opposite directions at the same time.

Debitage

Debitage is the waste flakes produced by percussion and pressure reduction techniques during flaked stone tool manufacture. A technological analysis of the debitage was conducted to characterize the predominant flaked stone reduction patterns. The assumption behind technological analysis is that distinct reduction activities produce distinct debitage assemblages. The reduction technology evident for any given debitage assemblage is characterized by the variable proportions of the diagnostic flake types. Core reduction and the initial reduction of flake blanks produce high percentages of cortical flakes and interior flakes, with only a low frequency of edge preparation flakes and no biface thinning flakes or pressure flakes. Biface reduction, through the entire continuum of early (stage 2 and 3) to late stages (3 and 4) and pressure flaking (stage 5), results in a relatively even representation of each flake type. An assemblage primarily composed of late stage biface reduction debris will be dominated by late stage biface thinning flakes and pressure flakes, evincing only small frequencies of cortical flakes, interior flakes, edge preparation flakes and early biface thinning flakes. When thin flake blanks are pressure flaked, with little or no initial percussion thinning, early pressure flakes are conspicuous in the assemblage. In this case, pressure flakes, including early and late pressure flakes, will comprise a large part of the debitage assemblage.

In addition, the extent of reduction through the core and biface reduction continuums indicates the kinds of tools that were made. Core reduction generally produced flakes for flake tools. Core reduction flakes also became flake blanks for bifacial tool manufacture. Biface reduction of a flake blank is the process of making bifacial edges and shaping bifacial forms. The biface goes through successive stages of reduction to produce a well shaped relatively symmetrical and lenticular finished form. The further along the biface reduction continuum, the better shaped is the bifacial tool.

Twelve flake type categories are considered technologically diagnostic in this analysis. That is, the relative proportions of these flake types provide clues to the techniques and stages of tool manufacture, and to the kinds of tools being made. The diagnostic flake types include: cortical, simple interior, simple interior/complex platform, complex interior, complex interior/simple platform, edge preparation, early biface thinning, late biface thinning, early pressure, late pressure, notching pressure and bipolar. Five other flake type categories are considered non-diagnostic. The non-diagnostic flake types include platform preparation/pressure, simple fragment, complex fragment, cortical fragment and shatter.

Flake Types

Cortical – a flake with cortex, generally covering over 25% of its dorsal surface. Other flake types with small amounts of cortex, such as biface thinning flakes, are not classified as cortical flakes.

Simple Interior – a non-cortical flake with three or fewer negative flake scars on its dorsal surface, not counting platform preparation scars. Negative flake scar patterning on the dorsal surface is typically linear along the axis of the flake. Simple, single-facet platforms are typical.

Simple Interior/Complex Platform – same as for a simple interior flake, but the platform is complex with multiple facets.

Complex Interior – a non-cortical flake with three or more negative flake scars on its dorsal surface, not counting platform preparation scars. Negative flake scar patterning on the dorsal surface is not typically linear along the axis of the flake, but shows a complexity of scars emanating from various and opposing directions. Platforms are usually complex with multiple facets.

Complex Interior/Simple Platform – same as for a complex interior flake, but the platform is simple, usually with a single facet.

Edge Preparation – a group of several distinct flake types, which result from shaping an unworked edge of a flake blank. These flakes include *edge preparation flakes*, which are wider than they are long, with pronounced bulbs of percussion and large dorsal areas with few or no negative flake scars; *bulb removal flakes*, which retain a remnant of the flake blank's ventral bulb of percussion; and *alternate flakes*, which are wider than long, and wedge shaped, resulting from the reduction of a thick square edge.

Early Biface Thinning – an often slightly curved flake with a simple or complex bifacial platform and a few dorsal flake scars which emanate generally from the flake's platform.

Late Biface Thinning – a curved or flat flake with a bifacial platform and multiple dorsal flake scars, which may reveal a complex pattern of previous flake removals. Typical late stage thinning flakes retain partial dorsal scars showing previous flake removals from the opposite edge of the biface.

Early Pressure – the first pressure flakes removed from a flake blank or early stage biface show few to no dorsal flake scars, depending on the morphology of the worked surface. Platforms may be perpendicular or oblique to the longitudinal axis of the flake. Shapes vary from wide and short to long and narrow.

Late Pressure – late pressure flakes have a complex dorsal surface, and platforms are typically oblique to the longitudinal axis of the flake. Shapes are most often long and narrow, and either straight or doglegged.

Notching Pressure – notching flakes result from notching a projectile point. Notching flakes are fan shaped, short and round, with the platform set into a depression.

Bipolar – bipolar flakes are a result of percussion from opposite directions at the same time, typically from placing the toolstone mass on an anvil and then down striking with a hard hammerstone from above. Flake attributes include crushing at opposite ends, with distinct cones of percussion and straight ventral and dorsal surfaces.

Platform Preparation/Pressure – platform preparation flakes typically result from the light percussion of a bifacial edge to prepare a flake detachment platform. Pressure flakes are often indistinguishable from light percussion platform preparation flakes, and so this category subsumes less distinctive flakes, which may have resulted from pressure reduction.

Simple Fragments–typically fragments of simple interior flakes.

Complex Fragments–typically fragments of complex interior flakes, biface thinning flakes, pressure flakes and platform preparation/pressure flakes.

Cortical Fragments – fragments of cortical flakes.

Shatter – angular fragments of toolstone without typical flake attributes. Shatter includes fragments and potlids from unintentional thermal alteration.

Flake Size

All debitage was size sorted for technological analysis. Size grades include 1, ½, ¼, and ⅛ inch. These size grades represent the screen mesh size that will hold the debitage.

Groundstone

Descriptive analyses were conducted for the groundstone artifacts and features, i.e., *itdemge* (portable millingslabs) and *lam* (bedrock milling features). Analytical data includes toolstone type, condition and metric dimensions with specific comments for each artifact and feature. Recorded morphological and use attributes are discussed below for each tool type. The analytical data are tabulated for each tool type in Appendix C.

Toolstone type is recorded as granite (GRN). Condition classifies the artifact as a whole specimen, or as one of several fragment types. Condition was recorded as whole (WHL), nearly complete (NCO), proximal (PRX), medial (MED), distal (DST), undifferentiated end (END), lateral margin (LAT), undifferentiated margin (MRG) or undifferentiated fragment (FRG). The recorded metric dimensions include length, width, thickness and weight.

***Lam* (Bedrock Milling Stations)**

Lam are permanent bedrock milling stations. Recorded morphological and use attributes include boulder dimensions, use surface dimensions, use surface shape and wear texture, and whether or not pecking and striations are present.

Itdemge (Portable Millingstone)

Itdemge are typically movable boulders or tabular slabs used as a grinding surface with *gamum* (handstone) to grind seeds to flour. *Itdemge* (milling slabs) are characterized by smooth polished grinding surfaces. Recorded attributes include type, presence of shaping, wear texture, use area shape, use area depth and whether or not pecking, striations and pigment are present.

Faunal Analysis

The faunal bone collection was analyzed and reported by Denise Furlong of Furlong Archaeological Consulting. Analytical data (Appendix C) includes taxonomic names (scientific and common), anatomical part, portion and side, age/fusion, natural modifications, cultural modifications, other modifications, evidence of burning, count and comments.

All of the faunal material was first sorted into identifiable bone elements and fragmentary bone categories. Following the initial sorting, each specimen was classified to element, portion of element, side and taxon. In addition, cultural modifications (e.g., degree of burning, cut marks, polishing) and natural modifications (e.g., rodent and carnivore gnawing, root etching, weathering) were recorded when observed. A faunal specimen was considered unidentifiable if it could not be identified to the ordinal level. The faunal assemblage was quantified using numbers of identified specimens (NISP). Attempts were made to identify specimens to the most specific taxonomic level possible. Those specimens assigned to the class level were further divided into size categories (e.g., large mammal).

HISTORIC ARTIFACTS

Historic artifact analysis was conducted by Denise Jaffke, Parks Sierra District Associate State Archaeologist. Denise looked at all the historic artifacts, adding descriptive notes to the catalog comments column. In addition, manufacturer, date range and reference information was added to catalog data columns for diagnostic artifacts. Denise's descriptions are the foundation for the descriptive text and tables in the Historic Artifact section of this report.

OBSIDIAN AND BASALT STUDIES

Forty-three obsidian tools and debitage were submitted to Northwest Research Obsidian Studies Laboratory for hydration analysis, with 28 subjected to geochemical source analysis using XRF analysis. Twenty-seven basalt artifacts were also submitted to Northwest Research for geochemical analysis. Northwest Research Obsidian Studies Laboratory Report 2006-99, including analytical tables, is presented in Appendix D.

RADIOCARBON ANALYSIS

One charcoal sample from Locus G was submitted to Beta Analytic, Inc. for standard radiocarbon (14C) analysis. The Beta Analytic report, including analytical tables, is presented in Appendix F.

Chapter 6: Excavation Results

Results of the test investigation present a comprehensive archaeological study of the Locus F and Locus G deposits. Donner Lake outlet geomorphology and stratigraphy are discussed up front to set the landscape for discussions of site structure and assemblage diversity. The artifacts are then described in detail to highlight the data sets that are the foundation for research discussions and interpretive conclusions.

Donner Lake Outlet Geomorphology and Stratigraphy

(Adapted from D. Craig Young's contribution to Archaeological Data Recovery Investigations at Donner Dam, Bloomer and Lindström 2006a.)

Donner Lake occupies a glacial trough formed through a series of Plio-Pleistocene glacial advances and retreats. Landforms of the latest glacial cycle, the Tioga glaciation (Birkeland 1964) of the late Pleistocene, are preserved in the valley bottom and impound surface waters of the lake. In addition to ground and marginal moraines preserved near the valley's terminus at Highway 89 and the Truckee River, there are five distinct recessional moraines that influence drainage of surface water from the lake (Figure 10). The moraines mark pauses during general glacial retreat (Tioga-phase recession) between about 18,000 and 12,000 years ago; the moraines are younger from east to west. As moraines form during retreat, outwash channels maintain drainage through the moraines so that moraines rarely produce complete natural dams. Eventually outwash cannot remove glacial debris and a lake fills the void left by the retreating ice. Outwash channels of the Donner glacier extended along the north side of the glacial trough, the outwash path is marked by the north-side truncation of each moraine. Post-glacial drainage from Donner Lake (i.e., Donner Creek) followed a similar course along the northern margin of the valley.

Donner Creek, in its modern configuration, cuts through four moraines on its short reach before joining the Truckee River. Sites are often preserved and have surface exposure along moraine ridges, but they may also be buried in the swales that separate individual moraines. Locus F and Locus G occupy outwash landforms and the north end of a low north-south oriented recessional moraine (moraine 3a, Figure 10) at the east end of Donner Lake. The artifact concentrations at Locus F and Locus G indicate that the portions of the outwash landform adjacent to the modern channel of Donner Creek

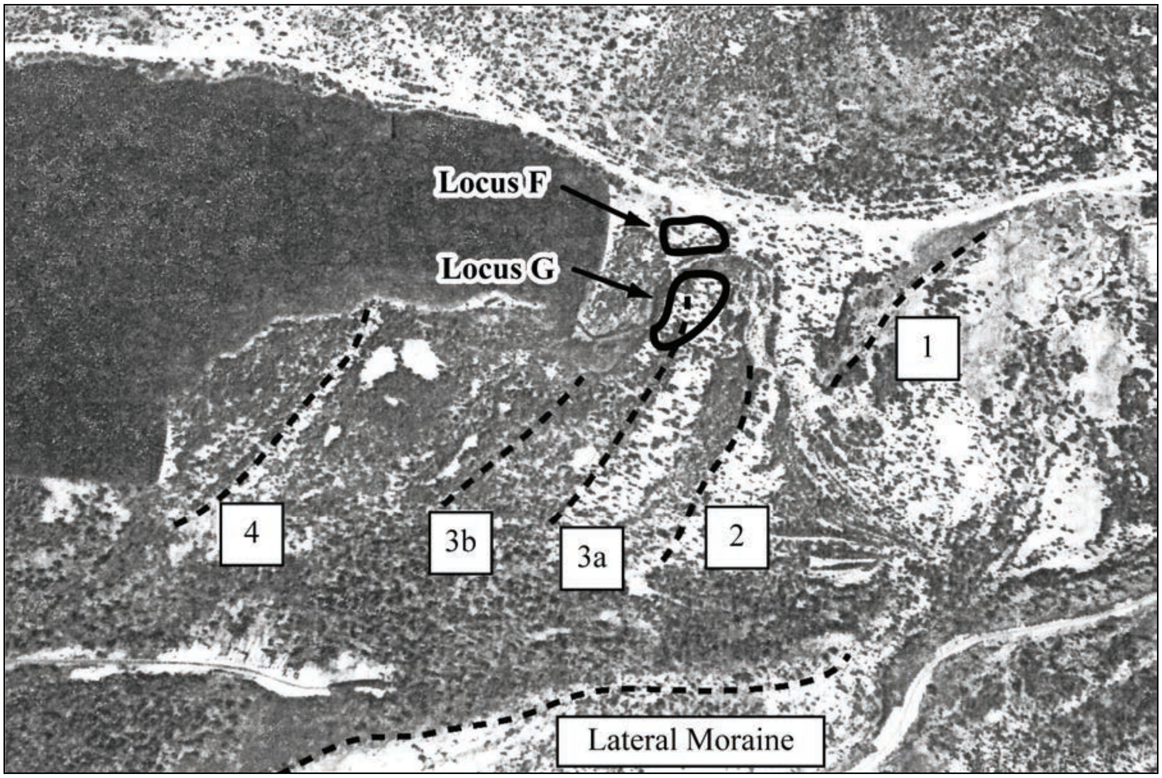

Figure 10. Donner Lake Recessional Moraines (1, 2, 3a, 3b and 4)
and a Lateral Moraine (1939 aerial photo).

retain good archaeological integrity, even though prehistoric and historic-era lake highstands and subsequent floods have inundated the area.

Stream flow in Donner Creek is controlled by outflow from the lake basin. During the Holocene, the elevation of Donner Lake has fluctuated dramatically. Lindström (1997:266) reports submerged trees on the northern margin of the lake at approximately 10 meters below the lake's modern spill elevation. The now-submerged stumps have been radiocarbon dated to approximately 500 years ago. These dates, along with dated, submerged stumps in Independence Lake from 670 years ago, provide evidence for relatively prolonged drought beginning sometime prior to 700 years ago (Lindström 1997).

Corresponding to the late drought of the Medieval Climatic Anomaly (Stine 1990), this regional drought would have shifted the local mosaic of lake and stream resource productivity. It is likely that a small tarn (i.e., glacial lake) remained in the Donner basin even during the most persistent droughts of the middle and late Holocene. Although isolated from the lake basin, Donner Creek would have risen downstream of the modern outlet as groundwater passed through the unconsolidated sediments of glacial outwash. However, productive fish runs would have been cut off during times when Donner Lake was disconnected from the Truckee system. On the other hand, as the lake receded from the steep valley walls marshlands may have colonized the exposed lake bed.

STRATIGRAPHY

Soil depth and the archaeological deposit at Locus F are moderately deep, extending to100 centimeters below surface in EU 5 and 110 centimeters in EU 2. Four strata that comprise the stratigraphic profile are best illustrated in EU 5 (Figure 11 and Figure 12). The surface soil (Stratum I) is a thin lens of loose dark grayish brown organic rich silty loam with low amounts of sand and gravels. Stratum II, extending from approximately 10 to 50 centimeters below surface, is similar to Stratum I, but more consolidated. The majority of the subsurface artifacts (primarily debitage) were recovered from Stratum II. A distinct change in the subsurface sediments begins in Stratum III. Here, from approximately 50 to 90 centimeters below surface, the amount of sand increases with a concomitant decrease in silt and organics. Sediment color changes to a yellowish brown. Pebbles and cobbles are common. Artifacts in Stratum III (including a high frequency of the tools) were likely mixed down from Stratum II by rodent activity. Stratum IV is yellowish glacial sand that overlays probably multiple lenses of glacial outwash sand and gravels, which are the result of cyclical glacial advances and retreats that affected the Donner landscape (Bloomer and Lindström 2006a:Figure 4).

The Locus G archaeological deposit is primarily contained in a soil package similar to that at Locus F. This is especially true on the relatively flat terrace landform represented by the stratigraphic profiles of EU 1 and EU 2 (Appendix E). The most obvious distinction here is that Stratum IV rises higher in the profile than at Locus F, restricting Stratum III within a slightly thinner band. In addition, the profile for EU 1 provides a glimpse of the decomposing granite substrate (Stratum V) at the very bottom of the archaeological deposit.

Probably the most distinctive subsurface profile within Locus G was exposed in EU 7. EU 7 is situated on a slightly higher landform, essentially an open surface amongst large glacial boulders at the edge of a raised terrace. Stratum I, the typical thin lens of organic rich sediments, does not exist in this profile. Instead, EU 7 stratigraphy begins with Stratum II (Figure 13 and Figure 14), approximately 30 centimeters of very dark gray fine silt with small pebbles. A sediment change occurs in Stratum III as the very dark grayish brown silt becomes increasingly fine and the gravels decrease. A piece of burnt wood lying at 30 centimeters suggests the transitional boundary marks a living surface, probably occupied consistently over a significant time span. This suggestion is supported by the fact that a distinctly diverse and artifact rich tool assemblage was recovered from Stratum III between 40 and 70 centimeters below surface. The artifact assemblage was primarily distinguished by the presence of three *itdemge*. Charcoal collected from below a rock at approximately 50 centimeters below surface was submitted to Beta Analytic for radiocarbon dating. This 14C sample returned a 2300 BP conventional radiocarbon age (Appendix F). Hydration data from the only two obsidian artifacts (debitage) recovered from Stratum III, the only obsidian from the entire EU 7 excavation, returned 5.9 and 4.8 micron values. The radiocarbon date, hydration data and stratigraphy indicate Stratum III holds a buried and relatively intact 5,600 to 2,300 year old artifact assemblage.

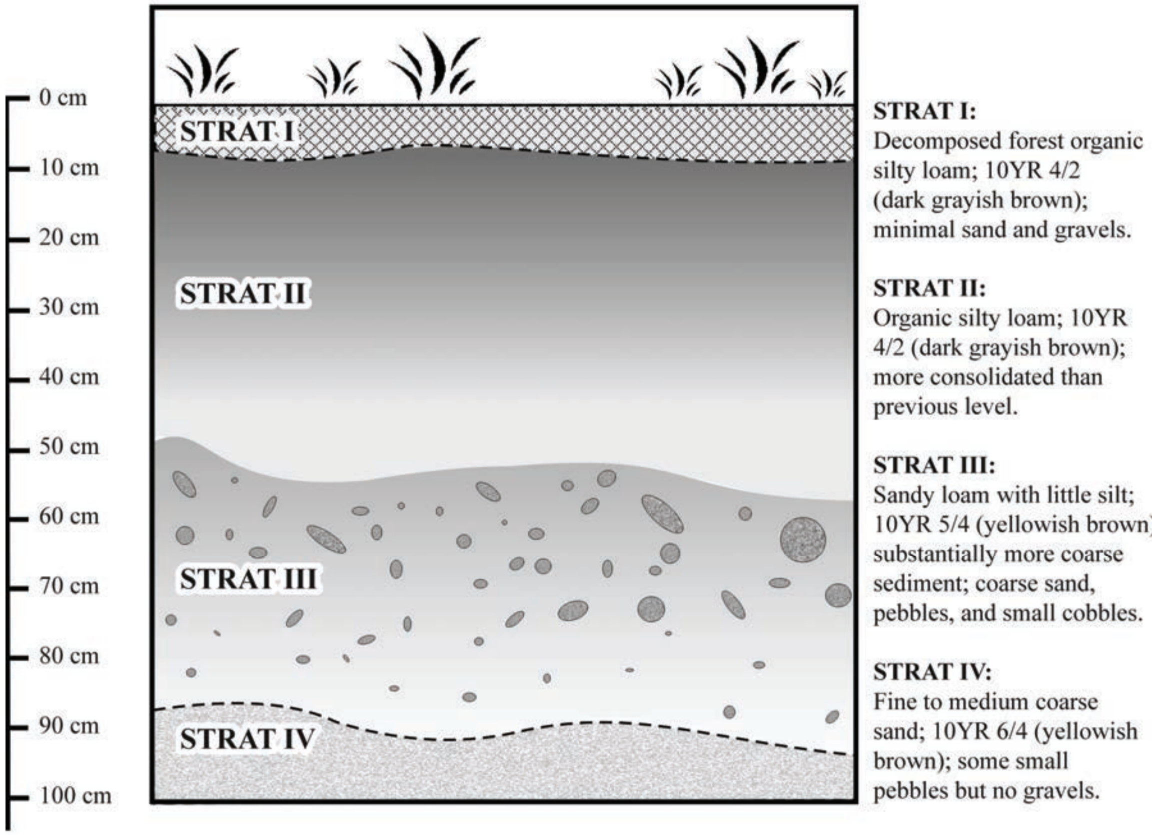

Figure 11. Locus F, EU 5 North Wall Subsurface Stratigraphy.

Figure 12. Locus F, EU 5 North Wall.

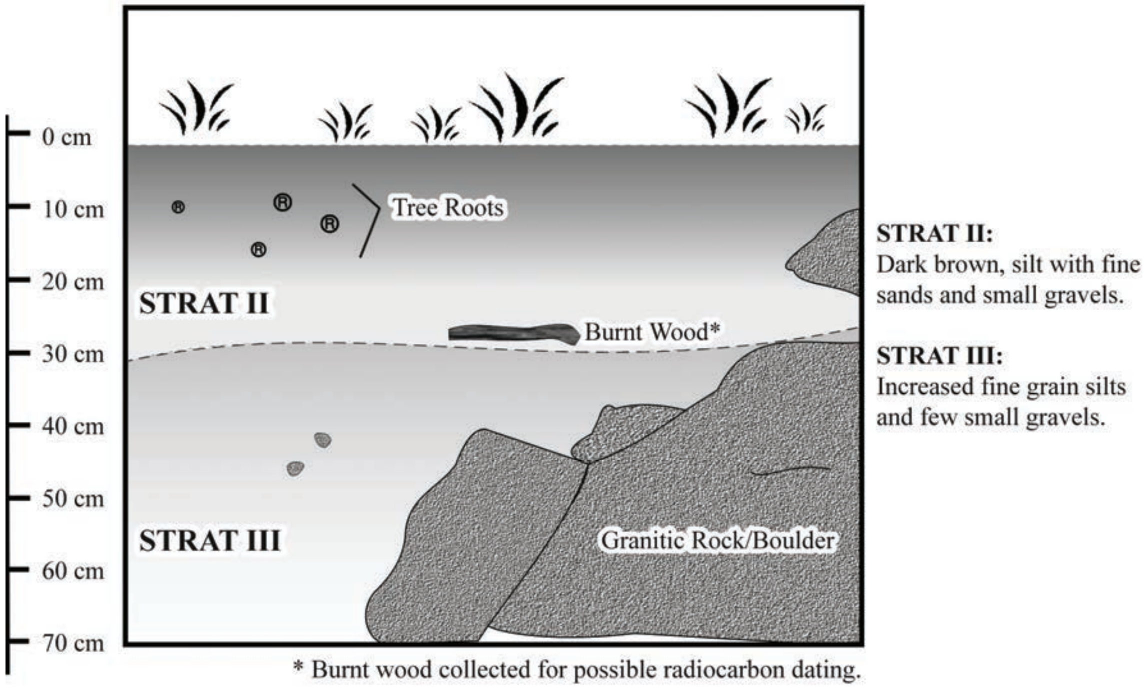

Figure 13. Locus G, EU 7 North Wall Subsurface Stratigraphy.

Figure 14. Locus G, EU 7 North Wall.

SITE STRUCTURE AND ASSEMBLAGE DIVERSITY

Surface investigations at Locus F and Locus G have significantly increased their area dimensions, compared to earlier recordings (Brooke 2005; Gilbert et al. 2001; Schwaderer et al. 1987), essentially encompassing larger portions of their respective landforms. Variable artifact frequencies across each locus indicate at least one prehistoric artifact concentration within Locus F and six prehistoric artifact concentrations within Locus G (see Figure 8 and Figure 9). In addition, two historic artifact concentrations are present within Locus F.

The prehistoric artifact assemblages recovered from excavations at Locus F and Locus G (Table 4) contain a diverse array of tools and debitage reflecting multiple and varied activities that represent long term residential occupations. The high frequency of historic artifacts at Locus F primarily represent activities probably associated with the use of various historic structures located in the Locus F vicinity between 1864 and 1890. Locus G historic artifacts represent either the location of a relatively late historic structure, or a historic dump of structural materials. Historic faunal bone associated with the Locus G structural artifacts might also reflect in situ disposal or secondary dumping.

Table 4. Locus F and G Artifact Assemblages.

	LOCUS F	LOCUS G	TOTAL
Excavated Volume	6.6 m³	7.25 m³	13.85 m³
Projectile Points	5	2	7
Bifaces	19	20	39
Drills	1	1	2
Unifaces	2	3	5
Flake Tools	7	4	11
Edge Modified Flakes	2	4	6
Core	-	1	1
Total Flaked Stone Tools	**36**	**35**	**71**
Debitage	2,199	1,984	4,183
Itdemge	-	3	3
Total Ground Stone Tools	**-**	**3**	**3**
Historic Artifacts	1,710	72	1,782
Historic Faunal Bone	396	11	407

Locus F

Surface investigations between Locus F and Locus F/G (see Figure 8) have discovered a continuous distribution of prehistoric artifacts from Locus F to Locus F/G. Therefore, Locus F/G is not a distinct artifact locus. Locus F/G is probably best considered a prehistoric artifact concentration. Subsurface investigations at Locus F/G (Bloomer and Lindström 2006a) discovered a rich flaked stone assemblage and two shallow buried hearths sitting on the lee side of low recessional moraine boulders. Given the concentration of artifacts and hearths at Locus F/G in comparison to the relatively wide and differential distribution of artifacts across Locus F (Figure 15)—Locus F/G was probably the main residential activity area in the Locus F vicinity, an inviting setting at the edge of Donner Creek.

Figure 15. Locus F, looking west.

The prehistoric tool assemblages from Locus F and Locus F/G are very similar, primarily characterized by a rich diversity of food and materials processing tools. Hence, it was likely that residential activities took place all across Locus F, not just at Locus F/G. The slightly greater tool diversity at Locus F/G (represented by one core tool and one *gamum*) is probably due to the much larger excavation volume (11.2 cubic meters) that consumed nearly the entire Locus F/G area. At the same time, it appears that flaked stone tool manufacture, including the refurbishing of hunting tool kits, was more frequent across Locus F than at Locus F/G. Given that the excavation volume at Locus F/G was nearly double the excavation volume across Locus F, Locus F debitage and projectile point frequencies are approximately 60% greater than those from Locus F/G.

Historic Concentrations HC1, HC2 and Feature 1

The historic component of Locus F, primarily represented within concentrations HC1 and HC2, is only a small portion of the bigger historic picture within Donner Memorial State Park (Lindström 1987). Schwaderer et al. (1987:7) describes Locus F to contain "domestic trash dating to the mid-nineteenth century and later, and include some Euro-American ceramics and bottle glass, crown caps, tin cans (mostly soldered-seam), cast iron stove parts, window glass (some melted), lumber scraps (some burnt), and cut nails."

Our test investigation of the historic component focused on a surface depression, measuring approximately 24 inches wide by about 8 inches deep, filled with historic artifacts (Feature 1) at the northeastern extent of concentration HC1 (see Figure 8). Excavation of the pit to 50 centimeters below surface (EU1) exposed intact subsurface pit stratigraphy (Figure 16) from 30 to 50 centimeters below surface and recovered 1,681 identifiable artifacts with a MNI of 485. Sediments below the pit strata held relatively few historic artifacts. Although Feature 1 was not identified in the 1987 site record, the historic constituents listed for Locus F are consistent with the items recovered from Feature 1. Table 5 provides a general breakdown of its major artifacts by group.

Table 5. Locus F, Feature 1 Historic Artifact Summary.

Period of Deposition: 1865-1900			
Excavation Level	**Artifact Percentage**	**Artifact Group**	**Artifact Percentage**
1 (0-10 cm)	40%	Domestic	2%
2 (10-20 cm)	35%	Consumptive	39%
3 (20-30 cm)	21%	Structural	58%
4 (30-40 cm)	4%	Personal	<1%
5 (40-50 cm)	<1%		

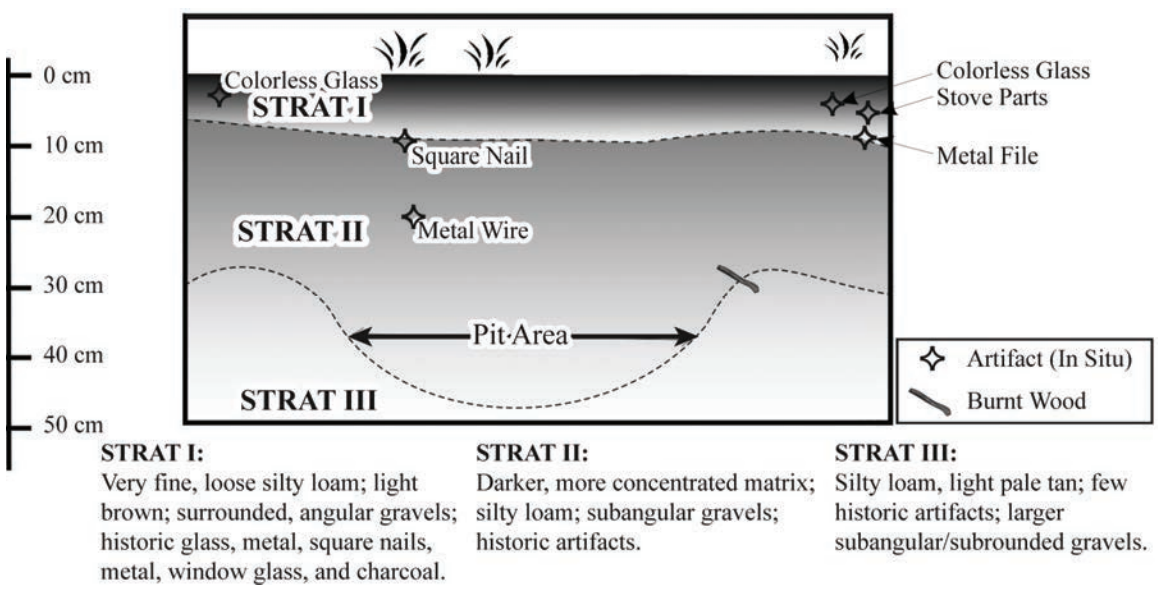

Figure 16. Locus F, EU1 North Wall, Subsurface Pit Feature Stratigraphy.

Locus F is referred to as the "East End Settlement." Newspaper accounts and assessor's records from 1864 to 1866 describe several businesses and buildings at the eastern end of Donner Lake (Lindström 1987:25–28). An 1870 map depicts four buildings, including the Donner Lake House (a hotel), in the vicinity of Loci A, E and F, and the 1856–1866 General Land Office Plat map identifies two of these structures—the Donner Lake House and McPhearson's barn—in the same vicinity. The historic artifact concentrations in Locus F, including the featured pit (F1), may be related to activities associated with one or more of these structures. The fragmentary condition and charring of the artifacts suggest that the pit feature (F1) likely represents a single-event disposal site, sometime between circa 1865 and 1890.

Locus G

Locus G covers a large area immediately south of Locus F, on the south side of Donner Creek (see Figure 3). Prehistoric artifact concentrations C1, C2 and C3 are relatively large with their dimensions defined by good visibility of surface artifact distributions (see Figure 9). Small concentrations C4, C5 and C6 are in areas of poor surface visibility. Hence their dimensions are less certain. Regardless of size, five of the six prehistoric artifact concentrations (C2–C6) contain similar artifact assemblages. Surface survey, surface excavations and subsurface excavations in concentrations C2–C6 recovered a predominance of basalt debitage with a few bifaces indicating an emphasis on basalt tool manufacture at each of these locations.

In contrast, surface survey and subsurface excavations in concentration C1 recovered a diversity of artifacts (similar to the Locus F assemblage, see Table 3) indicating C1 was the primary residential activity area within Locus G. Concentration C1 covers a low rise amongst granitic boulders (Figure 17). The forest (today) is sparse and the ground is open. Low granite bedrock boulders to the northeast and southeast (*Lam* 1 and *Lam* 2; see Figure 9) were used as permanent bedrock milling stations. Three *itdemge* (portable millingstones) were found within concentration C1, EU 7, at 40 to 60 centimeters below surface.

Figure 17. Locus G, Concentration 1, looking southeast.

EU 7 stratigraphy (discussed under Geomorphology and Stratigraphy) suggests a living surface was present at 30 centimeters below the modern ground surface that may have existed for a significant time span. The whole *itdemge* (158) found below 40 centimeters probably was used on that living surface, while two small *itdemge* fragments found below 50 centimeters probably represent down churning of artifacts that were once on the surface. Radiocarbon and hydration data indicates the deposit below 30 centimeters could be 5,600 to 2,300 years old.

Lam *1 and* Lam *2*

Lam 1 is a single granitic boulder measuring 1.7 meters (NW/SE) by 1.75 meters (NE/SW) and rises 10 centimeters above the modern ground surface (Figure 18). This *lam* shows extensive use, represented by two mortars and four milling slicks (Figure 19). The mortars are relatively shallow. Mortar 1 is 2.2 centimeters deep and Mortar 2 is 3.5 centimeters deep. The milling slicks show moderate use, represented by smooth polish on flattened facets, but pecking is not apparent. Milling slicks 4 and 5 have depths of 0.4 and 0.2 centimeters, respectively, which are primarily due to grinding on the naturally undulating rock surface.

Lam 2 is a single granitic boulder measuring 2.1 meters (W/E) by 1.5 meters (N/S), rising 18 centimeters above the modern ground surface (Figure 20). This *lam* is less used, with only one relatively small mortar and one milling slick (Figure 21). Mortar 1 is 1.1 centimeters deep. The grinding surface of milling slick 2 is primarily west of the mortar cup. Slick polish encircling the mortar cup may represent more of a multiple activity surface than a grinding surface, smoothed and polished over time from varied use.

ARTIFACTS

The prehistoric artifact collection (Table 6) includes 71 prehistoric flaked stone tools, 4,183 debitage and three groundstone tools. Historic artifacts (Table 6) include 1,753 items identified by type and 29 unidentified. There are also 407 historic faunal bone. Provenience, technological data and metric dimensions for flaked and ground stone and faunal remains are listed in Appendix C Tables. Prehistoric artifacts from Locus F and Locus G are described together by type. Historic artifact descriptions are grouped by provenience.

Table 6. CA-NEV-13/H Test Locus F and G Prehistoric and Historic Artifact Counts.

	LOCUS F	LOCUS G	TOTAL
Prehistoric Artifacts	2,235	2,022	4,257
Historic Artifacts	1,710	72	1,782
Historic Faunal Bone	396	11	407
Total	**4,341**	**2,105**	**6,446**

Prehistoric Artifacts

Flaked stone comprises the vast majority of the prehistoric artifact collections from Locus F and Locus G (Table 7). Groundstone artifacts, all *itdemge*, were only recovered from one excavation unit in Locus G, Concentration 1.

Figure 18. Locus G, *Lam* 1, looking north.

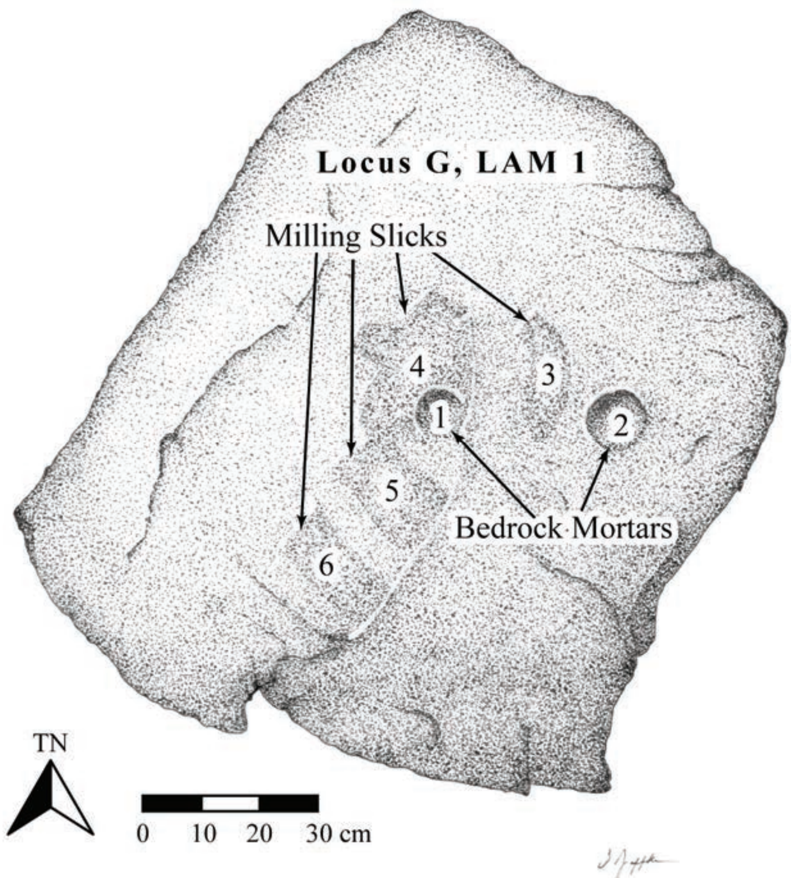

Figure 19. Locus G, *Lam* 1.

Figure 20. Locus G, *Lam* 2, with arrow pointing north to mortar 1.

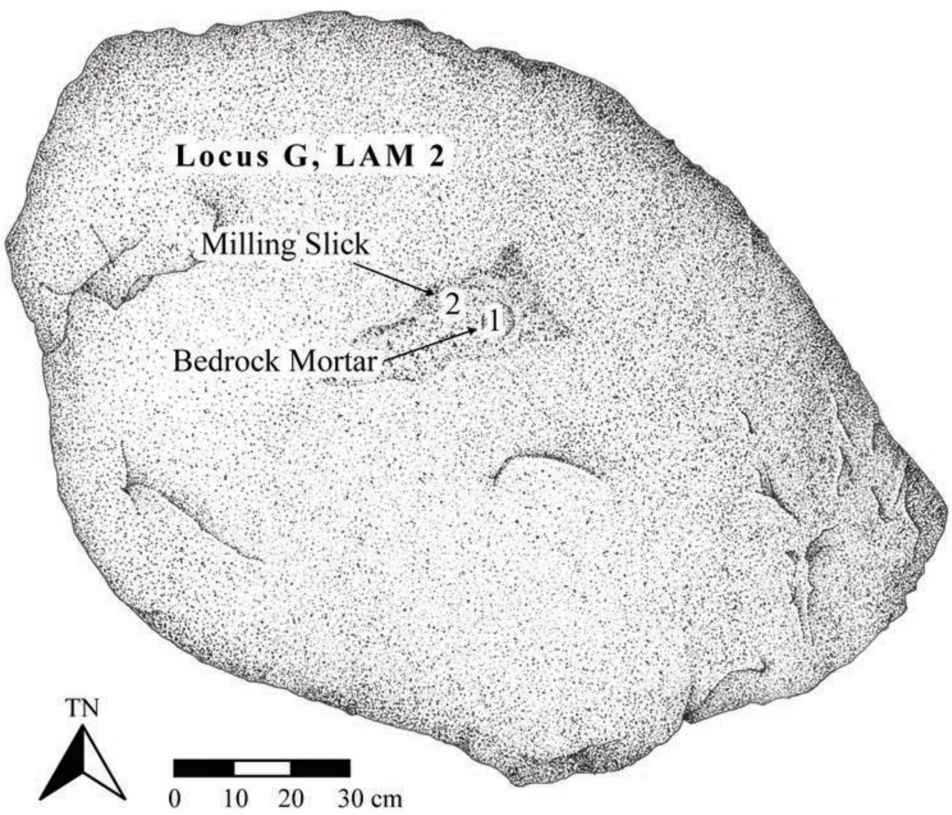

Figure 21. Locus G, *Lam* 2.

Table 7. CA-NEV-13/H Test Locus F and G Prehistoric Artifacts by Toolstone.

LOCUS	DESCRIPTION	BAS	CCS	OBS	GRN	TOTAL
F	Projectile Points	5	-	-	-	5
G	Projectile Points	2	-	-	-	2
F	Bifaces	18	1	-	-	19
G	Bifaces	18	-	2	-	20
F	Drills	-	1	-	-	1
G	Drills	-	1	-	-	1
F	Unifaces	2	-	-	-	2
G	Unifaces	1	2	-	-	3
F	Flake Tools	6	1	-	-	7
G	Flake Tools	3	1	-	-	4
F	Edge Mod. Flakes	2	-	-	-	2
G	Edge Mod. Flakes	4	-	-	-	4
G	Core	-	1	-	-	1
Total Flaked Stone Tools		**61**	**8**	**2**	**-**	**-**
F	Debitage	2,162	24	13	-	2,199
G	Debitage	1,892	57	35	-	1,984
Total Debitage		**4,054**	**81**	**48**	**-**	**4,183**
G	*Itdemge*	-	-	-	3	3
Total Groundstone Tools		**-**	**-**	**-**	**3**	**3**

The flaked stone assemblage collected during test investigations includes five projectile points from Locus F and two from Locus G (Table 7). Bifaces are most abundant with 19 from Locus F and 20 from Locus G. Two drills were recovered with one each from Locus F and Locus G. Five unifaces were found, two from Locus F and three from Locus G. The flake tools are also relatively abundant with seven from Locus F and four from Locus G. The edge modified flakes (EMFs) include just two from Locus F and four from Locus G. One core was recovered from Locus G. The counts of basalt debitage from each locus are relatively equal with 2,162 from Locus F and 1,892 from Locus G. The small amounts of CCS and obsidian debitage are predominantly from Locus G (Table 7).

Basalt is the primary toolstone accounting for 86% of the flaked stone tools and 97% of the debitage. The CCS make up 11% of the flaked stone tools, but only 2% of the debitage. Only 3% of the flaked stone tools and less than 1% of the debitage are obsidian.

Projectile Points

The projectile points include two Martis Corner-notched, three Elko Corner-notched and two Lanceolate forms.

Martis Corner-notched

Several Martis projectile point types were defined by Elston during his initial Sierran research (1971) to incorporate Heizer and Elsasser's (1953; Elsasser 1960) previously unnamed types that were indicative of the Middle Archaic "Martis Complex." Over the years, Martis types and their use as chronological indicators have undergone periodic revision based on research along the upper reach of the Truckee River (Elston et al. 1977) and along the eastern Sierran front (Elston et al. 1994, 1995a). To date, the Martis series includes large corner-notched points, large side-notched points, a large contracting stem and a split stem form (Elston et al. 1994, 1995a).

The two Martis Corner-notched (MCN) points were made of Alder Hill basalt and recovered from Locus F. One (171, Figure 22a) is nearly complete with a missing basal margin. It was made by pressure flaking a thin flake blank. Small breaks at the tip, along the blade margins and probably at the base indicate repeated use. The other MCN (174, Figure 22e) is a proximal fragment with a missing blade, possibly broken in use. This MCN is more robust, made by percussion biface thinning and pressure shaping.

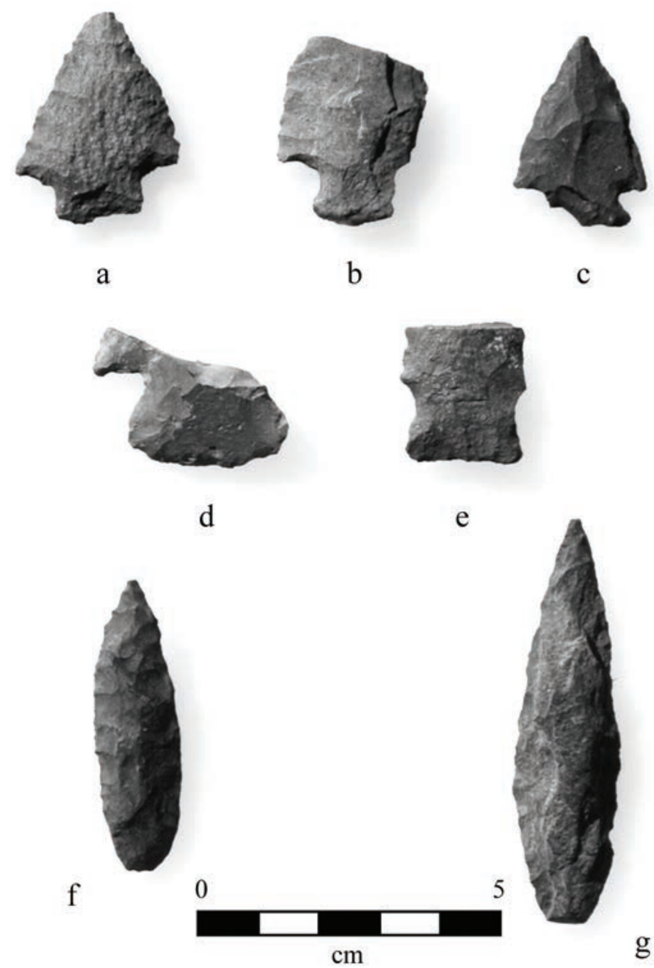

Figure 22. Projectile Points: a, MCN (Locus F, 171); b, ECN (Locus F, 265); c, ECN (Locus G, 140); d, ECN (Locus F, 211); e, MCN (Locus F, 174); f, LAN (Locus F, 261); and g, LAN (Locus G, 147).

Elko Corner-notched

Elko points were first defined at Wagon Jack Shelter (Heizer and Baumhoff 1961) and include large corner-notched and basal eared forms considered to have tipped atlatl darts (Heizer et al. 1968; O'Connell 1967).

Two of the three Elko Corner-notched (ECN) points in this collection are from Locus F (211, see Figure 22d and 265, see Figure 22b) and one is from Locus G (140, see Figure 22c). Artifact 211 is an unusually large proximal fragment missing its entire blade and one shoulder. This point was made using basalt from an unknown source, possibly selected from the glacial gravels of Donner Creek. Although large pressure flake scars are the only visible evidence of reduction technique, it is likely that this large bifacial tool was initially shaped by percussion thinning. The break, of indeterminate type running diagonal from one notch to above the opposite shoulder, is probably a use fracture.

Artifact 265 is nearly complete with a missing tip. It was made of Alder Hill basalt by percussion thinning and pressure flaking. Blade and shoulder maintenance along one asymmetrical lateral margin indicate repeated use. Artifact 140 is nearly complete, made by pressure flaking a thin basalt flake blank from the Gold Lake source. Its missing basal corner was broken by a bending fracture with a final extension that indicates a use break. Blade margin attrition by small breaks suggests repeated use before discard.

Lanceolate

The lanceolate points include various leaf shaped forms previously classified as Steamboat, Martis Leaf-Shape and Martis Stemmed-Leaf (Elston et al. 1977). The various forms are combined into one morphological classification because their shapes are not distinctive. In fact, the Steamboat classification has been applied to a wide array of lanceolate shapes that subsumes much of the morphological variability of the lanceolate forms (Elston et al. 1977:Figure 23).

One of the two lanceolate points (261, see Figure 22f) is a whole relatively small pressure flaked form made of Gold Lake basalt. Possible edge rounding suggests use and might indicate cutting use more than projectile point use. The other lanceolate point (147, see Figure 22g) is a much larger whole percussion and pressure flaked tool made of Alder Hill/Watson Creek basalt. Again, possible edge rounding suggests cutting use, while a small tip break might have resulted from projectile use.

Bifaces

The 39 bifaces are primarily basalt (92%) with one CCS, and two obsidian (see Table 7). Only one biface is whole (3%) and four are nearly complete (10%). Undifferentiated end fragments (33%) and distal (18%) fragments are most common. Proximal fragments and margin fragments account for 13% each, while medial fragments represent the remaining 10%. The high frequency of fragments is a consequence of the relatively high frequency of manufacture failures. The biface assemblage is described below by Locus.

Locus F

There are 18 basalt bifaces from Locus F. Stage 2 forms make up 33% of the collection (Table 8). Each of these stage 2 basalt bifaces is a manufacture failure. Most are percussion flaked. Two have obvious manufacture breaks, other than bending fractures, and use wear is absent for all of them (Table 8). The stage 2 bifaces are typically medium size, best represented by artifacts 161, 167 and 251.1 (Figure 23a-c). These three have incomplete lengths ranging from 42 to 50 millimeters, widths ranging from a complete 40 millimeters to an incomplete 57 millimeters, and incomplete thickness ranging from 8 to 15 millimeters. One of the stage 2 bifaces (164, Figure 23d) is the proximal fragment of a relatively thin, but wide, pressure shaped flake blank. This pressure biface was possibly a dart size projectile point preform. Its incomplete measurements are 26 (L) x 34 (W) x 5 (T) millimeters.

Table 8. Basalt Biface Stages by Locus.

STAGE	COUNT / PERCENT		
	LOCUS F	LOCUS G	TOTAL
2	6 / 33%	5 / 28%	11 / 31%
3	1 / 6%	8 / 44%	9 / 25%
4	4 / 22%	2 / 11%	6 / 17%
5	2 / 11%	2 / 11%	4 / 11%
Early	3 / 17%	0 / 0%	3 / 8%
Late	2 / 11%	1 / 6%	3 / 8%
Total	**18 / 50%**	**18 / 50%**	**36 / 100%**

There is only one stage 3 biface (159, Figure 23e) from Locus F. It is a medium size (57 x -50 x 12 millimeters) distal fragment with percussion flaking across one face, while the opposite face is predominantly unworked. It has a horizontal percussion break, indicating manufacture failure. On the other hand, possible edge rounding suggests use prior to discard. Therefore, this biface might have been broken during reworking or edge maintenance.

The stage 4 bifaces are nicely shaped, three with percussion flaking and one with a combination of percussion and pressure. One of the stage 4 percussion bifaces (269, Figure 23f) is the only whole biface in the collection and serves as a good indicator of typical stage 4 biface size. It measures 91 x 44 x 15 millimeters. It shows no distinct use wear, but was not a manufacture failure. It may not be completely finished, discarded prior to use. Two other percussion shaped stage 4 end and proximal fragments are similar to artifact 269. Both were broken with bending fractures. One (236, Figure 23g) has no use wear and was likely a manufacture failure. The other (162, Figure 23h) shows possible edge rounding, indicating it may have been discarded after use. The fourth stage 4 biface (268, Figure 23i) is a distal fragment with percussion and pressure flaking and a bending break initiated from an internal step fracture. It has no apparent use wear. Nevertheless, the overall morphology of its pressure flaked asymmetrical blade suggests possible use and maintenance prior to discard.

The two stage 5 pressure flaked basalt small bifaces from Locus F (177 and 188, Figure 24) are especially interesting. Both might be fragments of ancient crescents. Although nearly complete, both are missing a lateral end, i.e., a "wing." Therefore, the horizontal plan-view symmetry of each end, which distinguishes crescents from other bifacial tools, cannot be confirmed. In addition, neither biface shows the "edge grinding"

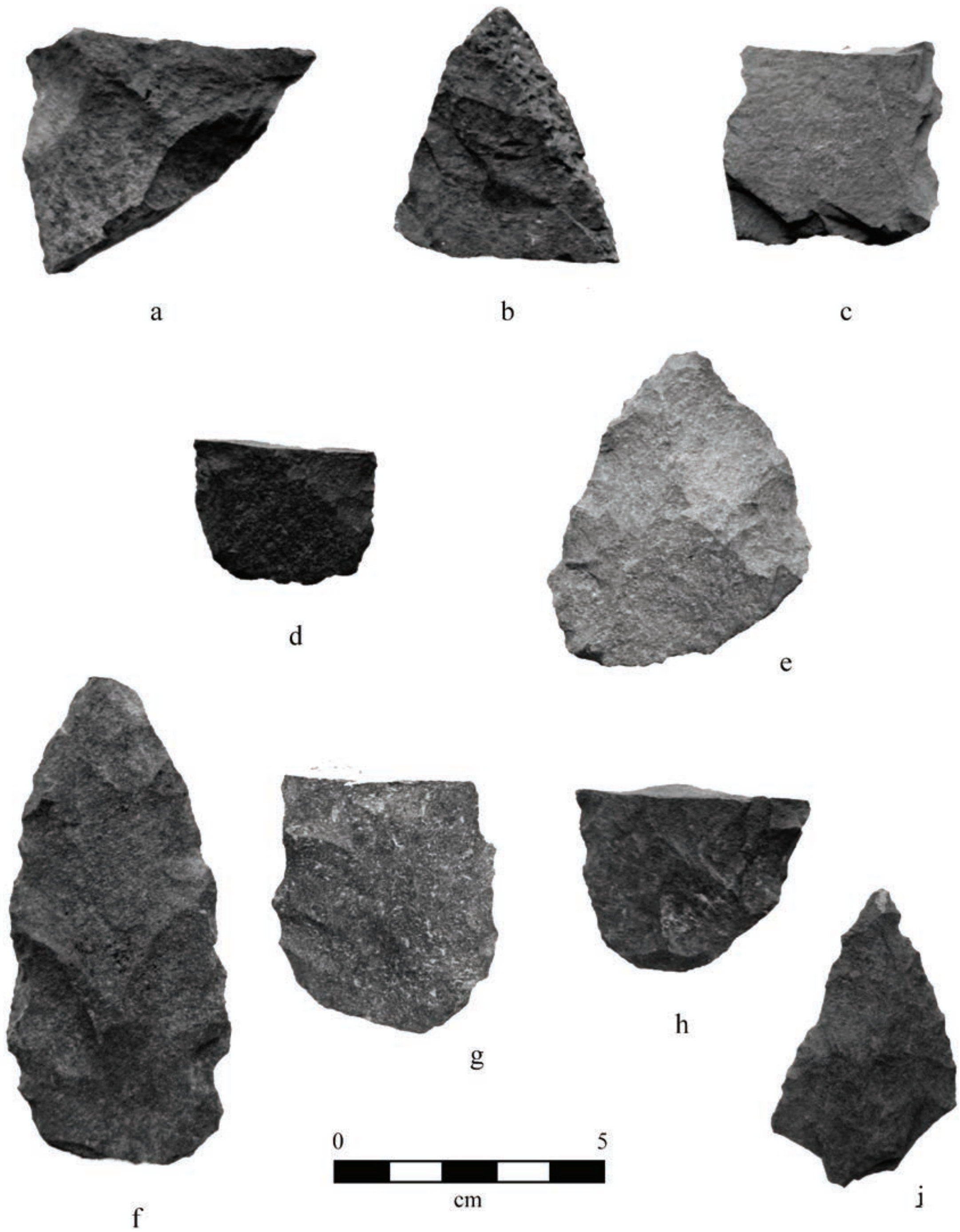

Figure 23. Locus F Bifaces: Stage 2, a-d (161, 167, 251.1, 164);
Stage 3, e (159); Stage 4, f-i (269, 236, 162, 268).

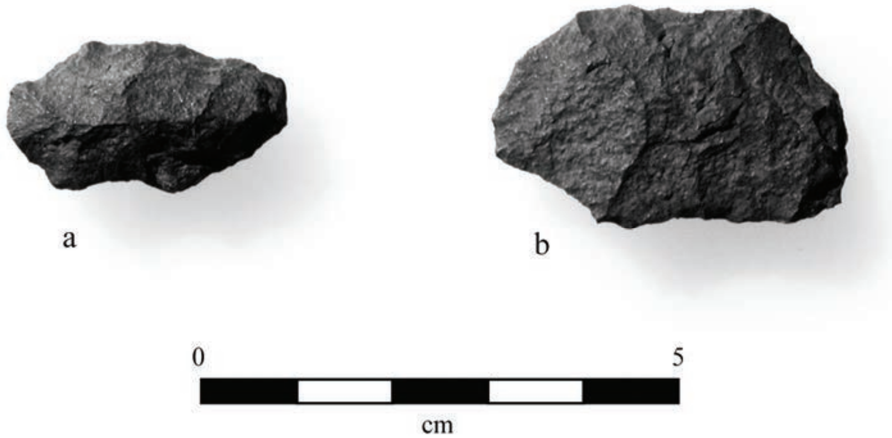

Figure 24. Locus F, Stage 5 Bifaces, Possible Crescents, a (177) and b (188).

that is often present along both lateral margins of the curved crescent "body." Body section edge grinding is considered a distinctive attribute of Great Basin crescents (personal communication with Gene Hattori, 2007). Nevertheless, both fragments are curved forms with asymmetric margins that lead to distinctly shaped ends. In horizontal plan view, artifact 177 (Figure 24a) resembles various examples of crescents reported from Sunshine Well in east Central Nevada (Hutchinson 1988:Figure 4) and from the Dietz Site in south-central Oregon (Fagan 1988:Figure 9). The other possible crescent (188, Figure 24b) is relatively wider than the Sunshine Well crescents, but has a similar form and is comparable to a crescent reported from the Clear Lake Basin in California's North Coast Ranges (Fredrickson and White 1988:Figure 3).

The three general early stage bifaces (168, 169 and 212) are all percussion flaked short end fragments. Lack of use wear and their early reduction stage indicate they are manufacture discards. The two general late stage bifaces (182.1 and 270.1) are medial fragments. Both are pressure flaked. Artifact 182.1 is a thin flake blank that is primarily flaked across one face. It is likely a projectile point preform, discarded as a manufacture failure. Artifact 270.1 is an arrow size biface, probably a projectile point blade fragment. Although it might be a manufacture discard, a bending fracture extending into a possible facial burination indicates discard after use.

The one non-basalt biface from Locus F is a probable medium size CCS general early stage margin fragment (190). Percussion flake scars primarily occur on one face, with fewer and less patterned removals on the opposite face. Use wear is not evident, but this CCS biface is probably not a biface manufacture failure. Instead, it might be a margin fragment of a flake tool.

Locus G

Eighteen basalt bifaces were also recovered from Locus G. Stage 2 and stage 3 forms make up 72% of the Locus G biface collection (see Table 8), although stage 3 bifaces are more common (44%). A large majority (85%) of these early stage basalt bifaces are manufacture failures with manufacture breaks and no evident use wear (Table 9). Only two

Table 9. Technological Basalt Biface Data – Attributes by Stage.

LOCUS	COUNT / PERCENTAGE *(% are rounded & may not total 100%)*											
	STAGE 2		STAGE 3		STAGE 4		STAGE 5		EARLY	LATE		TOTAL
	F	G	F	G	F	G	F	G	F	F	G	
BLANK												
Cortical Flake	1/ 17%	-	-	1/ 13%	-	-	-	-	-	-	-	2/ 6%
Simple Interior Flake	1/ 17%	1/ 20%	-	-	-	-	-	-	-	-	-	2/ 6%
Flake	4/ 67%	4/ 80%	1/ 100%	1/ 13%	-	-	-	-	1/ 33%	1/ 50%	-	12/ 33%
Indeterminate	-	-	-	6/ 75%	4/ 100%	2/ 100%	2/ 100%	2/ 100%	2/ 67%	1/ 50%	1/ 100%	20/ 56%
BREAK												
Bending	4/ 67%	4/ 80%	-	4/ 50%	2/ 50%	2/ 100%	-	1/ 50%	2/ 67%	1/ 50%	1/ 100%	21/ 58%
Bend with Finial	-	-	-	-	-	-	-	1/ 50%	-	-	-	1/ 3%
Bending with Material Flaw	-	-	-	1/ 13%	1/ 25%	-	-	-	-	-	-	2/ 6%
Traverse Bending	1/ 17%	1/ 20%	-	2/ 25%	-	-	-	-	-	-	-	4/ 11%
Percussion	1/ 17%	-	1/ 100%	-	-	-	-	-	-	-	-	2/ 6%
Indeterminate	-	-	-	1/ 13%	-	-	2/ 100%	-	1/ 33%	1/ 50%	-	5/ 14%
None	-	-	-	-	1/ 25%	-	-	-	-	-	-	1/ 3%
FLAKING												
Percussion	5/ 83%	5/ 100%	1/ 100%	8/ 100%	3/ 75%	-	-	-	3/ 100%	-	-	25/ 69%
Percussion & Pressure	-	-	-	-	1/ 25%	2/ 100%	-	1/ 50%	-	-	1/ 100%	5/ 14%
Pressure	1/ 17%	-	-	-	-	-	2/ 100%	1/ 50%	-	2/ 100%	-	6/ 17%
USE												
Microflaking & Rounding	-	-	-	-	-	1/ 50%	-	-	-	-	-	1/ 3%
Indeterminate	-	-	1/ 100%	2/ 25%	1/ 25%	1/ 50%	2/ 100%	2/ 100%	-	1/ 50%	1/ 100%	11/ 31%
None	6/ 100%	5/ 100%	-	6/ 75%	3/ 75%	-	-	-	3/ 100%	1/ 50%	-	24/ 67%
MANUFACTURE FAILURE												
Yes	6/ 100%	5/ 100%	-	6/ 75%	1/ 25%	-	-	-	3/ 100%	1/ 50%	-	22/ 61%
No	-	-	-	-	1/ 25%	1/ 50%	2/ 100%	2/ 100%	-	-	-	6/ 17%
Indeterminate	-	-	1/ 100%	2/ 25%	2/ 50%	1/ 50%	-	-	-	1/ 50%	1/ 100%	8/ 22%
Totals	**6/ 17%**	**5/ 14%**	**1/ 3%**	**8/ 22%**	**4/ 11%**	**2/ 6%**	**2/ 6%**	**2/ 6%**	**3/ 8%**	**2/ 6%**	**1/ 3%**	**36/ 100%**

of the stage 3 basalt bifaces are questionable manufacture failures because of possible macroscopic use wear in the form of crushing, stepping and rounding on one or more edges. Blank morphology is predominantly characterized by general flake morphology or was indeterminate. Nevertheless, cortical flakes and simple interior flake blanks were probably most often selected for biface manufacture. Percussion flaking is predominant on each of the stage 2 and 3 bifaces. Bending and transverse bending are the most evident break types.

Stage 2 and stage 3 basalt biface size ranges from small to medium. Incomplete lengths range from 28 to 76 millimeters. Incomplete widths range from 30 to 50 millimeters, with thickness ranging from a complete 10 millimeters to an incomplete 15 millimeters. Small and medium size stage 2 basalt bifaces from Locus G are best represented by artifacts 146 and 123, respectively (Figure 25a,b). Small to medium size stage 3 bifaces are best represented by artifacts 30, 156, 69 and 58 (Figure 25c-f).

There are two nicely shaped basalt stage 4 bifaces from Locus G. One (62, Figure 25g) is a relatively long and narrow (62 x -32 x 11 millimeters) distal fragment with percussion and pressure flaking. Use wear is evident as microflaking and rounding along the blade edges. The other stage 4 basalt biface (94, Figure 25h) is a percussion and pressure flaked proximal fragment, shorter, but about the same size (41 x 29 x 10 millimeters). Use wear is indeterminate, based on possible edge rounding.

Stage 5 bifaces at Locus G are represented by two small basalt artifacts that are probably projectile point parts. One (28, Figure 25i) is a pressure flaked medial fragment with indeterminate use wear. This biface has an incomplete 16 millimeters width and incomplete 5 millimeters thickness, indicating it is arrow point size or small dart size. The second basalt stage 5 biface (34, Figure 25j) is a long parallel sided percussion and pressure flaked proximal fragment with a rounded basal margin. A lateral burination down one margin might be use related. The overall morphology of this proximal fragment, compared with recent Great Basin Stemmed points recovered from the Alder Hill Quarry (McGuire et al. 2006:Figure 39) and Great Basin Stemmed points from across the western Great Basin (Jennings 1986; compare Hutchinson 1988:Figure 3; Willig 1988:Figures 18, 20 and 37) suggests it might be the stem of a Pre-Archaic projectile point in the Great Basin Stemmed series. Unfortunately, this proximal fragment lacks the distinctive shoulders of the Great Basin Stemmed points.

One general late stage basalt biface (6) is a short percussion and pressure flaked end fragment. Use wear is indeterminate. Its round tip is nicely pressure flaked to one face, as if it was intended for use as a unifacial flake tool.

Two obsidian bifaces were also recovered from Locus G. One (127, Figure 26a) is a long and narrow (39 x 18 x 7 millimeters) distal fragment. It is a pressure flaked stage 5 with crushing and rounding use wear. It appears to be slightly shouldered just above the bending break, suggesting it may have been hafted. This obsidian biface returned an 8.5 micron hydration rim that indicates it probably dates to the Pre-Archaic time period. Its old hydration and slight shoulders suggest this biface could be the blade of a Great Basin Stemmed series projectile point. The second obsidian biface (133, Figure 26b) is a margin fragment of a relatively large early stage biface. It is actually the termination of an outrepassé that occurred during early stage biface thinning. Therefore, this obsidian biface was likely discarded as a manufacture failure.

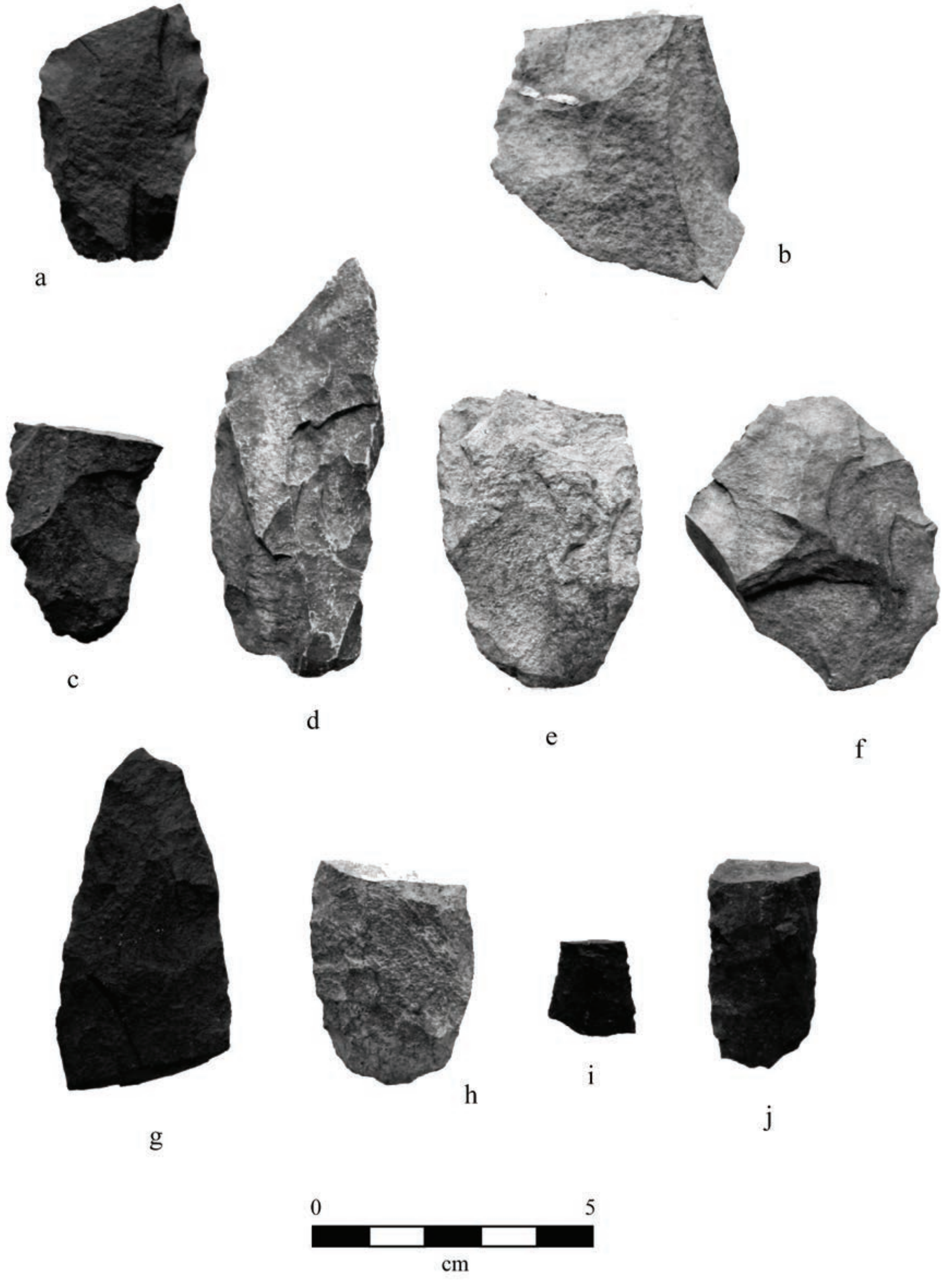

Figure 25. Locus G Bifaces: Stage 2, a and b (146, 123);
Stage 3, c-f (30, 156, 69, 58); Stage 4, g and h (62, 94); Stage 5, i and j (28, 34).

Figure 26. Obsidian Bifaces: Locus G, a (127) and b (133).

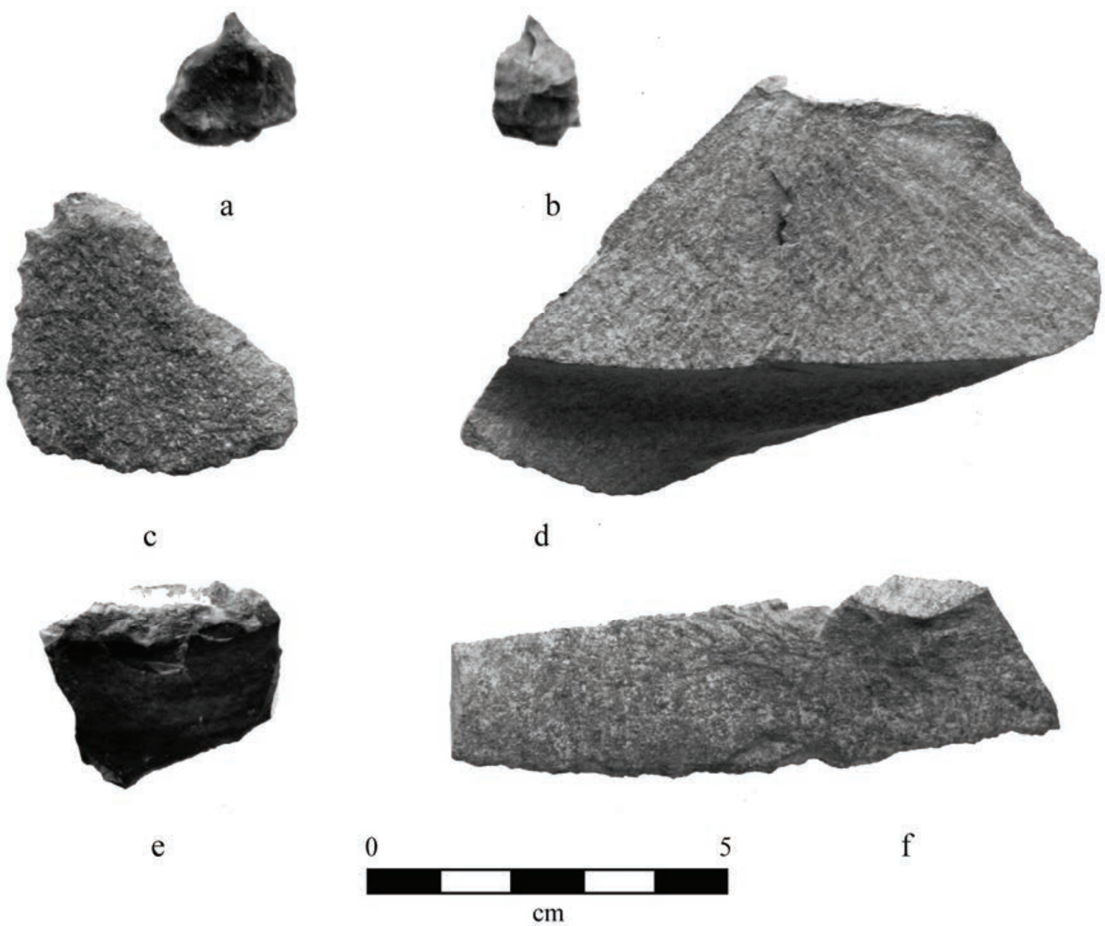

Figure 27. Drills and Flake Tools: Drills, Locus F, a (229) and Locus G, b (8.1); Flake Tools, Locus F, c (224); d (246); e (245); Locus G, f (131).

Drills

Two whole brown CCS drills were recovered during test investigations. One (229, Figure 27a) from Locus F is a small simple interior flake with a pressure flaked unifacial bit. The small bit is short (2.5 millimeters) and square in cross-section. Microflake scars on the bit indicate use. Basal modification is minimal, if any, partly obscured by weathering. The other drill (8.1, Figure 27b), from Locus G, is similar. It is a small simple interior flake with a minimally pressure shaped unifacial bit. The small bit is short (3.8 millimeters), but triangular in cross-section. Microflake scars indicate use. Basal modification is absent.

Unifaces

Two of the five unifaces came from Locus F. One (223, Figure 28d) is a nearly complete large basalt cortical flake with three nicely percussion shaped unifacial margins. The three modified edges link to form a continuous convex working edge that might have extended around the circumference of the tool. The angle of the working edge is not steep, but this is a robust tool that would have served for heavy cutting or scraping. Unfortunately, use wear is indeterminate. The other uniface from Locus F (235, Figure 28c) is a large basalt end fragment. It was made on a simple interior flake with one modified edge nicely percussion and pressure flaked to make a convex use edge. Microflaking and edge rounding use wear are evident.

Three other unifaces were recovered from Locus G. One (31, Figure 28a) is a whole basalt simple interior flake with four percussion and pressure flaked unifacial edge modifications. The use edges are predominantly convex, but include a short straight edge

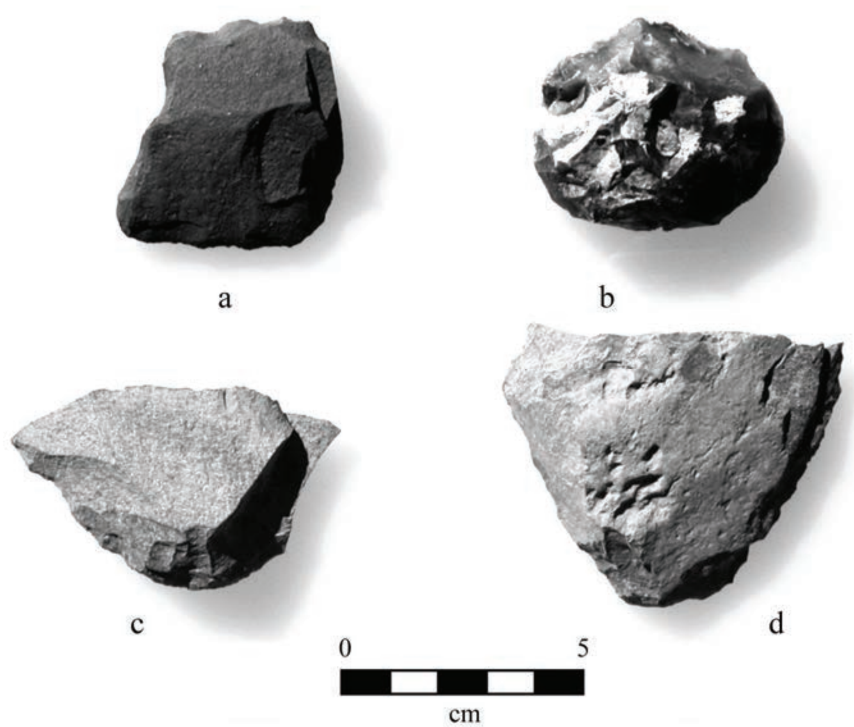

Figure 28. Unifaces: Locus F, c (235) and d (223); Locus G, a (31) and b (100).

and one concave area. Use wear is evident as microflaking and rounding. Facial grinding is also evident on the dorsal face. This uniface was a multipurpose tool used in various tasks. One other whole uniface from Locus G (100, see Figure 28b) is a nicely shaped brown CCS tool. It is a simple interior flake that was percussion and pressure flaked around all four of its margins to form a circumferential convex use edge. Use wear is indeterminate, probably represented by microflaking along the edges. The high quality CCS toolstone selected to make this uniface appears to be chalcedony. The last uniface (56) is a small red CCS end fragment that might represent about half the tool. It is probably fractured through its center, but also has a break at the center of its irregular convex margin. This relatively small uniface was made on a simple interior flake with percussion and pressure flake removals. The intact opposite margins show two small convex modified edges, flaked to opposite faces. Use wear is indeterminate.

Flake Tools

Nine (82%) of the 11 flake tools are basalt (see Table 7). The two others are CCS. Seven (64%) are whole tools, with three nearly complete, and one margin fragment. The flaked tool assemblage is described below by Locus.

Locus F

Six of the basalt flake tools were recovered from Locus F. Unifacial modifications are most common, with only one bifacial flake tool (Table 10). A variety of flake types were selected for tool use, including cortical flakes, simple interior flakes, early and late biface thinning flakes and simple fragments. Four (67%) of the six flake tools were pressure modified before use. One shows percussion and pressure modifications and one has only microflake use wear. One and two modified edges are most common, while one flake tool (224, see Figure 27c) has five modified edges around its perimeter. Use edges are convex and concave. Use wear is predominantly microflaking and rounding. Most of these flake tools are small to medium size, although one (246, see Figure 27d) is relatively large. One mottled brown and red nearly complete CCS flake tool (245, see Figure 27e) was recovered from Locus F. This tool is a simple interior flake with one unifacial pressure modified concave edge. Microflake and rounding use wear are evident.

Locus G

The three basalt flake tools from Locus G have unifacial modifications (Table 10). The best example (131, see Figure 27f) is a nearly complete side-struck simple interior flake with unifacial pressure modification to the ventral face along its long straight terminal edge. Microflake and rounding use wear is evident on the modified edge and on the opposite edge. Another basalt flake tool (79) is a whole simple interior flake with a thick complex platform suggesting it was removed from an early stage biface. Four short straight edge segments show microflake use wear as the primary modification. The third basalt flake tool (50) is a thick early stage biface fragment with one minimally worked edge that was used like a flake tool. The flake tool edge is straight with unifacial microflake use wear as its primary modification. Rounding use wear is also evident.

One small brown CCS flake tool margin fragment (129.1) was also recovered from Locus G. It is a remnant of a steep angled pressure flaked unifacial convex edge. Use wear is suggested by possible microflake scars and rounding.

Table 10. Basalt Flake Tool Attributes.

ATTRIBUTES	COUNT/PERCENTAGE OF PRIMARY MODIFICATION (% are rounded & may not total 100%)		
	—LOCUS F—		—LOCUS G—
	BIFACIAL	UNIFACIAL	UNIFACIAL
BLANK			
Cortical	-	2 / 40%	-
Simple Interior	-	1 / 20%	1 / 33%
Simple Interior with Complex Platform	-	-	1 / 33%
Early Biface Thinning	-	1 / 20%	-
Late Biface Thinning	1 / 100%	-	-
Simple Fragment	-	1 / 20%	-
Biface Fragment	-	-	1 / 33%
FLAKING			
Microflaking	-	1 / 20%	2 / 67%
Pressure	1 / 100%	3 / 60%	1 / 33%
Percussion and Pressure	-	1 / 20%	-
NUMBER OF MODIFIED EDGES			
1	1 / 100%	2 / 40%	1 / 33%
2	-	2 / 40%	1 / 33%
4	-	-	1 / 33%
5	-	1 / 20%	-
PRIMARY EDGE SHAPE			
Convex	1 / 100%	3 / 60%	-
Concave	-	2 / 40%	-
Straight	-	-	3 / 100%
USE WEAR			
Microflaking	-	1 / 20%	1 / 33%
Micro/Rounding	-	3 / 60%	2 / 67%
Rounding	-	1 / 20%	-
Indeterminate	1 / 100%	-	-
Totals	**1 / 17%**	**5 / 83%**	**3 / 100%**

Edge Modified Flakes

Each of the six edge modified flakes (EMF) recovered from Locus F and Locus G are basalt (see Table 7). Three of the EMFs are medial fragments and three are undifferentiated end fragments. Flake blanks selected for modification include cortical flakes, simple interior flakes, and late biface thinning flakes. All are unifacially modified by pressure, or a combination of percussion and pressure, along two (83%) or three (17%)

convex, concave or straight edges. Two of the EMFs (165 from Locus F and 139 from Locus G) are obvious manufacture failures because of their general morphology and lack of use wear. Artifact 139 might actually be an early stage small biface fragment. The other four (exemplified by 42.1 and 84.1) have indeterminate use wear suggesting they saw some flake tool use and were not manufacture failures.

Core

One dark mottled gray/brown CCS core (155, Figure 29) was recovered from Locus G. It is a medium size end fragment with incomplete dimensions measuring 46 x 52 x 26 millimeters. This thick chunky core shows relatively large bifacial percussion flake removals on three sides. Toolstone quality is relatively poor, grainy with poorly silicified internal planes. It was likely discarded with minimal useful flake removals. Thermal damage is evident.

Figure 29. Core: Locus G, (155).

Debitage

The debitage collection, including whole flakes, flake fragments and shatter, is comprised of 4,054 basalt, 81 CCS and 48 obsidian (see Table 7). Technological debitage analysis, as described in the Methods discussion, was conducted for all the debitage collected during test investigations.

Locus F

The Locus F sample includes 2,162 basalt, 24 CCS and 13 obsidian. All of the archaeological deposit excavated from Locus F was sifted through ¼-inch mesh screen. Therefore, there was no ⅛-inch size debitage collected from Locus F during the test investigation.

Basalt

Technologically diagnostic basalt flake type proportions show a preponderance of percussion biface manufacture along a relatively even continuum from initial core and flake blank reduction, through early and late stage biface reduction to pressure reduction (Figure 30, Table 11). Cortical flakes (5%) and simple interior flakes (33%), representing core reduction and initial flake blank reduction, together account for about 38% of the technologically diagnostic debitage sample. Edge preparation (9%) and early biface thinning flakes (17%) together represent early stage biface reduction at over 25% of the sample. Late stage biface thinning flakes add another 31% to the sample, with the remaining 6% made up of late pressure flakes.

Cryptocrystalline Silicate

The low amount of technologically diagnostic CCS debitage (14) at Locus F is primarily simple interior flakes (79%, Table 11). There is only one late stage biface thinning flake (7%) and just two pressure flakes (14%). The predominance of interior flakes indicates CCS was primarily used in core reduction and the initial reduction of flake blanks (Figure 30), probably to make flake tools. The late stage thinning flake and pressure flakes indicate some CCS flake tools were shaped prior to use.

Obsidian

The Locus F diagnostic obsidian debitage sample includes only 10 flakes (Table 11). Yet, the assemblage is technologically distinctive (Figure 30). A full 40% of the sample is late stage thinning flakes, while the other 60% is pressure flakes. Together the low counts and technological character of the diagnostic obsidian debitage show obsidian reduction was probably primarily directed towards percussion and pressure maintenance of bifacial tools.

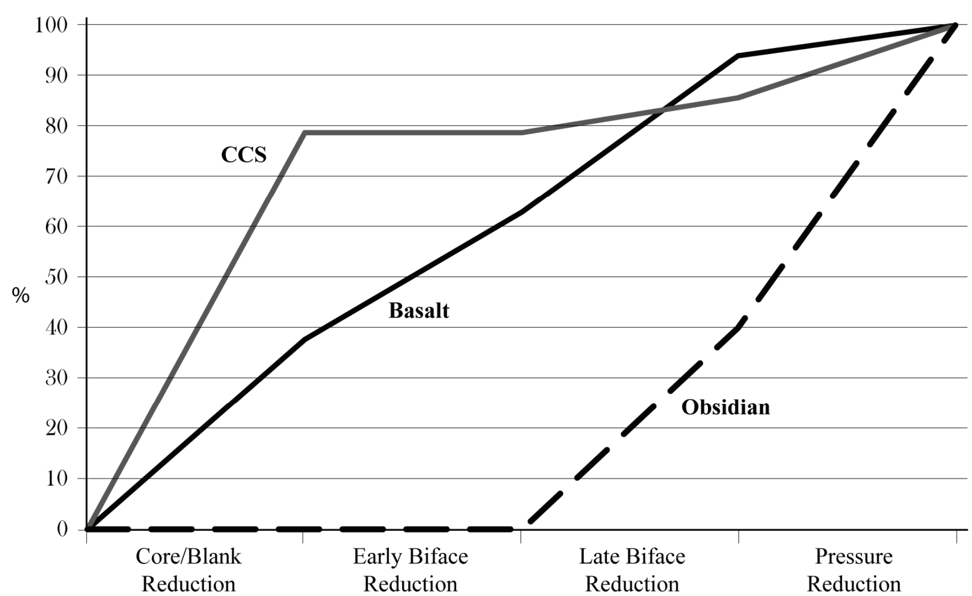

Figure 30. Locus F, Cumulative Flake Type Proportions Representing the Technological Profiles for Basalt, CCS and Obsidian Reduction.

Table 11. CA-NEV-13/H Test, Locus F Technological Debitage Data by Toolstone.

	BASALT		CCS		OBSIDIAN	
	COUNT	ANALYTIC %	COUNT	ANALYTIC %	COUNT	ANALYTIC %
Cortical	49	4.7%	0	0.0%	0	0.0%
Simple Interior	330	31.3%	11	78.6%	0	0.0%
Simple Interior/CP	18	1.7%	0	0.0%	0	0.0%
Complex Interior	0	0.0%	0	0.0%	0	0.0%
Complex Interior/SP	0	0.0%	0	0.0%	0	0.0%
Edge Preparation	90	8.5%	0	0.0%	0	0.0%
Early Biface Thinning	176	16.7%	0	0.0%	0	0.0%
Late Biface Thinning	327	31.1%	1	7.1%	4	40.0%
Early Pressure	0	0.0%	0	0.0%	1	10.0%
Late Pressure	63	6.0%	2	14.3%	5	50.0%
Notching Pressure	0	0.0%	0	0.0%	0	0.0%
Subtotal	**1,053**	**100.0%**	**14**	**100.0%**	**10**	**100.0%**
Bipolar	0	0.0%	0	0.0%	0	0.0%
Diagnostic Total	**1,053**	**100.0%**	**14**	**100.0%**	**10**	**100.0%**
Plat Prep/Pressure	223	-	0	-	0	-
Simple Fragment	719	-	7	-	1	-
Complex Fragment	134	-	0	-	1	-
Cortical Fragment	28	-	0	-	1	-
Shatter	5	-	3	-	0	-
Sample Total	**2,162**	**-**	**24**	**-**	**13**	**-**

Locus G

The Locus G sample includes 1,892 basalt, 57 CCS, and 35 obsidian. The majority of the Locus G sample was recovered from ¼-inch mesh. A sample of small size debitage was recovered in ⅛-inch mesh screen from one 1.0-x-0.5-meter, 110-centimeter-deep excavation unit (EU 5). This small debitage sample accounts for only 12% of the basalt sample from Locus G and is predominantly made up of simple flake fragments, platform preparation flakes and pressure flakes. In contrast, the small debitage sample represents 51% of the CCS sample and 54% of the obsidian sample, with specimens in most flake type categories. Hence, the small size debitage sample accounts for the greater quantities of both CCS and obsidian debitage from Locus G, compared with that from Locus F.

Basalt

Technologically diagnostic basalt flake type proportions for Locus G, like the basalt debitage from Locus F, show a preponderance of percussion biface manufacture along a relatively even reduction continuum (Figure 31, Table 12). Cortical flakes (4%) and simple interior flakes (45%), representing core reduction and initial flake blank reduction, together account for 49% of the technologically diagnostic debitage sample. Edge preparation (7%) and early biface thinning flakes (17%) together represent early stage biface reduction at over

23% of the sample. Late stage biface thinning flakes add another 23% to the sample, with the remaining 5% are made up of late pressure flakes.

Cryptocrystalline Silicate

The technologically diagnostic CCS debitage (31) at Locus G is also similar to the CCS debitage assemblage from Locus F in that it is primarily composed of simple interior flakes (84%; Table 12). There is only one edge preparation flake (3%) and four pressure flakes (13%). The predominance of interior flakes indicates CCS was primarily used in core reduction and the initial reduction of flake blanks (Figure 31), probably to make flake tools. The edge preparation flake and the pressure flakes indicate some CCS flake tools were shaped prior to use.

Obsidian

The Locus G diagnostic obsidian debitage sample includes 18 flakes (Table 12). This sample is technologically similar to the Locus F obsidian debitage with a predominance of pressure reduction, but differs with the inclusion of a low frequency of obsidian core and flake blank reduction (Figure 31). Just over 11% of the sample is cortical flakes, with another 11% simple interior flakes. In addition, there is one complex interior flake with a simple platform. Together, the cortical flakes and interior flakes represent core and blank reduction at nearly 28% of the sample. Early and late stage thinning flakes are equally represented at just over 11% each, while the pressure flakes dominate, representing 50% of the sample. The technological character of the diagnostic obsidian debitage from Locus G indicates obsidian reduction included a small amount of pebble reduction, initial blank reduction and possibly bifacial tool manufacture, in addition to the percussion and pressure maintenance of bifacial tools.

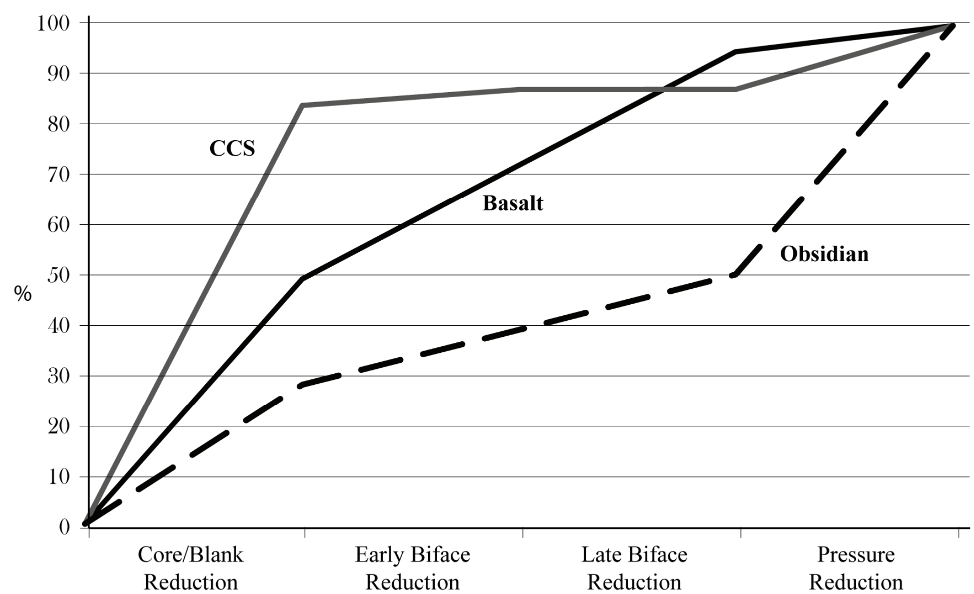

Figure 31. Locus G, Cumulative Flake Type Proportions Representing the Technological Profiles for Basalt, CCS and Obsidian Reduction

Table 12. CA-NEV-13/H Test, Locus G Technological Debitage Data by Toolstone.

	Basalt		CCS		Obsidian	
	Count	Analytic %	Count	Analytic %	Count	Analytic %
Cortical	37	4.2%	0	0.0%	2	11.1%
Simple Interior	376	42.9%	26	83.9%	2	11.1%
Simple Interior/CP	16	1.8%	0	0.0%	0	0.0%
Complex Interior	1	0.1%	0	0.0%	0	0.0%
Complex Interior/SP	0	0.0%	0	0.0%	1	5.6%
Edge Preparation	58	6.6%	1	3.2%	0	0.0%
Early Biface Thinning	145	16.6%	0	0.0%	2	11.1%
Late Biface Thinning	198	22.6%	0	0.0%	2	11.1%
Early Pressure	1	0.1%	1	3.2%	1	5.6%
Late Pressure	44	5.0%	3	9.7%	8	44.4%
Notching Pressure	0	0.0%	0	0.0%	0	0.0%
Subtotal	**876**	**100.0%**	**31**	**100.0%**	**18**	**100.0%**
Bipolar	0	0.0%	0	0.0%	0	0.0%
Diagnostic Total	**876**	**100.0%**	**31**	**100.0%**	**18**	**100.0%**
Plat Prep/Pressure	230	-	1	-	4	-
Simple Fragment	676	-	19	-	2	-
Complex Fragment	60	-	0	-	10	-
Cortical Fragment	36	-	0	-	1	-
Shatter	14	-	6	-	0	-
Sample Total	**1,892**	**-**	**57**	**-**	**35**	**-**

Groundstone

Prehistoric groundstone artifacts include one whole granite *itdemge* (portable millingstone) and two granite *itdemge* fragments. All three were recovered from EU 7 in Locus G, Concentration 1. The whole *itdemge* (158, Figure 32, next page) was discovered at 40–50 centimeters below surface. It is a split boulder with unifacial smoothed and polished use wear covering its entire oval shaped surface. The use surface is slightly dished with no pecking, no striations and no pigment.

The two fragments (150 and 151) were found together at 50–60 centimeters below surface. They do not fit together and appear to represent two different *itdemge*. Both are unifacial with smoothed and polished use surfaces and no pecking, striations or pigment.

Historic Artifacts

Historic artifacts recovered during the test investigations totaled 1,782. The vast majority of the historic assemblage was found in a subsurface pit (Feature 1) in Locus F. Other historic artifacts were collected from excavation units within the Locus F historic concentrations and from one STU in Locus G.

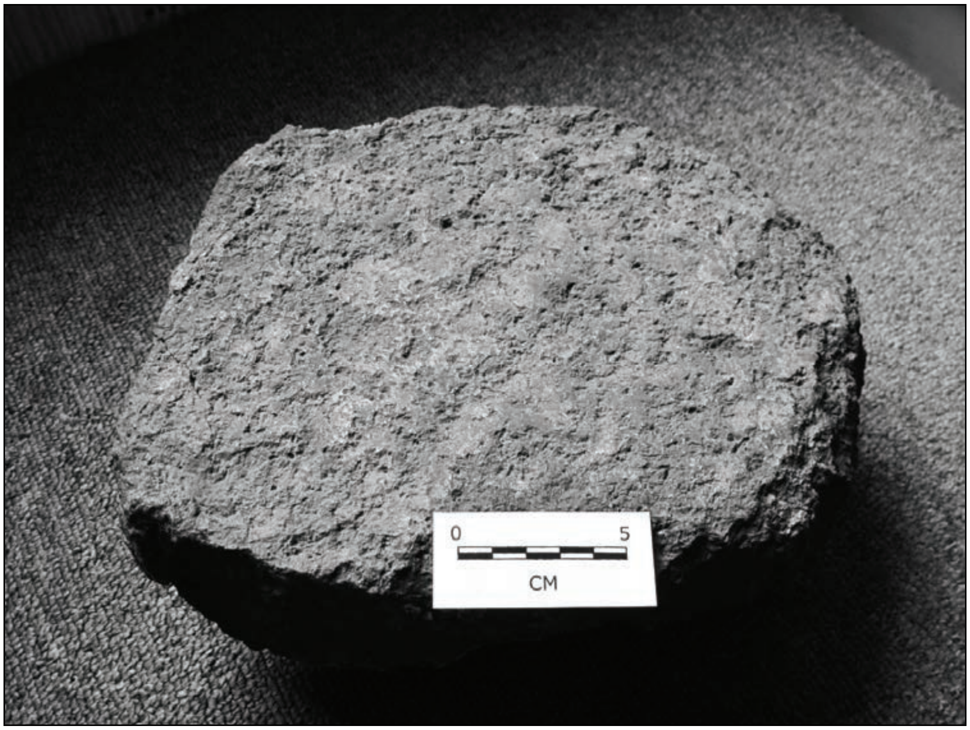

Figure 32. *Itdemge* (Milling Slab): Locus G, (158).

(Historic Artifacts *continued*)

A total of 407 pieces of animal bone was recovered from CA-NEV-13/H in both Locus F and Locus G. Only two excavation units contained bone, EU 1 in Locus F concentration HC1 and STU 17 in Locus G. Because of the condition of the assemblage very few of the bones could be identified beyond the class level. Therefore, only two species were identified, cow (*Bos taurus*) and domestic goat (*Capra aegagrus hir*cus).

A total of 1,681 artifacts with a MNI of 485, was collected from EU1 during the excavation of Feature 1 in Locus F concentration HC1. The cultural constituents are categorized under five groups; domestic, consumption, structural, personal and miscellaneous. A total of 29 items (28 metal, 1 leather) could not be identified due to their fragmentary and ambiguous condition and therefore, eliminated from the discussion below. Table 13 is an artifact list from F1 by group and class.

Domestic

Ceramics recovered from F1 are exceptionally fragmentary. The majority of the collection represents white improved earthenware sherds (83%), but lack of maker's marks limit further interpretation. Five sherds represent Chinese ceramic pieces. Two sherds depict the Bamboo (three circles and Dragonfly) design (Figure 33). The decoration consists of a series of blue underglaze floral design painted on the grey stoneware (porcellaneous stoneware). The Bamboo design is commonly attributed to rice bowls, although other vessel forms are noted but rare. The bamboo design dominates collections from western sites, especially in the Truckee-Tahoe area (Felton et al. 1984; Table 13). One rim (Figure 33) and three sherds represent a large Chinese pot. The pieces are mottled and have a streaked tan-brown interior with a dark brown glazed exterior.

Five stove parts along with two colorless glass mug fragments are the last items categorized under the domestic group.

Table 13. Locus F, Feature 1 Artifact List by Group and Class.

GROUP	CLASS	DESCRIPTION	COUNT	MNI
Domestic	Ceramic	White Improved Earthenware	26	1
		Chinese	5	2
	Stove	Part	5	1
	Glass	Mug	2	1
Consumption	Bottle Glass	Amethyst	14	1
		Aqua	64	7
		Brown	68	3
		Cobalt	5	1
		Olive	57	2
	Ointment	White Milk Glass	2	1
	Bottle Stoppers	Caps/Corks	14	5
	Can	Fragments	354	4
	Food Remains	Peach Pit	1	1
Structural	Hardware	Square Nail	627	425
		Wire Nail	40	16
		Screw	3	3
		Tack	1	1
		Spring	1	1
		Strap	6	1
		Wire	57	2
	Window Glass	Glass	298	1
Personal	Pipe	Bowl	1	1
	Shoe/Boot	Fragment	15	2
	Fastener	Garment Fasteners/Hardware	7	7
	Textile	Fragment	1	1
	Ammunition	Cartridge	1	1
	Tool	Axe Head	1	1
Miscellaneous	Livestock	Horseshoe	3	3
	Burnt Organic	Charcoal	2	1
Total			**1,681**	**485**

Figure 33. Chinese Ceramics from Locus F, Feature 1.

Consumption

Bottle glass represents 14% of the recovered collection and 36% categorized under the consumption group. A transparent, emerald green glass body fragment depicts a partial lightly embossed stylized "JSP" interlocking monogram (Figure 34). The bottle fragment is from a handmade malt extract bottle. The fragment represents a bottle that is tooled with tongs and formed into a whisky cork finish with a tapered top and a tie-down groove (Toulouse 1972:289; Wilson 1981:61). The dates assigned to this manufacturer range circa 1865 to 1890.

An aqua bottle fragment (neck with applied finish) represents a condiment bottle (Figure 35). The shape and design of the bottle is similar to forms that were most commonly mustard or spice bottles (Zumwalt 1980:253). This bottle type is a product of manufacture from circa 1870s to 1890s.

Brown bottle base (Figure 36), embossed with "S.G. Co.," likely represents a bottle manufactured from Safe Glass Company from Upland, Indiana (Toulouse 1972:473). Although the company is known for producing fruit jars, this base does not resemble this bottle form, but rather a beverage bottle. The monogram is attributed to a bottle production date between circa 1880 to 1900. Another diagnostic bottle fragment is a transparent aqua neck with a thickened plain lip and likely is a fragment of an extract or medicinal bottle.

There are several bottle body fragments with partial embossing, including an aqua body item embossed with "... & Co," a cobalt body piece with "C[H]...,"an aqua fragment with "...[Y]-YO..." (likely "New-York"), a brown body item with "...S CO.," and an amethyst piece with "NO..." Despite efforts to identify the type or contents, these bottle fragments could not be identified due to their fragmentary condition and ambiguous nature.

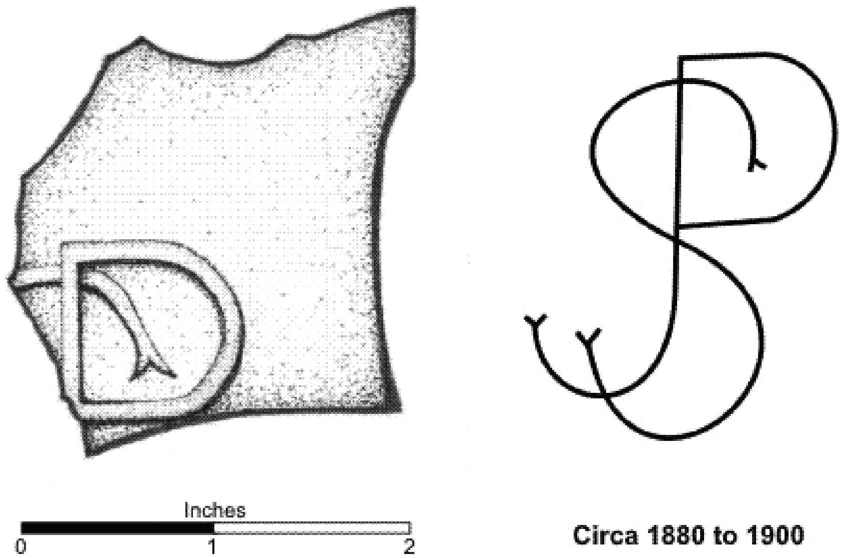

Figure 34. Malt Bottle Extract Bottle Fragment.

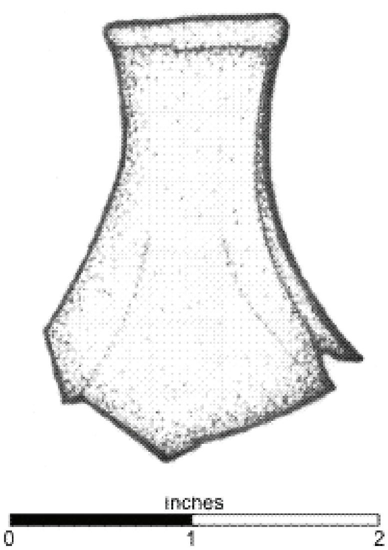

Figure 35. Condiment Bottle.

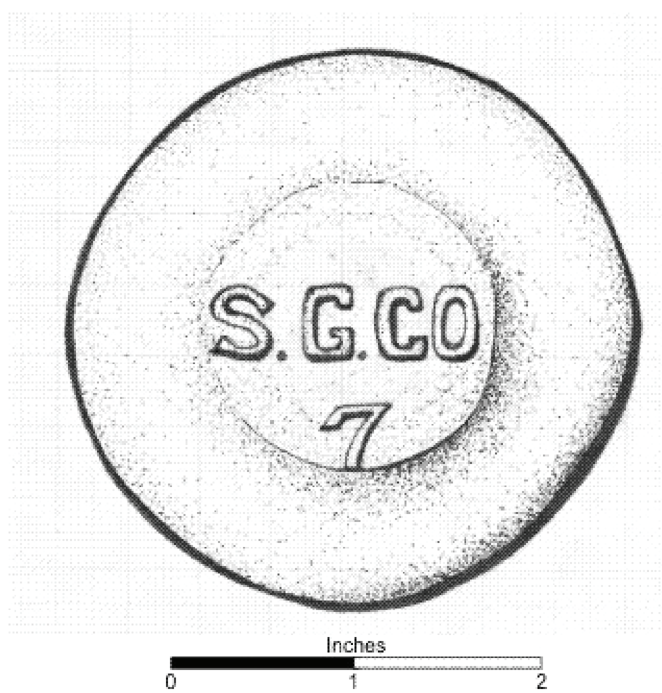

Figure 36. Embossed Brown Bottle Base.

Several bottle caps were recovered from F1 including five crown bottle caps and one metal bottle cap with "[T]RADE/DU..." imprinted. The crown cap was patented by William Painter in 1892 and consists of a simple metal cap with a corrugated skirt and a compressible liner (originally cork) inside the top, although the liner is missing from the recovered caps. The caps measure an outside diameter of one inch, a standard crown bead that continues to present day. The crown cap was not ubiquitous until new bottling machinery and uniformity was established beginning by the early twentieth century (Riley 1958; Lief 1965). The advent of better hand tooling methods in the late 1890s to early 1900s followed by the uniformity of automatic bottle machines made this closure type common by the early to mid-1910s. Berge (1980) noted that the crown finish was universal for carbonated beverages by 1912 with complete transition by 1920.

Cans or can fragments are extremely fragmented in the collection, representing 24% of the artifact inventory recovered from F1. Two can flanges are present in the F1 assemblage and likely represent a component of hole-in-top cans, but without the cap it is difficult to confidently assign type. The two rectangular rounded cornered tins and key likely represent sardine or processed meat tins. In 1895, Edwin Norton of Chicago developed a key method of opening tins. This method rolled a scored strip from the can so that the top or bottom could be removed as a single unit. In 1866, the key-wind metal tear-strip method of can opening was invented. The sardine can that has the entire top panel tear out is a good example of this method of opening. Fontana suggests that by 1880, the base and body of these cans were drawn from a single piece of metal. In the United States, the sardine can was made by automatic machinery by 1904 (Rock 1987).

Six cork fragments are the last items included in the consumption group (aside from the single peach pit), and likely from wine bottles. This along with 56 fragments of olive bottle glass speaks to champagne or wine consumption.

Structural

The structural group includes items such as square nails, wire nails, washer, screws, strap fragments, wire fragments, window glass, a tack, a spring, and a pulley wheel. This group consists of about 58% of artifacts recovered from F1.

The majority of artifacts categorized in the nail class are machine manufactured cut nails (representing 97%). They are characterized by having comparatively square, uniform heads. Pennyweights of square nails represented include 4d (11/2-inch), 6d (2-inch), 8d (21/2-inch), 10d (3-inch), and 16d (31/2-inch). Wire nails make up 3% of the nail class with 4d, 6d, 8d, and 10d pennyweight in the collection. Cut nails in the United States circa 1830 to 1890 outnumber all other kinds with respect to both number and variety. Wire nails were introduced in the United States by 1886, but it wasn't until the turn of the twentieth century when wire nails greatly outnumber cut nails (Nelson 1968).

Window glass, approximately two pounds or 298 pieces, comprise the remainder of the artifacts categorized under the structural group.

Personal

This categorical group includes artifacts such as a pipe bowl fragment, leather shoe/boot fragments, a button, a cartridge, an axe head and a textile fragment. This categorical group represents less than 1% of the artifact assemblage recovered from F1.

A pipe bowl fragment bears a roulette decoration just below the rim of the bowl (Figure 37). This type of pipe was exceptionally common in the late nineteenth century and early twentieth century. The design is similar to a pipe depicted in the George Zorn & Co. 1892 pipe and accessories catalog and referred to as "two-cent clay pipes."

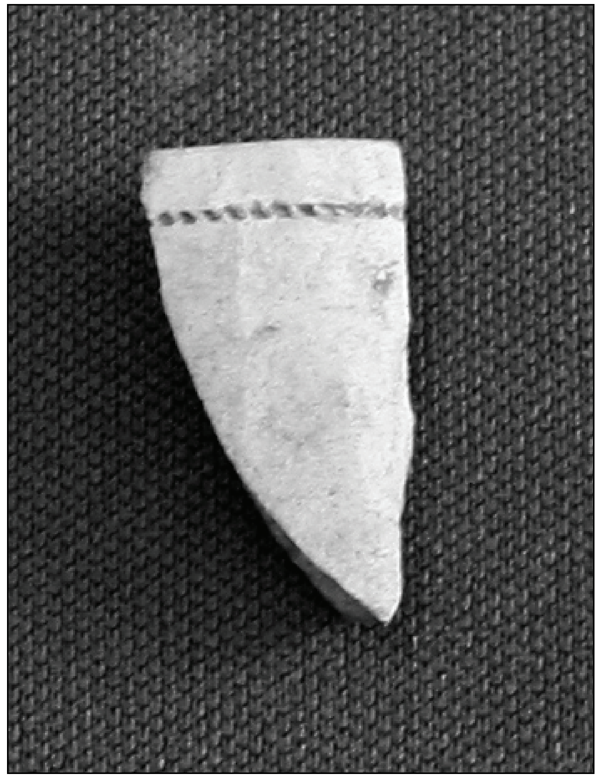

Figure 37. Pipe Bowl Fragment.

The only ammunition recovered from F1 is a .22 caliber pistol cartridge with a "P" impressed at the end. The cartridge was manufactured from Peters Cartridge Co. which operated from 1887 to 1934. The company was later absorbed by Remington Union Metallic Cartridge Co. in 1934 (Berge 1980).

Fifteen pieces of shoe/boot leather, two star-shaped clothing fasteners, a rivet, button and a single textile fragment are included in this group. The fragmentary nature of the footwear limits interpretation. The star-shaped fasteners could represent items from work clothing popular during the twentieth century. The textile fragment consists of a beige, tightly woven fabric.

Other Contexts

A total of 72 historic artifacts were recovered from one EU (Locus F, EU 5) and five STUs (Locus F, STU 3, STU 5, STU 6, STU 11 & Locus G, STU 17). These other contexts make up only 4% of the recovered historic constituents from this phase of evaluation testing. Locus F, EU 5 and Locus G, STU 17 comprise the vast majority (89%) of the remaining historic assemblage, therefore we will only discuss the artifacts recovered in these contexts.

Historic artifacts recovered from EU 5 consist of white improved earthenware sherds, brown, colorless and olive bottle glass, can fragments, window glass and metal fastener (Table 14). One piece of green bottle glass was collected from STU 3. Excavation of STU 5 resulted in the recovery of one aqua body fragment (embossed with "...AB...") and two brown body fragments (embossed with "...CO.../...E HUN..." and "...ACE"). One "1949" coin was collected from STU 6. One amethyst and one brown bottle glass fragments were taken from STU 11. The fragmentary condition and sparse nature of historic artifacts recovered from these other contexts limit meaningful interpretation. Various structural elements (i.e., nails and wire) that may represent the location of a relatively late historic structure were recovered from STU 17 (Table 15). Alternately, these artifacts represent an historic dump of structural materials.

Table 14. Locus F, EU 5 Artifact List.

GROUP	CLASS	DESCRIPTION	COUNT	MNI
Domestic	Ceramic	White Improved Earthenware	2	1
Consumption	Bottle Glass	Brown	2	1
		Colorless	1	1
		Olive	7	1
	Can	Fragments	7	1
	Window Glass	Glass	1	1
Personal	Fastener	Unidentified	1	1
Total			**21**	**7**

Table 15. Locus G, STU 17 Artifact List.

GROUP	CLASS	DESCRIPTION	COUNT	MNI
Structural	Hardware	Square Nail	25	6
		Wire Nail	10	10
		Wire	3	3
Total			**38**	**19**

Historic Faunal Remains

A total of 396 bones was recovered from Locus F, EU 1, 0–40 centimeters below surface. All of the bones, except for 13 specimens, exhibited some degree of burning. Two bones were identified as cow and the remainder were placed in the medium-large mammal and large mammal categories.

Eleven bones were also recovered from Locus G, STU 17, 0–10 centimeters below surface. All of the bones were calcined and one of the bones, identified as the second cervical vertebra of a medium mammal, was cut or sawn. One bone was identified as the distal tibia of a goat.

The faunal material recovered from EU 1 and STU 17 was broken and fragmented with the vast majority of bone exhibiting some degree of burning. Additionally, a couple of bone elements exhibited either saw or cut marks and two domestic species were identified, cow and goat. The presence of cow and goat, along with the cut or sawed bone, and the high frequency of burning may indicate that during the historic occupation of CA-NEV-13/H these species were part of the diet.

Chapter 7: Research Discussions

Research discussions address issues, contexts and questions presented in the research design for prehistoric resources. The focus of the research and research discussions reflects the nature of the archaeological deposits and the results of the investigation. The issues of prehistory are paleoenvironment, chronology, land use, lithic technology and toolstone procurement.

PALEOENVIRONMENT

Paleoenvironmental studies conducted during the investigation focused on geomorphic data to posit various aspects of the landform environment occupied during prehistory. Geomorphology addresses the whole site and the surrounding landscape to inform about site structure and site formation within the glaciated forest environment. Project area geomorphology was discussed in the Geomorphology and Stratigraphy section of this report. Site-wide environmental contexts are discussed here.

Across the large expanse of prehistoric site CA-NEV-13/H, the artifact concentrated loci, along with a more generally dispersed artifact assemblage, rest on or are buried between a series of at least four recessional moraines formed during the terminal phase of the Tioga (latest Pleistocene) glaciation (Birkeland 1964). The moraines mark pauses during general glacial retreat (Tioga-phase recession) between about 18,000 and 12,000 years ago; the moraines are younger from east to west. As moraines form during retreat, outwash channels maintain drainage through the moraines so that moraines rarely produce complete natural dams. Eventually outwash cannot remove glacial debris and a lake fills the void left by the retreating ice. Outwash channels of the Donner glacier extended along the north side of the glacial trough. The outwash path is marked by the north-side truncation of each moraine. Post-glacial drainage from Donner Lake (i.e., Donner Creek) followed a similar course along the northern margin of the valley. Donner Creek, in its modern configuration, cuts through the four moraines on its short reach before joining the Truckee.

Stream flow in Donner Creek is controlled by outflow from the lake basin. During the Holocene, the elevation of Donner Lake has fluctuated dramatically. Lindström (1997:266) reports submerged trees on the northern margin of the lake at approximately 10 meters below the lake's modern spill elevation. The now-submerged stumps have been radiocarbon dated to approximately 500 years ago. These dates, along with dated, submerged stumps in Independence Lake from 670 years ago, provide evidence for relatively prolonged drought beginning sometime prior to 700 years ago (Lindström 1997). Corresponding to the late drought of the Medieval Climatic Anomaly (Stine 1990), this regional drought would have shifted the local mosaic of lake and stream resource productivity. Nevertheless, it is likely that a small tarn (i.e., glacial lake) remained in the Donner basin even during the most persistent droughts of the middle and late Holocene, providing water and resources for prehistoric occupations.

Although isolated from the lake basin, Donner Creek would have risen downstream of the modern outlet as groundwater passed through the unconsolidated sediments of glacial outwash. It is likely that productive fish runs would have been cut off during times when Donner Lake was disconnected from the Truckee system. On the other hand, as the lake receded from the steep valley walls marshlands may have colonized the exposed lake bed to provide new resources. Unfortunately, there are no prehistoric faunal or floral remains in the deposit to represent prehistoric resources.

In essence, Donner Creek was probably always an attractive environment for prehistoric habitation. The locations of occupation across site CA-NEV-13/H, including Locus F and Locus G, likely varied according to fluctuating environmental conditions throughout prehistory.

CHRONOLOGY

Occupations at Locus F and Locus G began possibly 10,000 years ago and continued until just prior to Euro-American settlement. Chronological studies frame the major periods of prehistoric occupation to provide temporal contexts for discussions of site activities and the development and transformation of the archaeological record. The Eastern Sierra Front Chronology (see *Prehistory* discussion and Table 1 on pages 11-12) provides a relevant temporal framework for interpreting Donner Basin archaeology.

Chronological interpretations for Locus F and Locus G rely on obsidian hydration data from 41 artifacts recovered from subsurface contexts. Temporal periods are interpreted in reference to three high elevation Sierran hydration data sets and a hypothetical obsidian hydration rate curve developed for the Tahoe Sierra (see *Tahoe Sierra Research Design*: Table 2, Figure 6, and related discussion on pages 23-27). In addition, seven projectile points are temporal indicators that lend support to the hydration data.

Obsidian Hydration Analysis

The obsidian sample submitted for hydration analysis totaled 43 artifacts, including two bifaces and 41 pieces of debitage. All obsidian tools and 85% of the recovered obsidian debitage were submitted for hydration analysis. Hydration analysis returned 41 rim measurements (Appendix D). Only two of the debitage had no rim values. Both were unreadable; one because it is an opaque flake of Sutro Springs obsidian and the other because the flake morphology resulted in a beveled thin section edge.

Locus F

Nine obsidian hydration rim values on debitage from four of the six excavation units represent Locus F chronology. Hydration values range from 7.7 to 4.5 microns (Table 16), reflecting relatively early occupations across the locus. The initial use of Locus F is represented by the one 7.7 micron outlier (Figure 38) indicating the first occupations began during the Early Holocene, probably more than 8,000 years ago. More consistent, but probably discontinuous occupations are represented by the remaining eight rim values ranging from 6.6 to 4.5 microns (Figure 38). These data reflect predominantly Middle Holocene occupations from the Early Archaic and into the Middle Archaic, from approximately 6700 BP to probably about 3600 BP.

Eighteen additional obsidian hydration rim values ranging from 5.7 to 1.7 microns come from previous excavations at Locus F/G (Bloomer and Lindström 2006a). The Locus F/G hydration data indicate occupations in the vicinity of Locus F on the north side of Donner Creek continued from the Early Archaic through the long Middle Archaic Period and into Late Archaic times.

Table 16. CA-NEV-13/H Test Obsidian Studies Data Sample Count, Hydration Ranges, Means, Standard Deviations and Outliers.

LOCUS	COUNT	RANGE	MEAN	SD	OUTLIERS
F	9	6.6-4.5	5.6	0.6	7.7
G	27	7.2-4.8	5.8	0.6	8.5, 8.0, 4.1, 3.5
G	5	2.5-1.2	1.8	0.5	-

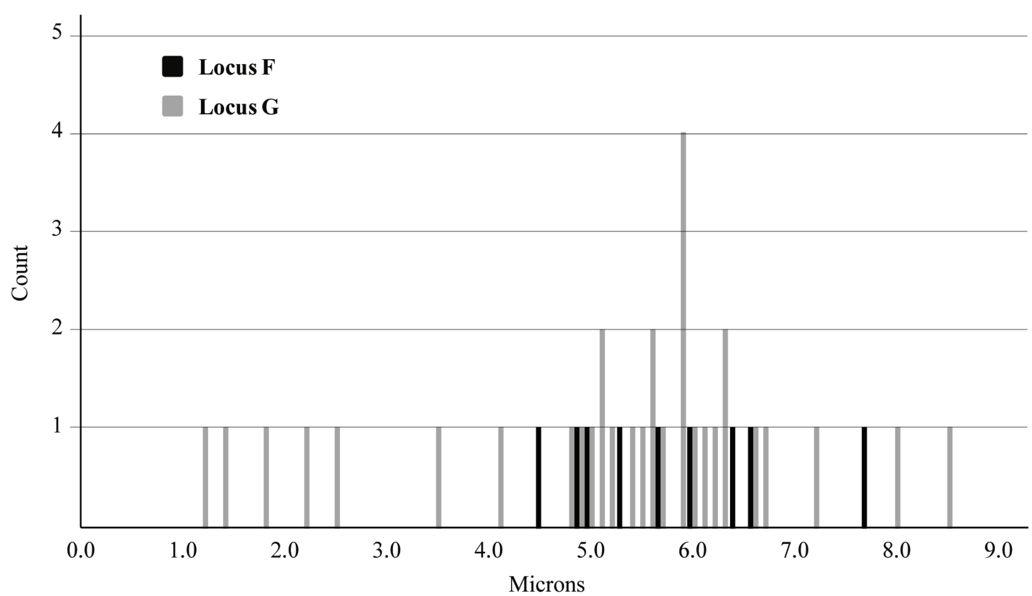

Figure 38. Locus F and Locus G Hydration Data.

Locus G

Thirty-two obsidian hydration rim values for the two bifaces and 30 debitage represent Locus G chronology. These hydration values range from 8.5 to 1.2 microns, representing two distinct occupation periods with four outliers (see Table 16). The initial use of Locus G is represented by the 8.5 and 8.0 micron outliers (see Figure 38) indicating the first occupations began during the Early Holocene, probably more than 10,000 years ago. More consistent, but again probably discontinuous occupations are represented by 27 rim values, ranging from 7.2 to 4.8 microns (see Figure 38). These data reflect predominantly Middle Holocene occupations, from the late Pre-Archaic Period and continuing through the Early Archaic and into the Middle Archaic, from approximately 7700 BP to probably about 4000 BP.

Two outliers at 4.1 and 3.5 microns (see Table 16) indicate decreased sporadic occupations at Locus G during the later Middle Archaic from about 4000 to 1300 BP. Additional obsidian hydration data collected from Locus G during data recovery excavations near Donner Dam (Bloomer and Lindström 2006a) supports an interpretation of decreased Middle Archaic occupations.

The second period of more consistent occupations within Locus G is represented by five rim values from 2.5 to 1.2 microns (see Table 16, Figure 38). This last period of probably discontinuous Late Archaic occupations occurred from 1300 to about 300 BP. Additional hydration data representing this period was collected during the Locus G data recovery excavations (Bloomer and Lindström 2006a).

Radiocarbon (14C) Analysis

A radiocarbon sample composed of charcoal fragments collected from Locus G, Concentration 1, EU 7, under a rock at approximately 50 centimeters below surface, was submitted to Beta Analytic for radiocarbon dating. This 14C sample returned a 2300 BP conventional radiocarbon age with a 2340 BP calibration curve intercept (Appendix F). The 2340 BP date correlates with the 3.5 micron (approximately 2380 BP) hydration outlier from Locus G, Concentration 5, EU 6 at 40–50 centimeters below surface. Together, the radiocarbon date and hydration outlier represent the apparently infrequent late Middle archaic occupations.

Projectile Points

The seven projectile points include five from Locus F and two from Locus G (Table 17). All of the projectile points generally represent the long Middle Archaic time period (see *Prehistory* discussion and Table 1 on pages 11-12). Projectile points from Locus F include two Martis Corner-notched, two Elko Corner-notched and one Lanceolate form (see Figure 22). Projectile points from Locus G include one Elko Corner-notched and one Lanceolate.

Martis and Elko series projectile points are considered contemporaneous, representing occupations during the Middle Archaic–Late Martis phase from 3000 to 1300 BP. The Lanceolate points may be older, generally representing the early Middle Archaic from 5000 to 3000 BP. At the same time, the fact that Locus F and Locus G were predominantly occupied from the Early Archaic period to early Middle Archaic suggests that these projectile points may have a greater antiquity, beyond the traditional chronology.

Additional Martis and Elko series projectile points and several dart size points, including one with an intriguingly ancient form, were previously collected from Locus F/G and Locus G during data recovery excavations (Bloomer and Lindström 2006a). One obsidian Desert Side-notched projectile point recovered from Locus F/G during data recovery excavations (Bloomer and Lindström 2006a) with a 1.8 micron hydration rim value reflects a <700 BP age, consistent with the latest site occupations.

Table 17. Chronological Placement of Locus F and Locus G Test Investigation Projectile Points.

	CHRONOLOGY
Great Basin Stemmed Series	7000 BP----
Martis and Elko Series, Lanceolate	1300 BP ----- 3000 BP ----- 5000 BP -------
Rose Spring Series	700 BP ---- 1300 BP
Desert Series	-- 700 BP
	Historic Contact

	POINT TYPES			
	MCN	ECN	LAN	TOTAL
Locus F	2	2	1	5
Locus G		1	1	2
Total	**2**	**3**	**2**	**7**

Notes: MCN – Martis Corner-notched; ECN – Elko Corner-notched; LAN – Lanceolate.

LAND USE

The concentrated nature of the relatively diverse prehistoric artifact assemblages of Locus F (including Locus F/G and concentration C1, see Figure 8) and within six distinct concentrations (C1–C6, see Figure 9) at Locus G indicates that land use within these areas of the site was marked by frequent, probably long term, as well as short term occupations. It was likely that residential activities took place all across Locus F with repeated occupations at Locus F/G. At Locus G, concentration C1 was the primary residential activity area.

Also, within Locus F at concentration C1 (see Figure 8) and at Locus G in concentrations C4–C6 (see Figure 9), small clusters of basalt debitage may reflect short term, possibly single event, tool manufacture and/or maintenance activities. The existence of the small clusters represents the probable occurrence of short term single reduction event contexts all across the larger site area. Each short term reduction cluster may hold temporal indicators for dating single event land use and associated artifact assemblages.

Both Locus F and Locus G lie west of other prehistoric loci, such as Locus B and Locus E (see Figure 3). It is clear that the Locus F and Locus G site areas were just two of multiple loci within the larger site area that were used, concurrently or at different times, to conduct a high number of diverse tasks. Between the loci, the prehistoric assemblage is predominantly basalt debitage, representing the remnants of low frequency basalt tool manufacture and maintenance (Bloomer and Bischoff 2007).

FLAKED STONE TECHNOLOGY

Flaked stone technology at CA-NEV-13/H Locus F and Locus G was marked by percussion and pressure basalt biface manufacture. The full biface reduction continuum from percussion core/blank reduction, through percussion bifacial thinning, to pressure finishing was the primary basalt reduction and artifact manufacture activity at both loci.

Basalt cobble and block core reduction may have infrequently occurred on site, but the absence of basalt cores in the flaked stone assemblage and the relatively low frequencies of cortical debitage indicate core reduction was primarily conducted off-site. Core reduction was probably most common at basalt source locations—quarries such as Alder Hill—where large cobbles and blocks were procured and reduced into flake blanks for biface manufacture (McGuire et al. 2006). Flake blanks were transported to Locus F and Locus G for tool manufacture and use. Early and late stage bifaces may have also been imported for further reduction and use. Some of the late stage percussion thinning debitage and pressure flakes probably result from bifacial tool maintenance.

Projectile points and small to large bifacial knives are the tools that were commonly made using biface technology. In contrast, the majority of the other flaked stone tools, including the unifaces, flake tools, edge modified flakes and drills have unifacial percussion and pressure modified edges.

Obsidian reduction at both loci was minimal, predominantly late stage bifacial thinning and bifacial pressure flaking, probably done primarily to maintain a small number of imported obsidian bifacial tools. CCS reduction was only slightly more frequent, with an emphasis on core reduction and the initial reduction of flake blanks to manufacture flake tools. Nevertheless, it is likely that a majority of the CCS tools, including bifaces, drills, unifaces and flake tools, were imported.

GEOCHEMICAL SOURCE ANALYSIS AND TOOLSTONE PROCUREMENT

Geochemical source analysis for the test investigations across Locus F and Locus G describes XRF analysis data for 27 basalt artifacts and 28 obsidian artifacts. The source distribution of basalt being transported to CA-NEV-13/H represents regional land-use patterns and the central geographic interaction sphere for the Locus F and Locus G occupants. Obsidian sources are predominantly more distant and obsidian artifacts were more likely to have been exchanged or traded. Therefore, obsidian source distributions represent extensions of the interaction sphere from its central core.

The forms of imported tools reflect how procurement was organized as part of the land-use strategies. The presence of only projectile points from a specific distant source might suggest trade, while cores, early and late stage bifaces and manufacture debitage indicate procurement and processing were conducted as part of regularized land use.

Our discussion of the geographic breadth and temporal interpretations of Donner Lake obsidian procurement within an "obsidian triangle" relies on obsidian studies data from our test investigations, but also draws on obsidian studies data from the previous data recovery investigation at Locus F/G and Locus G (Bloomer and Lindström 2006a). Working with the two data sets provides a robust database for interpretations about land use and obsidian procurement through time.

Basalt

Twenty-seven basalt tools, representing tool diversity at each locus, were submitted for geochemical (XRF) source analysis (Appendix D). A comparison of XRF results for Locus F and Locus G shows a general similarity in the kinds of basalt being used at each locus (Table 18). The basalt sources include Alder Hill, Alder Hill/Watson Creek, Gold Lake, Steamboat Hills (Figure 39) and one unknown source.

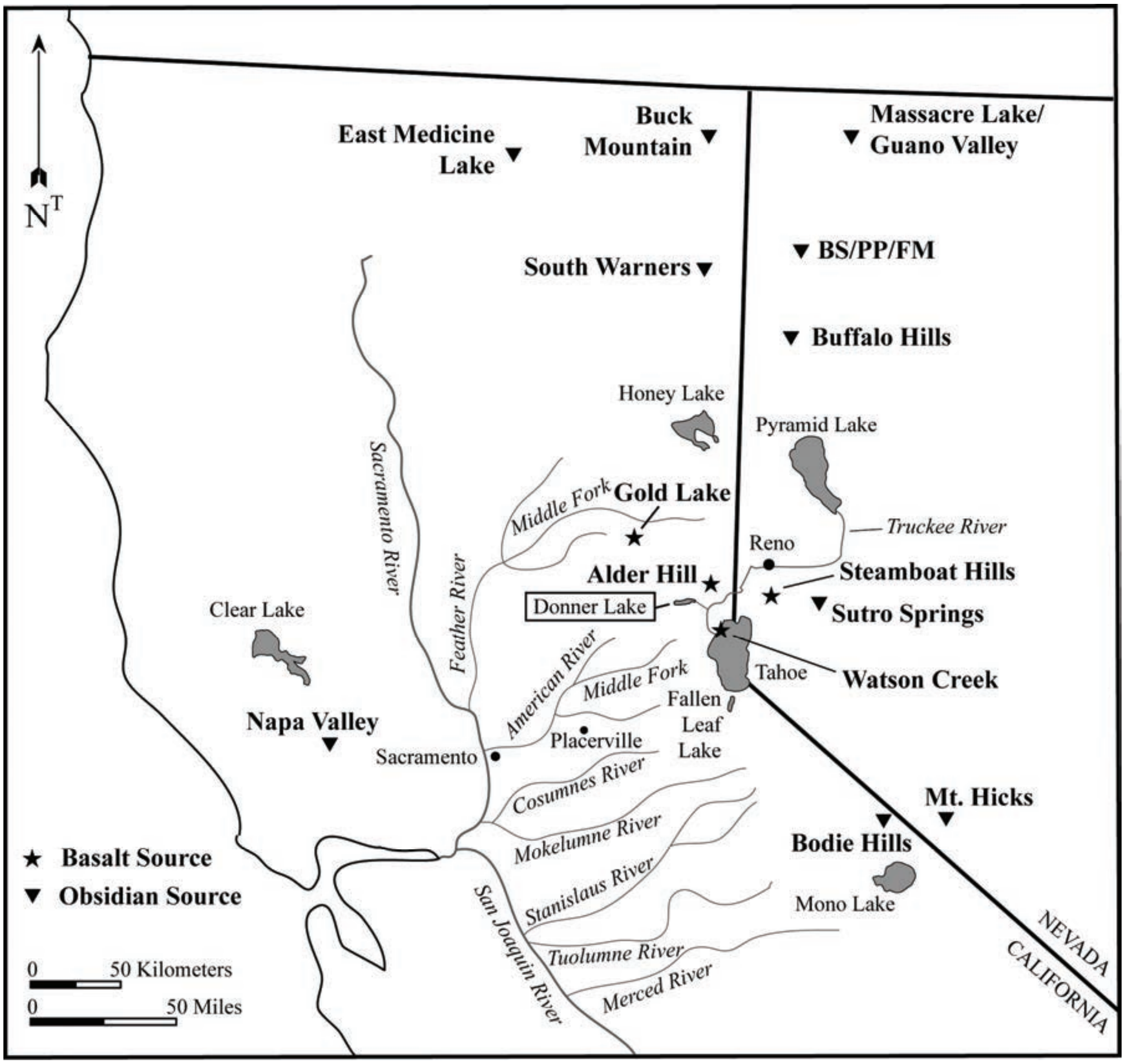

Figure 39. Basalt and Obsidian Sources represented at Locus F and Locus G.

The Alder Hill quarry located four miles northeast of Donner Lake was the primary source for basalt procurement, accounting for 81% of the total basalt XRF sample. Alder Hill is a large quarry area where good quality grainy gray basalt is abundant at multiple quarry loci (Lindström 2000; McGuire et al. 2006). Alder Hill was a major regional basalt source, extensively used and distributed throughout the northern Sierra (Day et al. 1996). Donner Lake residents would likely have had direct access to the quarry.

One lanceolate projectile point identified as Alder Hill/Watson Creek basalt has a chemical signature that is not distinct between the two basalt sources. In addition, both basalts have similar good knapping qualities and grainy gray visual characteristics. The Watson Creek source is located above Tahoe's north shore, about 10 miles southeast of Donner Lake. Therefore, the Alder/Watson geochemical signature represents relatively local basalt procurement.

The projectile points show the most source diversity with three (43%) Alder Hill, two (29%) Gold Lake, one (14%) Alder/Watson and one (14%) unknown. Gold Lake basalt is fine grain black toolstone with small quartz phenocrysts. It has good knapping qualities for tool manufacture and is abundant at the source. The Gold Lake source is located approximately 30 miles northwest of Donner Lake. Therefore, the Gold Lake projectile points were possibly imported as trade or exchange items.

Basalt procurement from the Steamboat Hills source, located about 25 miles east of Donner Lake, is represented by one biface. Steamboat Hills basalt is also good quality fine grain black toolstone with quartz phenocrysts. This biface is probably a projectile point blade midsection. As a projectile point, it may have been traded, but direct procurement is more likely because the Steamboat Hills source is on the seasonal travel route from winter villages in western Nevada. The projectile point made of basalt from an unknown source could represent procurement from a distant source, as well as local cobble basalt procurement from Donner Creek.

Table 18. CA-NEV-13/H Test – Basalt Source Data by Artifact Type and Locus.

	Alder Hill	Alder/ Watson	Gold Lake	Steamboat Hills	Unknown	Total
Projectile Points						
Locus F	3	-	1	-	1	5
Locus G	-	1	1	-	-	2
Bifaces						
Locus F	6	-	-	-	-	6
Locus G	5	-	-	1	-	6
Uniface						
Locus F	2	-	-	-	-	2
Locus G	1	-	-	-	-	1
Flake Tools						
Locus F	3	-	-	-	-	3
Locus G	2	-	-	-	-	2
Locus F Subtotal	14 / 88%	-	1 / 6%	-	1 / 6%	16 / 100%
Locus G Subtotal	8 / 73%	1 / 9%	1 / 9%	1 / 9%	-	11 / 100%
Sample Total	22 / 81%	1 / 4%	2 / 7%	1 / 4%	1 / 4%	27 / 100%

Notes: Percentages are rounded and do not exactly total 100%.

Overall, the common use of Alder Hill basalt to manufacture the major part of the flaked stone toolkit reflects land use focused along the Truckee River, below its Tahoe reach, and to the north. The lack of basalt toolstone from Sawtooth Ridge located only six miles southeast, and from Watson Creek on Tahoe's north shore, suggests infrequent or restricted land use to the south towards Tahoe.

Obsidian

Two obsidian bifaces and 26 obsidian debitage, including all obsidian artifacts that met the minimal size requirements, were submitted for geochemical (XRF) source analysis (Appendix D). The sample data is robust, representing 100% of the obsidian tools in the collection and 54% of the obsidian debitage. Ten obsidian sources were identified, including Bodie Hills, Bordwell Spring/Pinto Peak/Fox Mountain (BS/PP/FM), Buck Mountain, Buffalo Hills, East Medicine Lake, Massacre Lake/Guano Valley, Mt. Hicks, Napa Valley, South Warners and Sutro Springs (Table 19, see Figure 39). Sutro Springs obsidian is most common, represented by 29% of the total sample. BS/PP/FM and Mt. Hicks obsidian share second place at 18% each, followed closely by 14% Bodie Hills obsidian. Each of the six other sources (Table 19) is represented by one (4%) specimen.

Only two sources are represented at both loci, Bodie Hills and BS/PP/FM. Otherwise the sources represented at each locus are different. The Locus G sample shows the most obsidian source diversity, representing eight of the ten sources (Table 19). At the same time, the Locus F sample represents two sources not evident in the Locus G sample (Table 19). Overall, the large number of sources is uncommon at many Tahoe Sierran sites and the predominant sources are atypical for Tahoe Sierran sites.

Table 19. CA-NEV-13/H Test – Obsidian Source Data by Artifact Type and Locus.

	Bodie Hills	Sutro Springs	Mt. Hicks	Napa Valley	Bordwell Spring/Pinto Peak/Fox Mountain	South Warners	Buffalo Hills	E. Medicine Lake	Buck Mountain	Massacre Lake/ Guano Valley	Total
Bifaces											
Locus G	-	1	-	-	-	-	-	-	-	1	2
Debitage											
Locus F	2	-	-	-	4	-	1	1	-	-	8
Locus G	2	7	5	1	1	1	-	-	1	-	18
Locus F Subtotal	2/ 25%	-	-	-	4/ 50%	-	1/ 13%	1/ 13%	-	-	8/ 100%
Locus G Subtotal	2/ 10%	8/ 40%	5/ 25%	1/ 5%	1/ 5%	1/ 5%	-	-	1/ 5%	1/ 5%	20/ 100%
Sample Total	4/ 14%	8/ 29%	5/ 18%	1/ 4%	5/ 18%	1/ 4%	1/ 4%	1/ 4%	1/ 4%	1/ 4%	28/ 100%

The prevalence of Sutro Springs obsidian is somewhat surprising because the Sutro Springs source is usually not the predominant obsidian source in Tahoe Sierra assemblages, even though Sutro Springs is the closest obsidian source at about 45 miles east of Donner Lake (Markley and Day 1992). However, low frequencies of Sutro Springs obsidian are common at many prehistoric sites across the Tahoe Sierra. The fact that 29% of the obsidian sample comes from Sutro Springs suggests that Donner Lake residents had ready access to the Sutro Springs source.

The relatively high frequency of BS/PP/FM obsidian at 18% is also uncommon in the Tahoe Sierra. This source is actually a complex of good quality obsidian source locations approximately 110 miles north of Donner Lake collectively known as BS/PP/FM (Bordwell Spring/Pinto Peak/Fox Mountain [BS/PP/FM]). The BS/PP/FM obsidian occurs sporadically in typically low frequencies at other sites in the Truckee area. The equally high frequency of Mt. Hicks obsidian is more common for Tahoe Sierran sites. The Mt. Hicks source is large and of good quality, located only about 15 miles east of Bodie Hills, but lesser frequencies than for Bodie Hills are typical at Tahoe Sierra prehistoric sites. In fact, the lower frequency of Bodie Hills obsidian, at 14%, contrasts with the general dominance of Bodie Hills obsidian throughout the northern Sierra (Markley and Day 1992), although located 100 miles to the southeast.

The Obsidian Triangle

The most distant obsidian sources (Figure 40) approximate an "obsidian triangle" and represents the far reaching cultural interaction sphere of Donner Lake occupants and the geographic breadth of Tahoe Sierran obsidian procurement. Obsidian from these sources probably was procured through exchange. The sample artifacts, representing these distant sources, are predominantly late biface thinning flakes and late pressure flakes that probably result from the maintenance of obsidian bifacial tools exchanged in finished forms. Alternatively, considering the antiquity of the obsidian sample, source diversity might reflect great distances traveled by Early and Middle Holocene populations from the Great Basin across the Sierra to California, and back.

Mt. Hicks is located approximately 115 miles southeast of Donner Lake in the southeastern corner of the obsidian triangle. This large source of good quality obsidian, although located just 15 miles east of Bodie Hills, is typically represented by lesser percentages than Bodie Hills obsidian in Tahoe Sierran XRF samples. The higher proportion of Mt. Hicks obsidian, compared to that for Bodie Hills, in the Donner Lake sample is unusual in the Tahoe Sierra. Whereas Bodie Hills was obviously within the primary interaction sphere of Tahoe Sierran populations, Mt. Hicks was thought just that much more distant, on the fringe of Tahoe Sierran interaction, and possibly in the territory of other populations. The greater frequency of Mt. Hicks obsidian at Donner Lake suggests relatively greater direct access or unusually frequent long distance trade. In addition, three specimens of Casa Diablo obsidian recovered during the previous data recovery excavations at Locus F/G (Bloomer and Lindström 2006a) extend the Donner Lake interactions sphere another 40 miles south of Bodie Hills and Mt. Hicks.

Obsidian identified from the Coast Range was transported from the western corner of the obsidian triangle. The Napa Valley source south of Clear Lake is approximately 135 miles west of Donner Lake. Obsidian from this source is most common across the western Sierra Nevada foothills, decreasing along the eastern Sierra front. The Napa Valley source is represented by only one specimen in our test excavation sample from Locus G. However, Napa Valley obsidian was represented by five specimens from previous excavations at Locus F/G (Bloomer and Lindström 2006a). In addition, previous excavations at Locus F/G and Locus G (Bloomer and Lindström 2006a) recovered obsidian from two other Coast Range sources at Borax Lake and at Annadel (Figure 40).

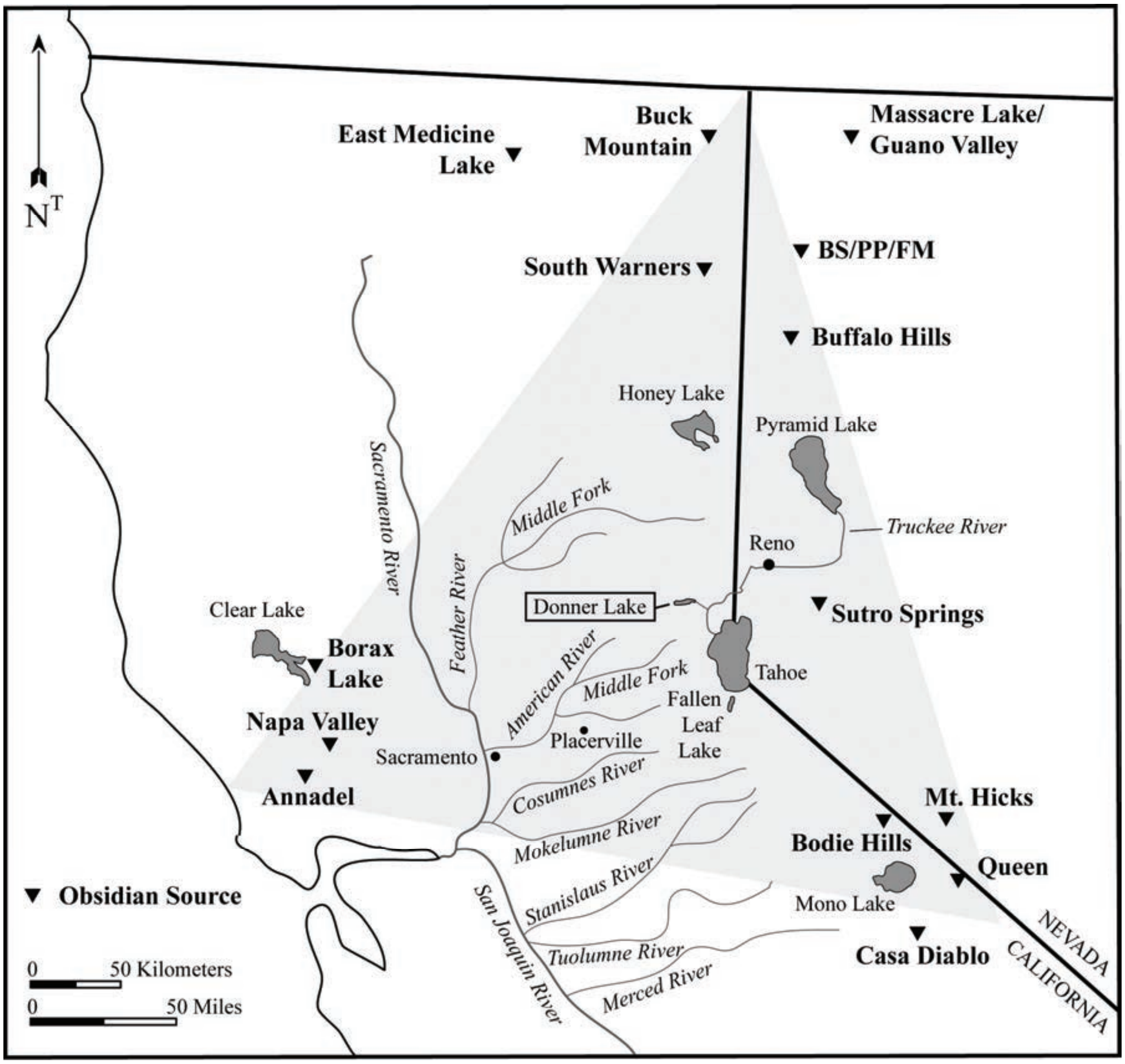

Figure 40. The "Obsidian Triangle."

The northern extent of the triangle is marked by the import of obsidian from six sources across a large area in northeastern California and northwestern Nevada where many good quality obsidian sources are located. While low frequencies of obsidian from northwestern Nevada and northeastern California occur at other sites in the Truckee area, the occurrence of obsidian from six different sources at one site is unusual and suggests Donner Lake occupants had an atypical connection to the north. The most distant sources are Massacre Lake/Guano Valley, Buck Mountain and East Medicine Lake, each located approximately 160 to 170 miles northwest to northeast of Donner Lake. Buffalo Hills, South Warners and BS/PP/FM are somewhat closer at from 100 to 130 miles north of Donner Lake.

Obsidian Procurement Through Time

Pairing obsidian source data with hydration data shows that the predominant Sutro Springs source was primarily used during the early occupations at Locus F and Locus G (Table 20), beginning during the Middle Holocene–Early Archaic and continuing into the Late Holocene–Middle Archaic. One specimen from our Locus G excavation and one specimen from previous excavations at Locus F/G (Bloomer and Lindström 2006a) indicate Sutro Springs obsidian was also used to a minimal extent during Late Archaic site occupations.

Table 20. Obsidian Studies Data Source Hydration Micron Ranges and Means.

SOURCE	COUNT	RANGE	MEAN	SD
LOCUS F				
Bodie Hills	2	5.3-4.9	5.1	0.3
BS/PP/FM	4	7.7-6.0	6.6	0.7
Buffalo Hills	1	4.5	n/a	n/a
E. Medicine Lake	1	5.0	n/a	n/a
LOCUS G				
Bodie Hills	2	6.6-6.0	6.3	0.5
Sutro Springs	6	6.2-5.0	5.5	0.4
Sutro Springs	1	1.2	n/a	n/a
Mt. Hicks	5	8.0-1.4	4.0	2.7
Napa Valley	1	7.2	n/a	n/a
Bordwell Spring/Pinto Peak/Fox Mountain	1	6.1	n/a	n/a
South Warners	1	4.1	n/a	n/a
Buck Mountain	1	5.9	n/a	n/a
Massacre Lake/Guano Valley	1	8.5	n/a	n/a

Hydration data for the BS/PP/FM samples, including a single specimen from previous excavations at Locus F/G, indicate obsidian procurement from the BS/PP/FM source only occurred during the early occupations, begin during the Early Holocene–Pre-Archaic, probably more than 8,000 years ago. In addition, the single hydration values for East Medicine Lake, Buck Mountain and Massacre Lake/Guano Valley obsidian indicate the procurement of these most northern sources also occurred only during early occupations. In fact, the 8.5 micron rim value for the Massacre Lake/Guano Valley sample (a small biface) suggests initial occupation at Locus G occurred probably more than 10,000 years ago by people with connections to the far north.

The Buffalo Hills obsidian is known to hydrate at a relatively slow rate (McGuire et al. 2006:88). Therefore, the one specimen from Buffalo Hills, with a 4.5 micron value, probably indicates procurement during the early site occupations, along with the other northern sources. The only northern source represented by slightly later hydration is the South Warners source. One South Warners specimen with a 4.1 hydration rim value probably dates to an early Middle Archaic occupation, around 3100 BP.

Hydration data for Mt. Hicks obsidian indicates this source was in use from the earliest Pre-Archaic occupations, probably more than 9,000 years ago, until the last occupations of the Late Archaic. Bodie Hills hydration data from our project, as well as from previous excavations at Locus F/G and at Locus G (Bloomer and Lindström 2006a), indicates use of this source throughout the Early Archaic to Late Archaic site occupations.

The one Napa Valley obsidian flake recovered during our test excavations returned a hydration rim value of 7.2 microns. This relatively thick rim value indicates import of Napa Valley obsidian as early as 7,700 years ago. The five Napa Valley artifacts recovered during previous excavations at Locus F/G returned hydration values ranging from 5.1 to 2.7 microns (Bloomer and Lindström 2006a). This wide range indicates Napa Valley obsidian transport continued throughout the Middle Archaic.

Chapter 8: Summary and Conclusion

The results of data analyses acquired through this investigation indicate that CA-NEV-13/H was an important residential site, initially occupied sometime during the Early Holocene and continued, more consistently, through the Early Archaic and Middle Archaic periods with use continuing up to Euro-American settlement. Flaked stone activities at both loci primarily centered on percussion and pressure basalt biface manufacture. Obsidian and CCS reduction was minimal and represents late-stage bifacial thinning and bifacial pressure flaking, probably to maintain a small number of imported bifacial tools.

The prehistoric collection recovered from Locus F is quite substantial and included five basalt projectile points (i.e., Martis corner-notched, Elko corner-notched and lanceolate), 19 bifaces (18 basalt and one CCS), one CCS drill, two basalt unifaces, seven flake tools (six basalt, one CCS), two basalt edge modified flakes and 2,199 debitage (2,162 basalt, 24 CCS, 13 obsidian). Hydration rim values from obsidian sampled from Locus F suggests that the area was visited as early as 8,000 years ago, but more consistently occupied from Early Archaic into the Middle Archaic, 6700 to 3600 BP.

The Locus G prehistoric assemblage is somewhat similar to Locus F and consists of 2,022 items, including two basalt projectile points (Elko corner-notched and lanceolate), 20 bifaces (18 basalt, two obsidian), one CCS drill, three unifaces (one basalt, two CCS), four flake tools (three basalt, one CCS), four basalt edge modified flakes, one CCS core, one *itdemge* (milling slab) and 1,984 debitage (1,892 basalt, 57 CCS, 35 obsidian). It appears, based on obsidian hydration data, that Locus G was occupied during two distinct occupational periods, the earliest represented by a 8.5 hydration rim value and interpreted as Early Holocene, possibly more than 10,000 years ago.

The regional interaction sphere for CA-NEV-13/H residents was relatively local with an emphasis on the Truckee River corridor and areas to the north. Alder Hills basalt, located four miles northeast of Donner Lake, was the primary source for toolstone procurement, although Gold Lake (30 miles northwest) and Steamboat Hills (25 miles east) are also represented in the basalt sample. Lack of toolstone from Sawtooth Ridge and from Watson Creek on Tahoe’s north shore suggests infrequent or restricted land use to the south, towards Tahoe.

The obsidian dataset shows that as many as 10 distinct obsidian sources are represented, with Sutro Springs being the most common. Although Sutro Springs is the closest source to Donner Lake (45 miles east), it is usually not the dominant source represented at Tahoe Sierran sites. It is also unusual that a relatively high frequency of obsidian from northeastern California and northwestern Nevada are represented at the site. It appears that Donner Lake residents had long distance interactions, through trade or direct access, that extended north and east, as well as to the west and southeast.

Chapter 9: National Register Eligibility and Management

The federal government established the NRHP and the protocols for eligibility and nomination as a process by which significant historic properties may be preserved. The listing of a property in the NRHP ensures that a historic property is afforded protection under the provisions of the National Historic Preservation Act (NHPA).

The purpose of the archaeological site investigation for CA-NEV-13/H, Locus F and G is to evaluate the significance of the prehistoric component that exists in this portion of the site. These loci were assessed using eligibility criteria set forth in Section 106 of the National Historic Preservation act (NHPA) of 1966 (as amended through 1992; regulations occur as 36 CFR Part 800). This legislation states the following:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and
>
> (A) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (D) that has yielded, or may be likely to yield, information important in prehistory or history.

In addition to these four criteria, there is a general stipulation that an eligible property be 50 or more years old (for exceptions, see 36 CFR 60.4, Criteria Considerations A-G). Cultural resources may also possess public and ethnic values, such as the potential to help educate the public about important aspects of national, state or local history and prehistory. In this regard, cultural properties are evaluated in terms of the NRHP criteria, with attention focused on integrity and information potential.

The eligibility of a cultural resource nominated for listing in the NRHP may be based upon any single criterion or any combination of the four criteria. Whereas some criteria are best addressed through archival or architectural research, Criterion D is typically documented with archaeological evidence. The research design for this project, as presented in Tahoe Sierra Research Design section of this report, defines methods for the evaluation of Locus F and G under Criterion D.

Prehistoric archaeological sites are usually evaluated with respect to Criterion D. Under Criterion D, sites are considered eligible for the NRHP if they have yielded, or have the potential to yield...

> important information about some aspect of prehistory or history, including events, processes, institutions, design, construction, settlement, migration, ideals, beliefs, lifeways, and other facets of the development or maintenance of cultural systems... Any consideration of a property's eligibility under Criterion D must address (1) whether the property has information to contribute to our understanding of history or prehistory and (2) whether that information is important.

Whether or not the information contained in a site is considered important is determined by the capability of that information to address issues pertinent to local and regional prehistoric research. It is necessary, therefore, to develop local and regional research contexts, like those presented in this document, so that important research issues, and the range of archaeological information capable of addressing those issues, can be identified. Once issues and data requirements have been identified, eligibility determinations can be made based on whether a site or group of related sites possess (or have the potential to possess) data capable of addressing those issues.

In determining site significance, a key concept is "integrity," that is the physical condition of a cultural resource. If the physical condition of a site is such that important information about history or prehistory potentially can be derived from the property, then it is said to possess integrity. If various processes of disturbance—environmental or cultural, intentional or unintentional—have so impacted the property that the cultural essence of the site has been lost or severely damaged, then the property is said to lack integrity. In general, properties that lack integrity also lack the potential to provide important information about prehistory, or history, and are therefore not usually considered eligible for listing in the NRHP.

SIGNIFICANCE

Based on the results of this archaeological investigation at Locus F and G, along with findings from the data recovery effort at Locus F/G (Bloomer and Lindström 2007), we contend that the prehistoric component that makes up the western half of CA-NEV-13/H—consisting of Locus F, Locus G and Locus F/G—is significant and meets the criteria for the NRHP.

The results for this test investigation proved invaluable not only for addressing future project impacts, but also to provide important information regarding the prehistory of the region, most especially concerning our developing understanding of Early Archaic settlement patterns.

Virtually nothing is known about prehistoric lifeways and land-use patterns in the Tahoe Sierra during the Early Archaic. The general lack of Early Archaic deposits in the region could be the result of taphonomic conditions (i.e., removed by erosion or buried through deposition), or, more likely, related to the nature of early land-use patterns, in that population densities were low and highly mobile, not leaving an archaeological signature on the landscape. Therefore, the fact that Early Archaic deposits exist at CA-NEV-13/H is exceptional.

The predominance of Early Archaic occupations at CA-NEV-13/H provides a unique temporal context for Tahoe Sierran obsidian studies. Interpretation of geochemical sourcing and hydration data from Locus F and G provide the basis for a discussion of the movement of obsidian through the High Sierran Truckee corridor, from sources as far distant as the North Coast Ranges, east-central California, northwestern Nevada, and northeastern California, with Donner serving as a primary nexus for California and Great Basin interaction. CA-NEV-13/H was likely an integral part of a developing exchange system and remained a part of the system throughout prehistory.

Site CA-NEV-13/H, Locus F and Locus G possesses a diversity of artifacts reflecting a range of subsistence, as well as sufficient amounts of dateable materials to contribute to an understanding of regional prehistory, as demonstrated by this archaeological test investigation. Single-component deposits important in archaeological research are likely to be present. Much of the site has now been tested and some of the results are presented in this document, but only one small area north of the dam (Locus F/G) has been intensively excavated, and two intact hearths with associated radiocarbon dates were discovered, associated with a rich flaked stone assemblage. The probability of discovering additional important deposits across CA-NEV-13/H is high.

MANAGEMENT RECOMMENDATIONS

The stewardship of cultural resources is an important part of California State Parks management and planning functions. Often archaeology provides the only means to learn of the existence and behaviors of people of the past. Archaeological remains are irreplaceable. They are evidence—for prehistoric periods, the only evidence—of past human activity which give us some insight as to how people adapt to their environment and manage everyday life. The archaeological investigations at CA-NEV-13/H, Locus F and Locus G have demonstrated that this portion of the site is significant and worthy of preservation.

When an archaeological site cannot be avoided and is considered an important historical property (i.e., eligible for, or is listed in, the NRHP and/or CRHR), a data recovery program is often developed to mitigate or minimize the adverse impacts of the project. Under CEQA, an adequate data recovery program can reduce the effects on an eligible or listed historical resource to an insignificant level.

Data recovery programs involve the recovery of information pertinent to archaeological values that qualify the site as significant and that would be lost during the implementation of a project that involves ground disturbance. In the future, if a project is deemed important and involves ground disturbance in areas associated with Locus F and G, then a data recovery plan should be completed and submitted to a Senior State Archaeologist for review and approval. This document will describe, in detail, how the important information from this portion of CA-NEV-13/H will be recovered, analyzed and disseminated to both professional and public audiences.

Due to the non-renewable nature of archaeological deposits, time and budget constraints, and the preservation mission of Parks, major excavations, including data recovery, are subject to thorough and intensive review. Future projects should consider the practical and fiscal implications of going forward with projects that involve ground disturbance in this portion of DMSP. Project managers should be prepared to provide the appropriate Parks State Archaeologist a statement of purpose and need, outlining the project's goals and intended public benefits. Preservation of this significant archaeological resource should be carefully weighed against projects with little or short-lived benefits.

A primary responsibility for Parks is continued monitoring for impacts to the cultural resources located in the individual park units that it manages. The Archaeological Site Condition Assessment program was developed by Parks to regularly inspect and record the status of archaeological resources. Tasks performed during these inspections include conducting a surface survey of the site and boundary delineation, photographing site overviews and features, documenting damage and potential threats to the site and preparing an Archaeological Site Condition Assessment Record (ASCAR) form. Archaeological site maintenance may include activities associated with preventive maintenance, routine repairs, conservation treatments and other actions used to preserve the asset.

Active maintenance of archaeological sites is part of a resource stewardship and management program. Active maintenance might be deemed appropriate to retain structural and physical integrity, to correct or prevent deterioration, to be kept at or brought to a state of "fair" or "good" condition under ASCAR criteria, for public interpretation, during emergency situations or for other management purposes.

Site CA-NEV-13/H should be monitored every year to record direct or indirect impacts due to natural disturbances or human activity.

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APPENDIX A:
SITE RECORD AND UPDATE

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial CA-NEV-13/H
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

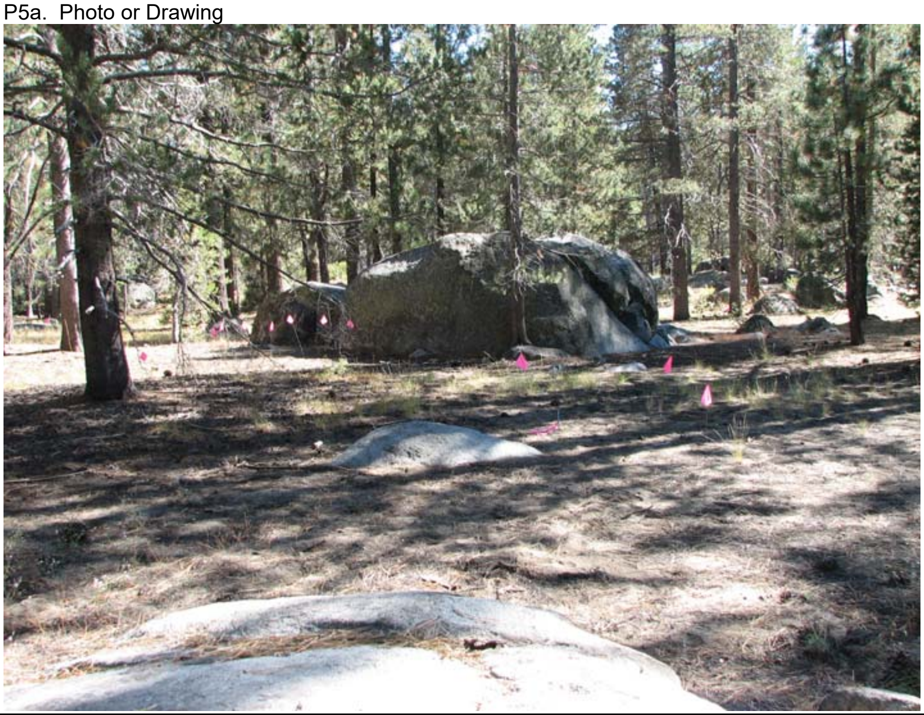
 ***Resource Name or #:** CA-NEV-13/H

P1. Other Identifier:
***P2. Location:** ☒ **Not for Publication** ☐ **Unrestricted** ***a. County:** Nevada
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Meeks Bay, CA-NV **Date:** 1992 **T** 17 N; **R** 16 E; Mt. Diablo **B.M.**
In W ½ of SE ¼ of NW ¼ of Section 17
SW ¼ of NW ¼ of Section 17
In NW ½ of NW ¼ of SW ¼ of Section 17
SE ¼ of NE ¼ of Section 18
d. UTM: Zone: 10 ; (A) 738,120 mE/ 4,356,310 mN; (B) 738,920 mE/ 4,356,210 mN; (C) 738,580 mE/ 4,355,890 mN; (D) 738,500 mE/ 4,355,110 mN; (E) 738,310 mE/ 4,355,180 mN; (F) 738,210 mE/ 4,355,900 mN; (G) 738,025 mE/ 4,356,000 mN
e. Other Locational Data: The site is located in the northeastern portion of Donner Memorial State Park, south of Donner Pass Road. Most of the site lies north of Donner Creek between Donner Lake and a marshy area to the east of Tioga terminal moraines in the east area of the park, although artifacts associated with Locus D occur on the south bank of the creek and Locus G extends south into Ridge Campground.

***P3a. Description:**
CA-NEV-13/H is a large multicomponent site with prehistoric and historic deposits spread over more than 60 acres within Donner Memorial State Park. Donner Creek courses through the site, cutting around remnant moraines and flowing between broad flat glacial terraces. The prehistoric component is evident north and south of the creek, while the historic component is primarily evident to the north. CA-NEV-13/H was listed on the National Register of Historic Places in 1978 because of its association with the historic Donner Party. Prehistoric artifacts representing occupations from over 6,000 years ago to historic contact have been noted throughout the site area with concentrations recorded at Locus A, B, F, F/G and G. This site record update addresses new information acquired through archaeological investigations at Locus F and G conducted in 2005 by Furlong Archaeological Consulting and California State Parks. In total, 46 sample units were excavated to varying depths for an excavated volume totaling 13.85 m^3; recovering a total of 6446 prehistoric and historic artifacts and documenting two newly discovered bedrock milling features. The results of data analyses acquired through this investigation indicate that CA-NEV-13/H was an important residential site, initially occupied sometime during the Early Holocene and continued, more consistently, through the Early Archaic and Middle Archaic periods with use continuing up to Euroamerican settlement. Flaked stone activities at both loci primarily centered on percussion and pressure basalt biface manufacture. Obsidian and CCS reduction was minimal and represents late-stage bifacial thinning and bifacial pressure flaking, probably to maintain a small number of imported bifacial tools.

***P3b. Resource Attributes:** AP2 Lithic Scatter, AP4 Bedrock Milling Feature, AH4 Privies, Dumps, Trash scatters; AH 8 Dams; HP26 Monument
***P4. Resources Present:** ☐Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing



P5b. Description of Photo:
CA-NEV-13/H Locus G, Concentration 1, looking southeast.

***P6. Date Constructed/Age and Sources:**
☐Historic
☐Prehistoric ☒Both

***P7. Owner and Address:**
California State Parks
Sierra District
7360 West Lake Blvd.
Tahoma, CA 96142

***P8. Recorded by:**
Denise Jaffke
William Bloomer
California State Parks—Sierra District
and Lithic Arts

***P9. Date Recorded:**
10/2009

***P10. Survey Type:**
Archaeological Test Excavations

***P11. Report Citation:**
Bloomer, W. and D. Jaffke
2009 *Archaeological Investigations at CA-NEV-13/H, Locus F & G, Donner Memorial State Park*. Report prepared for California State Parks and on file at the Sierra District Archaeology Office at Sugar Pine Point State Park, Tahoma.

***Attachments:** ☐NONE ☒Location Map ☒Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☒Archaeological Record ☐District Record ☐Linear Feature Record ☒Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

***A1. Dimensions: a. Length:** **Locus F:** 210 m (E/W) × **b. Width:** 120 m (N/S) (approximate)
Locus G: 345 m (NE/SW) x 140 m (NW/SE) (approximate)

Method of Measurement: ☐ Paced ☐ Taped ☐ Visual estimate ☒ Other: Subsurface Testing
Method of Determination (Check any that apply.): ☒ Artifacts ☒ Features ☐ Soil ☐ Vegetation ☐ Topography
☐ Cut bank ☐ Animal burrow ☒ Excavation ☐ Property boundary ☐ Other (Explain):

Reliability of Determination: ☒ High ☐ Medium ☐ Low Explain: Locus boundaries are well defined and are based on the numerous units excavated in and around these areas.

Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined
☐ Disturbances ☐Vegetation ☐ Other (Explain):

A2. Depth: Maximum Depth is 110cm below present ground surface (Locus F, EU 2 and EU 5) Method of Determination: Archaeological Excavation

***A3. Human Remains:** ☐ Present ☐ Absent ☐ Possible ☒ Unknown (Explain):

***A4. Features:**
***Lam* 1** is a single granitic boulder measuring 1.7m (NW/SE) by 1.75 m (NE/SW) and rises 10cm above the modern ground surface (Plate 1). This *lam* shows extensive use, represented by two mortars and four milling slicks (Figure 1). The mortars are relatively shallow. Mortar 1 is 2.2cm deep and Mortar 2 is 3.5cm deep. The milling slicks show moderate use, represented by smooth polish on flattened facets, but pecking is not apparent. Milling slicks 4 and 5 have depths of 0.4cm and 0.2cm, respectively, which are primarily due to grinding on the naturally undulating rock surface. ***Lam* 2** is a single granitic boulder measuring 2.1m (W/E) by 1.5m (N/S), rising 18cm above the modern ground surface (Plate 2). This *lam* is less used, with only one relatively small mortar and one milling slick (Figure 2). Mortar 1 is 1.1cm deep. The grinding surface of milling slick 2 is primarily west of the mortar cup. Slick polish encircling the mortar cup may represent more of a multiple activity surface than a grinding surface, smoothed and polished over time from varied use.

***A5. Cultural Constituents:** The prehistoric artifact collection includes 71 prehistoric flaked stone tools, 4,183 debitage and three groundstone tools. Historic artifacts include 1,753 items identified by type and 29 unidentified. There are also 407 historic faunal bone.

The prehistoric collection recovered from Locus F is quite substantial and included five basalt projectile points (i.e., Martis corner-notched, Elko corner-notched and lanceolate), 19 bifaces (18 basalt and one CCS), one CCS drill, two basalt unifaces, seven flake tools (six basalt, one CCS), two basalt edge modified flakes and 2199 debitage (2162 basalt, 24 CCS, 13 obsidian).

The Locus G prehistoric assemblage is somewhat similar to Locus F and consists of 2022 items, including two basalt projectile points (Elko corner-notched and lanceolate), 20 bifaces (18 basalt, two obsidian), one CCS drill, three unifaces (one basalt, two CCS), four flake tools (three basalt, one CCS), four basalt edge modified flakes, one CCS core, one *itdemge* (milling slab) and 1984 debitage (1892 basalt, 57 CCS, 35 obsidian).

Projectile Points: The two Martis Corner-notched (MCN) points were made of Alder Hill basalt and recovered from Locus F. One (171, Plate 3a) is nearly complete with a missing basal margin. It was made by pressure flaking a thin flake blank. Small breaks at the tip, along the blade margins and probably at the base indicate repeated use. The other MCN (174, Plate 3e) is a proximal fragment with a missing blade, possibly broken in use. This MCN is more robust, made by percussion biface thinning and pressure shaping. Two of the three Elko Corner-notched (ECN) points in this collection are from Locus F (211, Plate 3d and 265, Plate 3b) and one is from Locus G (140, Plate 3c). Artifact 211 is an unusually large proximal fragment missing its entire blade and one shoulder. This point was made using basalt from an unknown source, possibly selected from the glacial gravels of Donner Creek. Artifact 265 is nearly complete with a missing tip. It was made of Alder Hill basalt by percussion thinning and pressure flaking. Blade and shoulder maintenance along one asymmetrical lateral margin indicate repeated use. Artifact 140 is nearly complete, made by pressure flaking a thin basalt flake blank from the Gold Lake source. The lanceolate points include various leaf shaped forms previously classified as Steamboat, Martis Leaf-Shape and Martis Stemmed-Leaf (Elston et al. 1977). One of the two lanceolate points (261, Plate 3f) is a whole relatively small pressure flaked form made of Gold Lake basalt. Possible edge rounding suggests use and might indicate cutting use more than projectile point use. The other lanceolate point (147, Plate 3g) is a much larger whole percussion and pressure flaked tool made of Alder Hill/Watson Creek basalt. Again, possible edge rounding suggests cutting use, while a small tip break might have resulted from projectile use.

Bifaces: The 39 bifaces are primarily basalt (92%) with one CCS, and two obsidian. Only one biface is whole (3%) and four are nearly complete (10%). Undifferentiated end fragments (33%) and distal (18%) fragments are most common. Proximal fragments and margin fragments account for 13% each, while medial fragments represent the remaining 10%. The high frequency of fragments is a consequence of the relatively high frequency of manufacture failures. The two stage 5 pressure flaked basalt small bifaces from Locus F (177 and 188, Plate 5) are especially interesting. Both might be fragments of ancient crescents. Although nearly complete, both are missing a lateral end, i.e., a “wing.” Therefore, the horizontal plan-view symmetry of each end, which distinguishes crescents from other bifacial tools, cannot be confirmed. In addition, neither biface shows the “edge grinding” that is often present along both lateral margins of the curved crescent “body.” Nevertheless, both fragments are curved forms with asymmetric margins that lead to distinctly shaped ends.

Groundstone: Prehistoric groundstone artifacts include one whole granite *itdemge* (portable millingstone) and two granite *itdemge* fragments. All three were recovered from EU 7 in Locus G, Concentration 1. The whole *itdemge* (158, Plate 7) was discovered at 40-50cm below surface. It is a split boulder with unifacial smoothed and polished use wear covering its entire oval shaped surface. The use surface is slightly dished with no pecking, no striations and no pigment.

Historic: Historic artifacts recovered during the test investigations totaled 1,782. The vast majority of the historic assemblage was found in a subsurface pit (Feature 1) in Locus F. A total of 1681 artifacts with a MNI of 485, were collected from EU1 during the excavation of Feature 1 in Locus F concentration HC1. The cultural constituents are categorized under five groups; domestic, consumption, structural, personal and miscellaneous. The majority of the collection categorized under domestic represents white improved earthenware sherds (83%), but lack of maker's marks limit further interpretation. Five sherds represent Chinese ceramic pieces. Five stove parts along with two colorless glass mug fragments are the last items categorized under the domestic group. Bottle glass represents 14% of the recovered consumptive collection and 36% categorized under the consumption group. A transparent, emerald green glass body fragment, from a handmade malt extract bottle, depicts a partial lightly embossed stylized "JSP" interlocking monogram; the bottle dates circa 1865 to 1890 (Toulouse 1972). The structural group includes items such as square nails, wire nails, washer, screws, strap fragments, wire fragments, window glass, a tack, a spring, and a pulley wheel. This group consists of about 58% of artifacts recovered from F1. The majority of artifacts categorized in the nail class are machine manufactured cut nails (representing 97%). This categorical group includes artifacts such as a pipe bowl fragment, leather shoe/boot fragments, a button, a cartridge, an axe head and a textile fragment. This categorical group represents less than 1% of the artifact assemblage recovered from F1.

***A6. Were Specimens Collected?** ☐ No ☒ Yes
All prehistoric and historic artifacts collected during the 2005 archaeological investigation were prepared for curation and catalogued. The collections are stored under **accession number P1443.** The comprehensive artifact catalog is included in Appendix B of *Archaeological Investigations at CA-NEV-13/H, Locus F & G, Donner Memorial State Park* (Bloomer and Jaffke 2009).

***A7. Site Condition:** ☐ Good ☒ Fair ☐ Poor (Describe disturbances.): Despite significant surface impacts, the subsurface components of Locus F and G are relatively undisturbed.

***A8. Nearest Water:** Donner Creek courses through the site, separating Locus F (north) and Locus G (south).

***A9. Elevation:** 5,930 Ft.

A10. Environmental Setting: The natural setting of the project area is a forested riparian environment. Immediately west of the project area, Donner Creek exits Donner Lake and courses east through the project area. Here it cuts through a glacial landscape of narrow low moraine ridges and broad terraces. A wetland floodplain is present downstream from the project area at the eastern site boundary. The creek continues east for only a mile before turning southeast to confluence with the Truckee River.

The creek-side terraces are forested with sparse to moderately dense stands of Jeffrey pine (*Pinus jeffreyi*), white fir (*Abies concolor*) and lodgepole pine (*Pinus contorta*). The forest floor is predominantly open, covered with a thick duff. Granitic sands are exposed in larger openings between forest stands. The sparse understory vegetation includes bitterbrush (*Purshia tridentata*), service berry (*Amelanchier utahensis*), woolly mules ears (*Wyethia mollis*) and sagebrush (*Artemesia tridentata*). Manzanita (*Arctostaphylos patula*) grows in open areas along the roadways and small numbers of aspens (*Populas tremuloides*) are found on wet ground.

A11. Historical Information:
Euroamerican land use in the vicinity of Donner Creek has been extensive from the mid-1800's right up to present day. In 1844 the Stevens-Murphy-Townsend Party established the Truckee River Route of the Overland Emigrant Trail just 150 meters north of the project area along the present day Donner Pass Road. Two years later, members of the Donner Party were trapped by deep winter snow and made camp on Donner Creek, 400 meters east of Locus F/G. The 1864 Dutch Flat/Donner Lake Wagon Road and the 1868 transcontinental Central Pacific Railroad followed the early emigrant route, facilitating the steady settlement and development of Donner Lake and the town of Truckee. Donner Pass Road, also known as the Lincoln Highway (1913), the Victory Highway (1920s) and U. S. Route 40 (1928), has always been a major transportation route.

Historic development and industries around Donner Lake included logging, ice making, fishing and tourism. The outlet of Donner Lake has been altered by historic-era activities since the mid-1800s. Early dams were constructed along the lake's outlet drainage, taking advantage of prominent ridges and constrictions (glacial moraines), to provide irrigation waters, power saw mills, and provide storage areas for ice production. Water reclamation was facilitated in 1889 by construction of the dam at Donner Lake's outlet, raising the lake level six feet (Lindström and Marvin 2004). The current dam and bridge were constructed in 1927 to increase water storage as part of the Newlands Project, raising the lake level about 12 feet above its natural level. The lake still contributes water to irrigation and domestic supplies, but its primary use is recreation.

The Pioneer Monument, within Locus A, was completed in 1918 to honor the 1840s California emigrants. Donner Memorial State Park was established at the monument and added to the park system by 1928 (Nesbitt 1990). The park was expanded to include the eastern shores of Donner Lake in 1948, incorporating all of CA-NEV-13/H. The park's Emigrant Trail Museum opened in 1962.

***A12. Age:** ☒ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☒ 1769-1848 ☒ 1848-1880 ☒ 1880-1914 ☒ 1914-1945
☐ Post 1945 ☐ Undetermined

Hydration rim values from obsidian sampled from Locus F suggests that the area was visited as early as 8,000 years ago, but more consistently occupied from Early Archaic into the Middle Archaic, 6700 B.P. to 3600 B.P. It appears, based on obsidian hydration data, that Locus G was occupied during two distinct occupational periods, the earliest represented by a 8.5 hydration rim value and interpreted as Early Holocene, possibly over 10,000 years ago.

A13. Interpretations: The results of data analyses acquired through this investigation indicate that CA-NEV-13/H was an important residential site, initially occupied sometime during the Early Holocene and continued, more consistently, through the Early Archaic and Middle Archaic periods with use continuing up to Euroamerican settlement. Flaked stone activities at both loci primarily centered on percussion and pressure basalt biface manufacture. Obsidian and CCS reduction was minimal and represents late-stage bifacial thinning and bifacial pressure flaking, probably to maintain a small number of imported bifacial tools.

The regional interaction sphere for CA-NEV-13/H residents was relatively local with an emphasis on the Truckee River corridor and areas to the north. Alder Hills basalt, located four miles northeast of Donner Lake, was the primary source for toolstone procurement, although Gold Lake (30 miles northwest) and Steamboat Hills (25 miles east) are also represented in the basalt sample. Lack of toolstone from Sawtooth Ridge and from Watson Creek on Tahoe's north shore suggests infrequent or restricted land use to the south, towards Tahoe.

The obsidian dataset shows that as many as 10 distinct obsidian sources are represented, with Sutro Springs being the most common. Although Sutro Springs is the closest source to Donner Lake (45 miles east), it is usually not the dominant source represented at Tahoe Sierran sites. It is also unusual that a relatively high frequency of obsidian from northeastern California and northwestern Nevada are represented at the site. It appears that Donner Lake residents had long distance interactions, through trade or direct access, that extended north and east, as well as to the west and southeast.

A14. Remarks: Based on the results of this archaeological investigation at Locus F and G, along with findings from the data recovery effort at Locus F/G (Bloomer and Lindström 2007), the prehistoric component that makes up the western half of CA-NEV-13/H—consisting of Locus F, Locus G and Locus F/G—is significant and meets the criteria for the National Register of Historic Places (NRHP).

The results for this test investigation proved invaluable not only for addressing future project impacts, but also to provide important information regarding the prehistory of the region, most especially concerning our developing understanding of Early Archaic settlement patterns. The predominance of Early Archaic occupations at CA-NEV-13/H provides a unique temporal context for Tahoe Sierran obsidian studies. Interpretation of geochemical sourcing and hydration data from Locus F and G provide the basis for a discussion of the movement of obsidian through the High Sierran Truckee corridor, from sources as far distant as the North Coast Ranges, east-central California, northwestern Nevada, and northeastern California, with Donner serving as a primary nexus for California and Great Basin interaction. CA-NEV-13/H was likely an integral part of a developing exchange system and remained a part of the system throughout prehistory.

A15. References:

Bloomer, W. and D. Jaffke
2009 *Archaeological Investigations at CA-NEV-13/H, Locus F & G, Donner Memorial State Park.* Report on file at California State Parks, Sierra District Archaeology Office, Sugar Pine Point State Park, Tahoma.

Elston, Robert G., Jonathan O. Davis, Alan Leventhal, and Cameron Covington
1977 *The Archaeology of the Tahoe Reach of the Truckee River*. Nevada Archaeological Survey, University of Nevada, Reno.

Lindström, Susan, and Judith Marvin
2004 Appendix B, PRC 5024. In, *Extended Archaeological Field Testing Report. Archaeological Testing at Donner Memorial State Park, Truckee, California. Improvement Upgrade for Donner Dam*. Prepared by Denise Jaffke, 2005, for the State of California Department of Parks and Recreation.

Nesbitt, Paul E.
1990 *The Cultural Resources of Donner Memorial State Park*. Cultural Heritage Planning Resource Protection Division, Department of Parks and Recreation, The Resources Agency, Sacramento, California.

Toulouse, J.H.
1972 *Bottle Makers and Their Marks*. Thomas Nelson, Inc., New York.

A16. Photographs:
Original Media/Negatives Kept at: Digital copies available at Sierra District Archaeology office in Sugar Pine Point State Park, Tahoma, California

***A17. Form Prepared by:** Denise Jaffke **Date:** 10/07/2009
Affiliation and Address: California State Parks, Sierra District, PO Box 266, Tahoma CA 96142

State of CaliforniaÄThe Resources Agency
DEPARTMENT OF PARKS AND RECREATION

MILLING STATION RECORD

Primary # ______________
HRI # ______________
Trinomial CA-NEV-13/H___

 *Resource Name or # (Assigned by recorder) ______________

*Form Prepared By: Bloomer and Jaffke______________ Date: 9-16-09

Feature	Outcrop Dimensions (m) and Orientation	Bedrock Type and Condition
Lam 1	1.7 x 1.75 NW/SE x NE/SW x 10cm Height	Granite boulder in good condition
Lam 2	2.1 x 1.5 E/W x N/S x 18cm Max Height	Granite boulder in good condition

Feature #	Milling Surface #	Type	Length (cm)	Width (cm)	Depth (cm)	Contents	Remarks
Locus G							
1	1	SM	11.5	10.0	2.2	---	Round
	2	SM	14.0	13.0	3.5	---	Oval
	3	MS	33.0	12.0	---	---	Flat, most ground near mortar 2, less on edges
	4	MS	41.0	30.0	0.4	---	Well ground and deepest at center; depth undulates
							with the natural rock surface
	5	MS	32.0	19.0	0.2	---	Well ground, almost trough shaped, depth at center
	6	MS	34.0	10.0	---	---	Less ground than slick 5, undulates with
							natural rock surface
2	1	SM	7.5	7.5	1.1	---	Round
	2	MS	50.0	19.0	---	---	Grinding is west of mortar, polish encircling mortar
							probably represents multiple and varied use

Type Key

CO	Conical mortar	PM	Possible mortar
OM	Oval mortar	MS	Milling slick
SM	Saucer mortar	BM	Basin milling feature
Other:			

Contents Key

S	Filled with soil	R	Contains rocks
L	Filled with leaves	P	Contains pestle
U	Unexcavated	M	Contains mano
Other:			

NOTE: Attach plan(s) of milling stations.

Plate 1. Locus G, *Lam* 1, looking north.

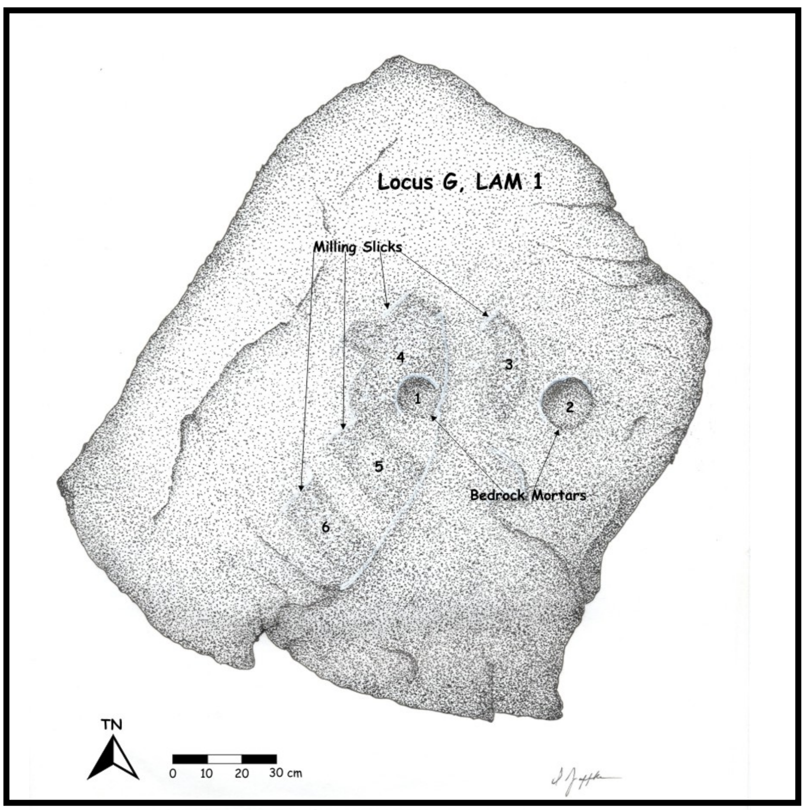


Figure 1. Locus G, *Lam* 1.

Plate 2. Locus G, *Lam* 2. Arrow points north to mortar 1.

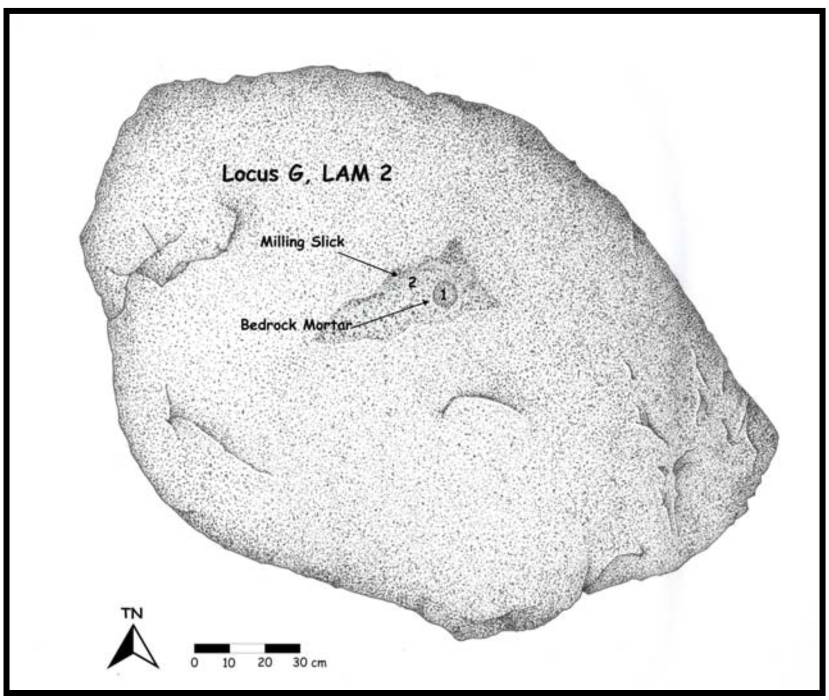


Figure 2. Locus G, *Lam* 2.

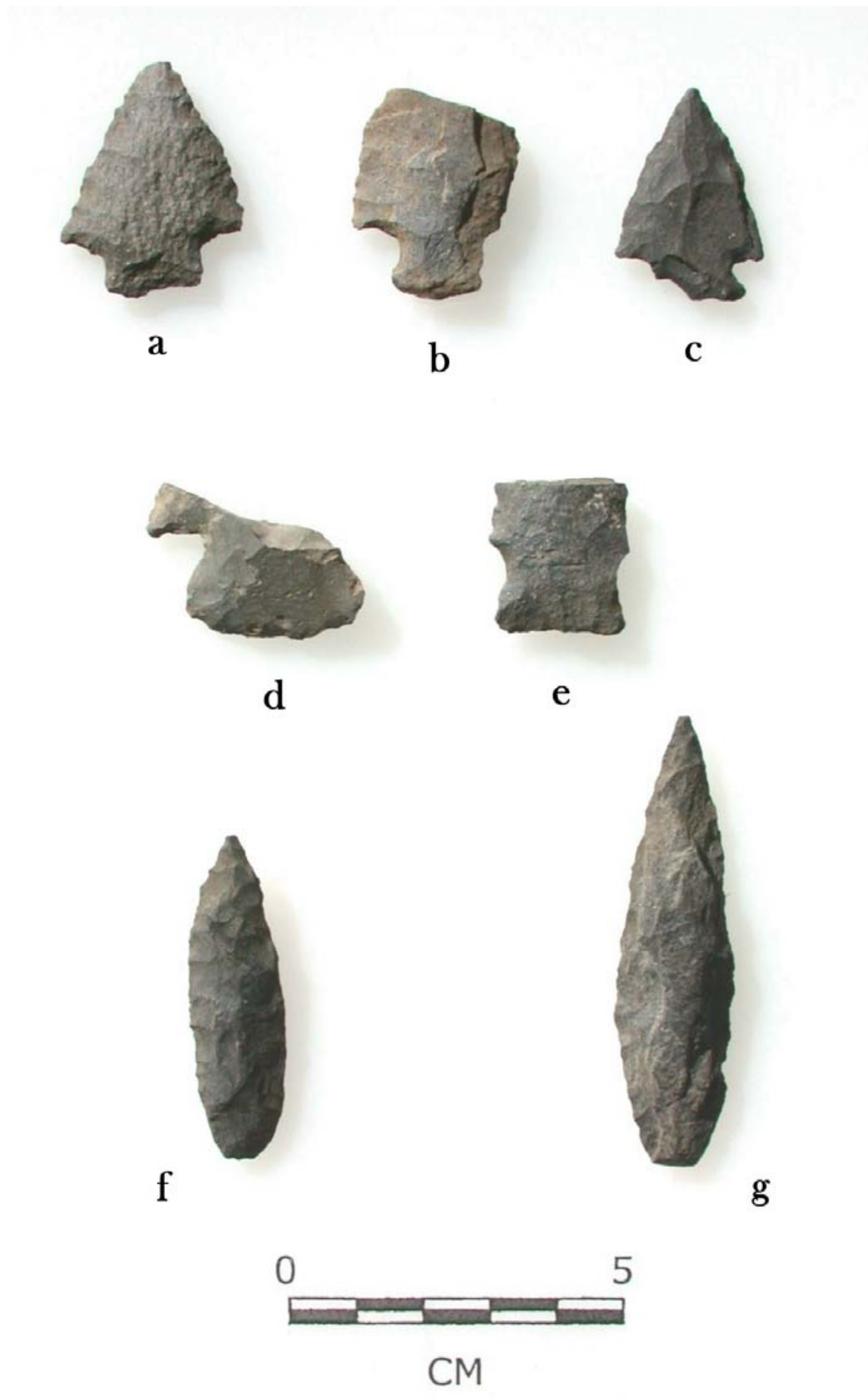


Plate 3. Projectile Points: a, MCN (Locus F, 171); b, ECN (Locus F, 265); c, ECN (Locus G, 140); d, ECN (Locus F, 211); e, MCN (Locus F, 174); f, LAN (Locus F, 261) and g, LAN (Locus G, 147)

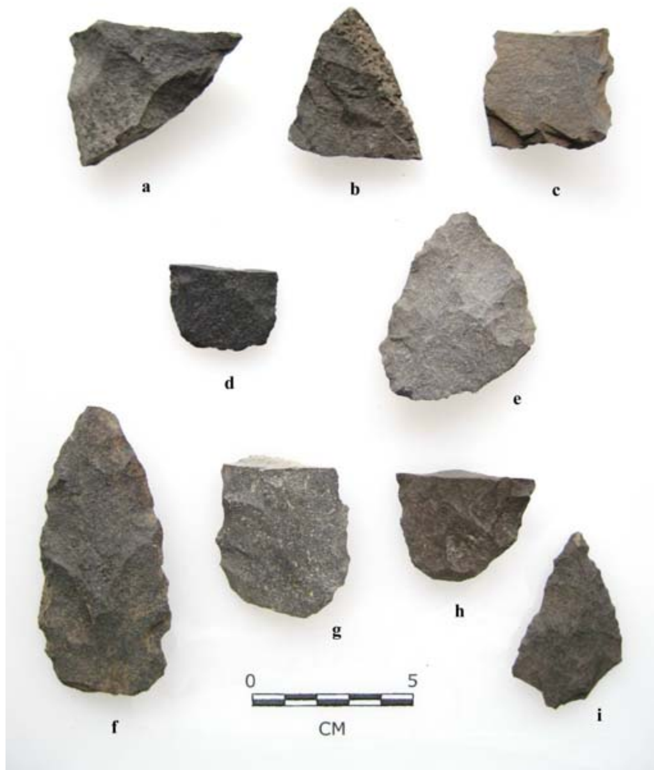


Plate 4. Locus F Bifaces: Stage 2, a-d (161, 167, 251.1, 164); Stage 3, e (159); Stage 4, f-i (269, 236, 162, 268).

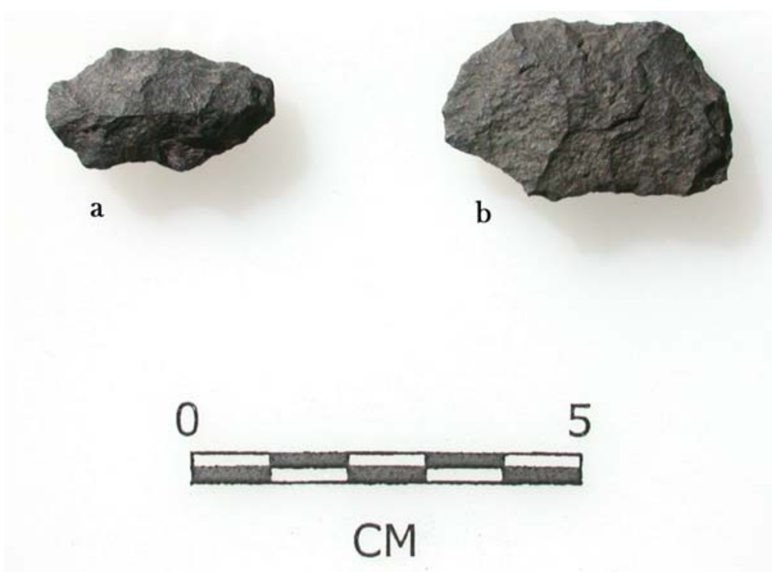


Plate 5. Locus F, Stage 5 Bifaces, Possible Crescents, a (177) and b (188).

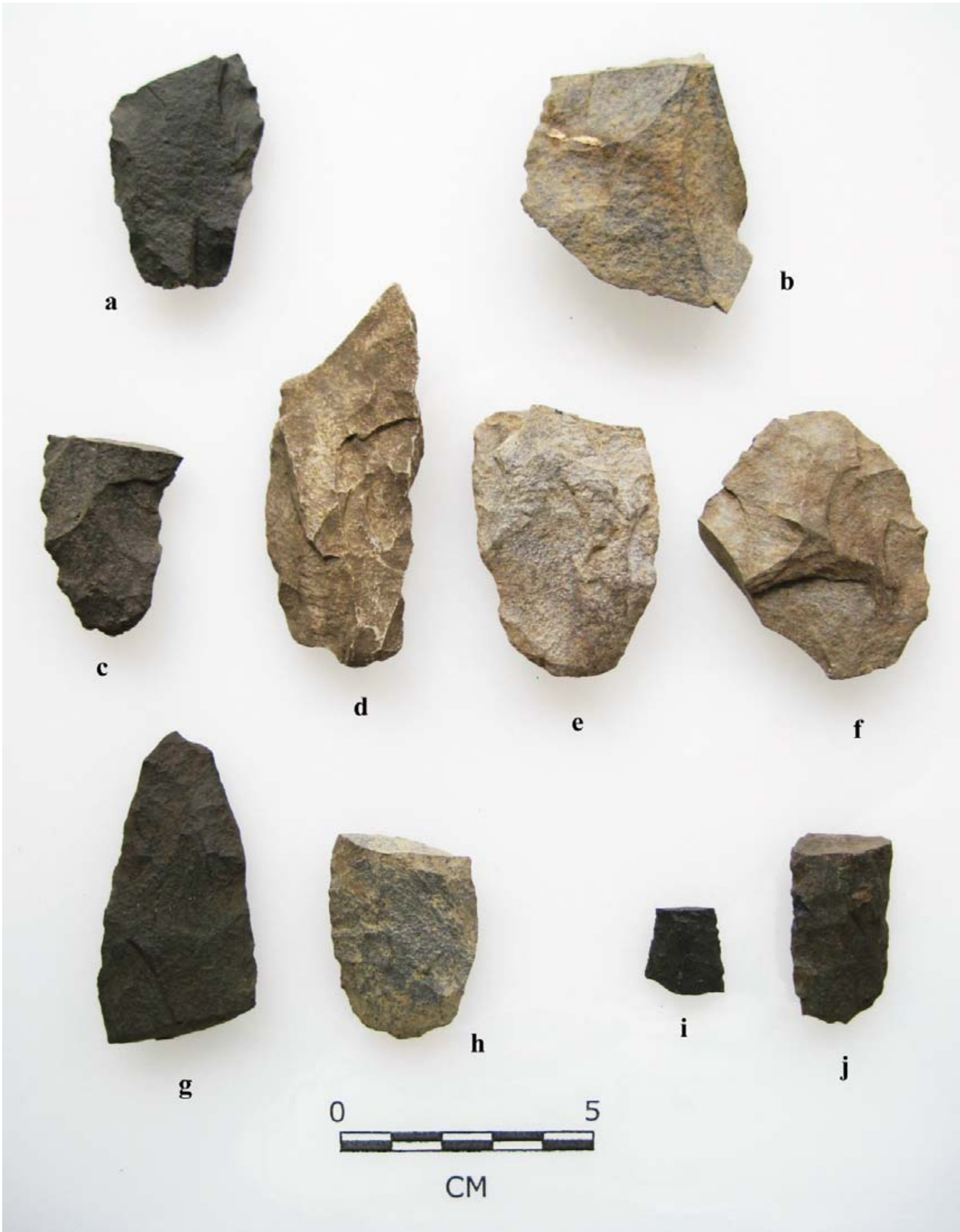
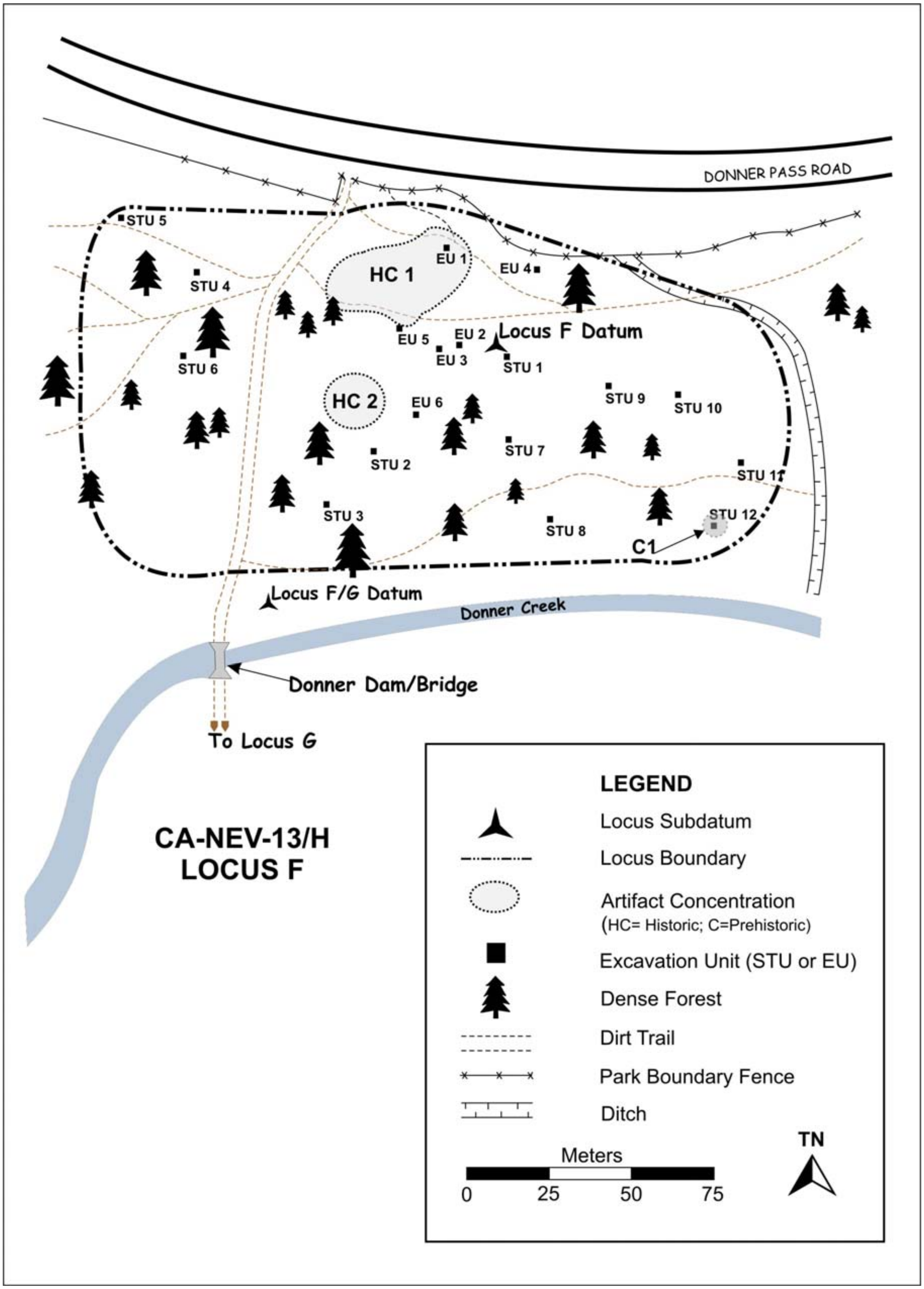


Plate 6. Locus G Bifaces: Stage 2, a and b (146, 123); Stage 3, c-f (30, 156, 69, 58); Stage 4, g and h (62, 94); Stage 5, i and j (28, 34).

Plate 7. *Itdemge*: Locus G, (158).

***Resource Name or #** : CA-NEV-13/H, Locus F & G

***Drawn By:** D. Jaffke ***Date:** 9/2009



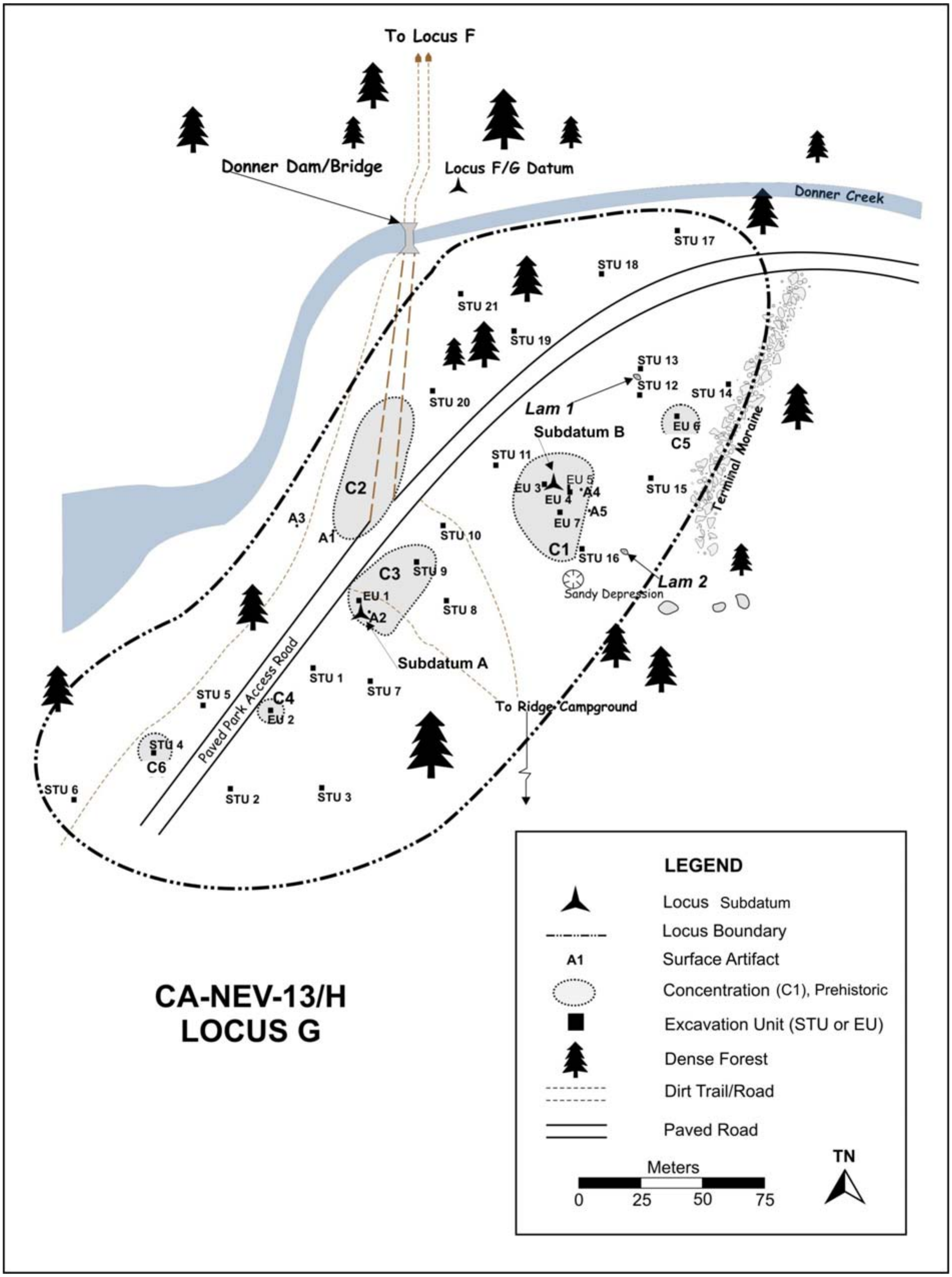
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SKETCH MAP

Primary #
HRI#
Trinomial

***Resource Name or #** : CA-NEV-13/H, Locus F & G

***Drawn By:** D. Jaffke

***Date:** 9/2009

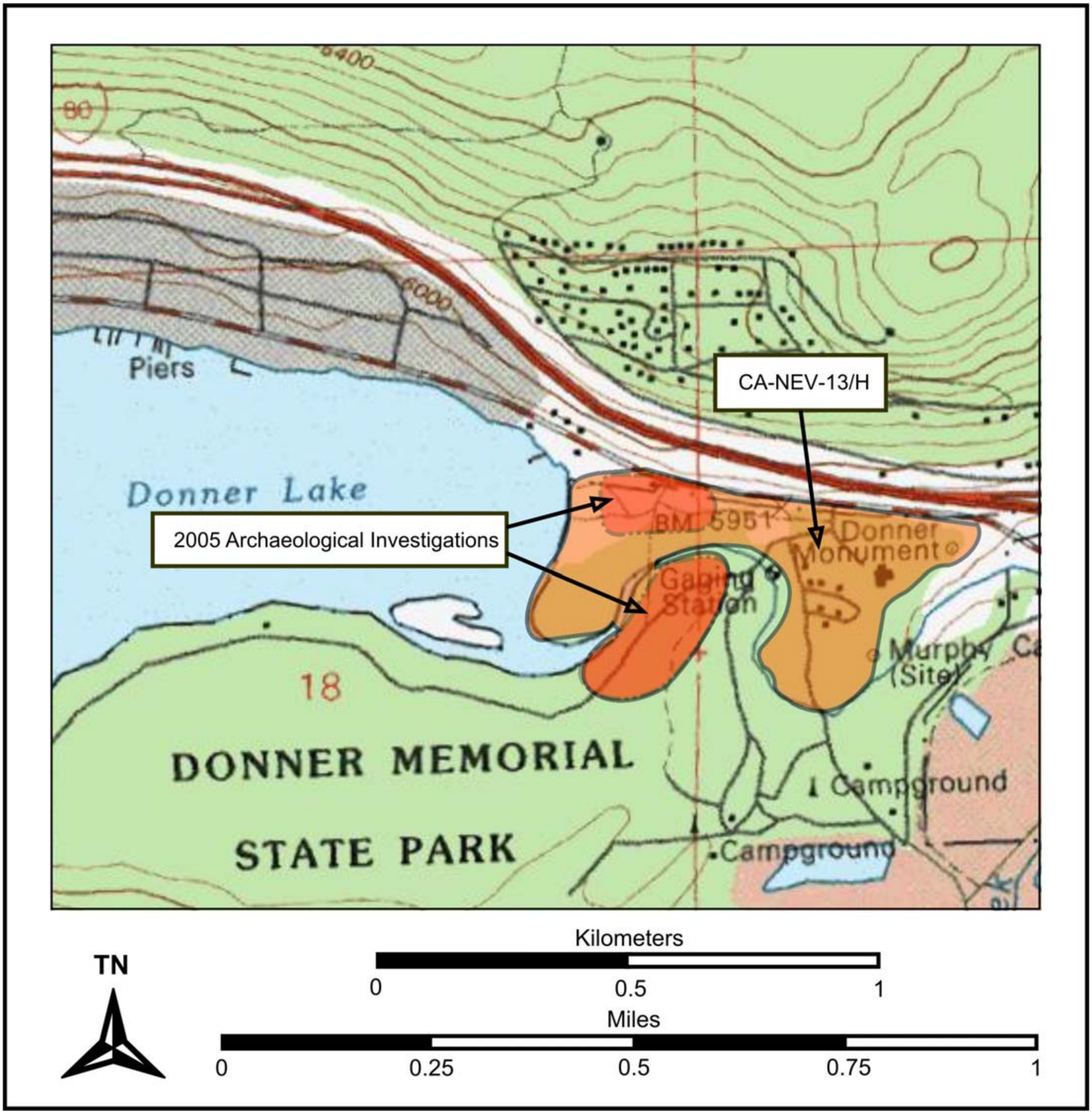


 *Required information

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION	Primary # HRI#
LOCATION MAP	Trinomial

 ***Resource Name or #:** CA-NEV-13/H, Locus F & G

***Map Name:** Truckee, CA (1992) ***Scale:** 7.5' USGS Quadrangle *



APPENDIX B:
COMPREHENSIVE ARTIFACT CATALOGUE

CA-NEV-13/H, Locus F & G Catalog

Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	1	G	STU	1	1X1		1/4"	0	10	LITHIC	DEB	BAS	8	11.4	
P1443	2	G	STU	2	1X1		1/4"	0	10	LITHIC	DEB	BAS	16	29.1	
P1443	3	G	STU	2	1X1		1/4"	10	20	LITHIC	DEB	BAS	9	3.7	
P1443	4	G	STU	4	1X1		1/4"	0	10	LITHIC	DEB	BAS	72	28.9	
P1443	5	G	STU	5	1X1		1/4"	0	10	LITHIC	DEB	BAS	22	58.6	
P1443	6	G	STU	5	1X1		1/4"	0	10	LITHIC	BIF	BAS	1	3.1	
P1443	7	G	STU	6	1X1		1/4"	0	10	LITHIC	DEB	BAS	36	30.7	
P1443	8.1	G	STU	6	1X1		1/4"	0	10	LITHIC	DRL	CCS	1	0.7	
P1443	8.2	G	STU	6	1X1		1/4"	0	10	LITHIC	DEB	CCS	1	0.4	
P1443	9	G	STU	7	1X1		1/4"	0	10	LITHIC	DEB	BAS	3	0.9	
P1443	10	G	STU	8	1X1		1/4"	0	10	LITHIC	DEB	BAS	6	5.2	
P1443	11	G	STU	9	1X1		1/4"	0	10	LITHIC	DEB	BAS	59	54.2	
P1443	12	G	STU	10	1X1		1/4"	0	10	LITHIC	DEB	BAS	20	23.4	
P1443	13	G	STU	11	1X1		1/4"	0	10	LITHIC	DEB	BAS	4	4.3	
P1443	14	G	STU	12	1X1		1/4"	0	10	LITHIC	DEB	BAS	7	4.5	
P1443	15	G	STU	13	1X1		1/4"	0	10	LITHIC	DEB	BAS	3	2.2	
P1443	16	G	STU	13	1X1		1/4"	0	10	LITHIC	DEB	OBS	1	0.4	
P1443	17	G	STU	15	1X1		1/4"	0	10	LITHIC	DEB	BAS	1	2.2	
P1443	18	G	STU	15	1X1		1/4"	0	10	LITHIC	DEB	CCS	1	1.6	
P1443	19	G	STU	16	1X1		1/4"	0	10	LITHIC	DEB	BAS	13	10.8	
P1443	20	G	STU	17	1X1		1/4"	0	10	BONE	FAU	BON	9	4.3	
P1443	21	G	STU	17	1X1		1/4"	0	10	LITHIC	DEB	BAS	2	10.0	
P1443	22	G	STU	18	1X1		1/4"	0	10	LITHIC	DEB	BAS	3	2.0	
P1443	23	G	STU	19	1X1		1/4"	0	10	LITHIC	DEB	BAS	10	7.7	
P1443	24	G	STU	20	1X1		1/4"	0	10	LITHIC	DEB	OBS	1	0.3	
P1443	25	G	STU	20	1X1		1/4"	0	10	LITHIC	DEB	BAS	28	26.3	
P1443	26	G	STU	21	1X1		1/4"	0	10	LITHIC	DEB	BAS	14	23.3	
P1443	27	G	-		-	SURFACE ARTIFACT 3, 325°@ 44 M FROM DATUM A	-			LITHIC	BIF	BAS	1	23.2	
P1443	28	G	-		-	SURFACE ARTIFACT 1, 342° @ 35 M FRON DATUM A	-			LITHIC	BIF	BAS	1	1.5	
P1443	29	G	-		-	SURFACE ARTIFACT 5, 127° @ 19.5 M FROM DATUM B	-			LITHIC	BIF	BAS	1	10.7	
P1443	30	G	-		-	SURFACE ARTIFACT 2, 76° @ 3 M FROM DATUM A	-			LITHIC	BIF	BAS	1	12.9	

CA-NEV-13/H, Locus F & G Catalog

Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	31	G	-		-	SURFACE ARTIFACT 4, 102° @ 11.5 M FROM DATUM B	-			LITHIC	UNF	BAS	1	34.4	
P1443	32	G	EU	1	1X1		1/4"	0	10	LITHIC	DEB	BAS	40	24.6	
P1443	33	G	EU	1	1X1		1/4"	10	20	LITHIC	DEB	BAS	28	22.8	
P1443	34	G	EU	1	1X1		1/4"	10	20	LITHIC	BIF	BAS	1	10.2	
P1443	35	G	EU	1	1X1		1/4"	20	30	LITHIC	DEB	BAS	33	37.9	
P1443	36	G	EU	1	1X1		1/4"	30	40	LITHIC	DEB	BAS	19	19.4	
P1443	37	G	EU	1	1X1		1/4"	40	50	LITHIC	DEB	BAS	17	62.0	
P1443	38	G	EU	1	1X1		1/4"	50	60	LITHIC	DEB	BAS	11	6.6	
P1443	39	G	EU	1	1X1		1/4"	60	70	LITHIC	DEB	BAS	3	3.6	
P1443	40	G	EU	1	1X1		1/4"	70	80	LITHIC	DEB	BAS	5	2.0	
P1443	41	G	EU	2	1X1		1/4"	0	10	LITHIC	DEB	OBS	1	0.1	
P1443	42.1	G	EU	2	1X1		1/4"	0	10	LITHIC	EMF	BAS	1	3.7	
P1443	42.2	G	EU	2	1X1		1/4"	0	10	LITHIC	DEB	BAS	79	44.4	
P1443	43	G	EU	2	1X1		1/4"	10	20	LITHIC	DEB	BAS	56	38.4	
P1443	44	G	EU	2	1X1		1/4"	10	20	LITHIC	DEB	OBS	1	0.2	
P1443	45	G	EU	2	1X1		1/4"	20	30	LITHIC	DEB	BAS	54	25.5	
P1443	46	G	EU	2	1X1		1/4"	30	40	LITHIC	DEB	BAS	35	17.1	
P1443	47	G	EU	2	1X1		1/4"	40	50	LITHIC	DEB	BAS	51	36.3	
P1443	48	G	EU	2	1X1		1/4"	50	60	LITHIC	DEB	BAS	33	27.1	
P1443	49	G	EU	2	1X1		1/4"	60	70	LITHIC	DEB	BAS	27	25.6	
P1443	50	G	EU	2	1X1		1/4"	60	70	LITHIC	FLKTL	BAS	1	55.1	
P1443	51	G	EU	2	1X1		1/4"	70	80	LITHIC	DEB	BAS	11	36.2	
P1443	52	G	EU	2	1X1		1/4"	80	90	LITHIC	DEB	BAS	10	5.9	
P1443	53	G	EU	2	1X1		1/4"	90	100	LITHIC	DEB	BAS	11	2.8	
P1443	54	G	EU	3	1X1		1/4"	0	10	LITHIC	DEB	BAS	19	19.2	
P1443	55	G	EU	3	1X1		1/4"	10	20	LITHIC	DEB	BAS	16	23.1	
P1443	56	G	EU	3	1X1		1/4"	10	20	LITHIC	UNF	CCS	1	8.0	
P1443	58	G	EU	3	1X1		1/4"	20	30	LITHIC	BIF	BAS	1	30.9	
P1443	59	G	EU	3	1X1		1/4"	20	30	LITHIC	BIF	BAS	1	20.5	
P1443	60	G	EU	3	1X1		1/4"	20	30	LITHIC	DEB	BAS	16	12.0	
P1443	61.1	G	EU	3	1X1		1/4"	30	40	LITHIC	DEB	BAS	14	31.8	
P1443	61.2	G	EU	3	1X1		1/4"	30	40	LITHIC	DEB	CCS	1	0.1	
P1443	62	G	EU	6	1X1		1/4"	0	10	LITHIC	BIF	BAS	1	20.3	
P1443	63	G	EU	6	1X1		1/4"	0	10	LITHIC	BIF	BAS	1	7.4	
P1443	64	G	EU	6	1X1		1/4"	0	10	LITHIC	DEB	BAS	51	27.9	
P1443	65	G	EU	6	1X1		1/4"	10	20	LITHIC	DEB	BAS	15	17.7	
P1443	66	G	EU	6	1X1		1/4"	20	30	LITHIC	DEB	CCS	1	1.2	
P1443	67	G	EU	6	1X1		1/4"	20	30	LITHIC	DEB	BAS	48	30.9	
P1443	68	G	EU	6	1X1		1/4"	30	40	LITHIC	DEB	BAS	21	20.7	
P1443	69	G	EU	6	1X1		1/4"	30	40	LITHIC	BIF	BAS	1	28.4	
P1443	70	G	EU	6	1X1		1/4"	40	50	LITHIC	DEB	obs	2	0.4	
P1443	71	G	EU	6	1X1		1/4"	40	50	LITHIC	DEB	BAS	41	26.1	

CA-NEV-13/H, Locus F & G Catalog

Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	72	G	EU	6	1X1		1/4"	50	60	LITHIC	DEB	BAS	25	20.9	
P1443	73	G	EU	6	1X1		1/4"	60	70	LITHIC	DEB	BAS	16	7.1	
P1443	74	G	EU	4	1X1		1/4"	0	10	LITHIC	DEB	CCS	6	2.5	
P1443	75	G	EU	4	1X1		1/4"	0	10	LITHIC	DEB	BAS	46	38.7	
P1443	76	G	EU	4	1X1		1/4"	0	10	LITHIC	DEB	OBS	1	0.2	
P1443	77	G	EU	4	1X1		1/4"	10	20	LITHIC	DEB	OBS	2	0.7	
P1443	78	G	EU	4	1X1		1/4"	10	20	LITHIC	DEB	CCS	1	2.2	
P1443	79	G	EU	4	1X1		1/4"	10	20	LITHIC	FLKTL	BAS	1	15.8	
P1443	80	G	EU	4	1X1		1/4"	10	20	LITHIC	DEB	BAS	36	47.5	
P1443	81	G	EU	4	1X1		1/4"	20	30	LITHIC	DEB	BAS	64	59.4	
P1443	82	G	EU	4	1X1		1/4"	20	30	LITHIC	DEB	OBS	1	0.1	
P1443	83	G	EU	4	1X1		1/4"	20	30	LITHIC	DEB	CCS	1	0.2	
P1443	84.1	G	EU	4	1X1		1/4"	30	40	LITHIC	EMF	BAS	1	12.0	
P1443	84.2	G	EU	4	1X1		1/4"	30	40	LITHIC	DEB	BAS	42	59.5	
P1443	84.3	G	EU	4	1X1		1/4"	30	40	LITHIC	DEB	CCS	2	2.3	
P1443	86	G	EU	4	1X1		1/4"	30	40	LITHIC	DEB	OBS	1	0.8	
P1443	87	G	EU	4	1X1		1/4"	40	50	LITHIC	DEB	CCS	3	1.9	1 BROKEN
P1443	88	G	EU	4	1X1		1/4"	40	50	LITHIC	DEB	BAS	36	43.6	
P1443	89	G	EU	4	1X1		1/4"	40	50	LITHIC	DEB	OBS	2	0.3	
P1443	90	G	EU	4	1X1		1/4"	50	60	LITHIC	DEB	CCS	4	1.6	
P1443	91	G	EU	4	1X1		1/4"	50	60	LITHIC	DEB	BAS	47	57.4	
P1443	92	G	EU	4	1X1		1/4"	50	60	LITHIC	BIF	BAS	1	23.4	
P1443	93	G	EU	4	1X1		1/4"	60	70	LITHIC	DEB	CCS	2	1.2	1 BROKEN
P1443	94	G	EU	4	1X1		1/4"	60	70	LITHIC	BIF	BAS	1	13.9	
P1443	95	G	EU	4	1X1		1/4"	60	70	LITHIC	DEB	BAS	26	41.2	
P1443	97	G	EU	4	1X1		1/4"	70	80	LITHIC	DEB	CCS	2	0.5	
P1443	99	G	EU	4	1X1		1/4"	70	80	LITHIC	DEB	BAS	24	26.5	
P1443	100	G	EU	4	1X1	79 CM DEPTH	1/4"	70	80	LITHIC	UNF	CCS	1	46.0	
P1443	101	G	EU	4	1X1		1/4"	80	90	LITHIC	DEB	CCS	3	1.3	1 BROKEN
P1443	102.1	G	EU	4	1X1		1/4"	80	90	LITHIC	EMF	BAS	1	4.0	
P1443	102.2	G	EU	4	1X1		1/4"	80	90	LITHIC	DEB	BAS	12	21.2	
P1443	103	G	EU	5	1X1		1/8"	0	10	LITHIC	DEB	CCS	2	2.5	
P1443	104	G	EU	5	0.5X1		1/8"	0	10	LITHIC	DEB	OBS	2	0.9	
P1443	105	G	EU	5	0.5X1		1/8"	0	10	LITHIC	DEB	BAS	28	29.8	
P1443	106	G	EU	5	0.5X1		1/8"	10	20	LITHIC	DEB	OBS	2	0.7	
P1443	107	G	EU	5	0.5X1		1/8"	10	20	LITHIC	DEB	BAS	19	5.7	
P1443	108	G	EU	5	0.5X1		1/8"	10	20	LITHIC	DEB	CCS	3	2.1	
P1443	109	G	EU	5	0.5X1		1/8"	20	30	LITHIC	BIF	BAS	1	16.2	
P1443	110	G	EU	5	0.5X1		1/8"	20	30	LITHIC	DEB	CCS	4	1.9	
P1443	111	G	EU	5	0.5X1		1/8"	20	30	LITHIC	DEB	BAS	13	4.1	
P1443	112	G	EU	5	0.5X1		1/8"	30	40	LITHIC	DEB	CCS	2	2.6	
P1443	113	G	EU	5	0.5X1		1/8"	30	40	LITHIC	DEB	BAS	23	20.7	
P1443	114	G	EU	5	0.5X1		1/8"	30	40	LITHIC	DEB	OBS	1	0.0	
P1443	116	G	EU	5	0.5X1		1/8"	40	50	LITHIC	DEB	OBS	3	1.0	
P1443	117	G	EU	5	0.5X1		1/8"	40	50	LITHIC	DEB	CCS	2	0.1	

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Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	118	G	EU	5	0.5X1		1/8"	40	50	LITHIC	DEB	BAS	38	13.2	
P1443	119	G	EU	5	0.5X1		1/8"	50	60	LITHIC	DEB	OBS	1	0.0	
P1443	120	G	EU	5	0.5X1		1/8"	50	60	LITHIC	DEB	CCS	3	5.8	
P1443	121	G	EU	5	0.5X1		1/8"	50	60	LITHIC	DEB	BAS	30	12.2	
P1443	123	G	EU	5	0.5X1		1/8"	60	70	LITHIC	BIF	BAS	1	40.8	
P1443	124	G	EU	5	0.5X1		1/8"	60	70	LITHIC	DEB	OBS	1	0.8	
P1443	125	G	EU	5	0.5X1		1/8"	60	70	LITHIC	DEB	CCS	4	0.9	
P1443	126	G	EU	5	0.5X1		1/8"	60	70	LITHIC	DEB	BAS	24	10.5	
P1443	127	G	EU	5	0.5X1		1/8"	70	80	LITHIC	BIF	OBS	1	3.9	
P1443	128	G	EU	5	0.5X1		1/8"	70	90	LITHIC	DEB	BAS	32	74.7	
P1443	129.1	G	EU	5	0.5X1		1/8"	70	90	LITHIC	FLKTL	CCS	1	0.7	
P1443	129.2	G	EU	5	0.5X1		1/8"	70	90	LITHIC	DEB	CCS	4	0.9	
P1443	130	G	EU	5	0.5X1		1/8"	70	90	LITHIC	DEB	OBS	1	0.1	
P1443	131	G	EU	5	0.5X1		1/8"	80	90	LITHIC	FLKTL	BAS	1	19.9	DO NOT WASH
P1443	133	G	EU	5	0.5X1		1/8"	80	90	LITHIC	BIF	OBS	1	8.7	
P1443	134	G	EU	5	0.5X1		1/8"	90	100	LITHIC	DEB	BAS	35	37.1	
P1443	135	G	EU	5	0.5X1		1/8"	90	100	LITHIC	DEB	OBS	6	0.7	
P1443	136	G	EU	5	0.5X1		1/8"	100	110	LITHIC	DEB	OBS	2	0.3	
P1443	137	G	EU	5	0.5X1		1/8"	100	110	LITHIC	DEB	CCS	5	8.2	
P1443	138	G	EU	5	0.5X1		1/8"	100	110	LITHIC	DEB	BAS	22	8.0	
P1443	139	G	EU	5	0.5X1		1/8"	100	110	LITHIC	EMF	BAS	1	2.8	
P1443	140	G	EU	7	1X1		1/4"	0	10	LITHIC	PPT	BAS	1	2.7	
P1443	141	G	EU	7	1X1		1/4"	0	10	LITHIC	DEB	BAS	27	53.2	
P1443	142	G	EU	7	1X1		1/4"	10	20	LITHIC	DEB	CCS	1	0.4	
P1443	143	G	EU	7	1X1		1/4"	10	20	LITHIC	DEB	BAS	9	2.2	
P1443	144	G	EU	7	1X1		1/4"	20	30	LITHIC	DEB	BAS	19	22.0	
P1443	145	G	EU	7	1X1		1/4"	30	40	LITHIC	DEB	BAS	18	70.9	
P1443	146	G	EU	7	1X1		1/4"	40	50	LITHIC	BIF	BAS	1	16.3	
P1443	147	G	EU	7	1X1		1/4"	40	50	LITHIC	PPT	BAS	1	10.4	
P1443	148	G	EU	7	1X1		1/4"	40	50	LITHIC	DEB	OBS	2	0.2	
P1443	149.1	G	EU	7	1X1		1/4"	40	50	LITHIC	DEB	BAS	40	118.0	
P1443	149.2	G	EU	7	1X1		1/4"	40	50	LITHIC	DEB	CCS	1	1.7	
P1443	150	G	EU	7	1X1		1/4"	50	60	GRDSTN	MLLSTN	GRA	1	72.0	
P1443	151	G	EU	7	1X1		1/4"	50	60	GRDSTN	MLLSTN	GRA	1		
P1443	152	G	EU	7	1X1		1/4"	50	60	LITHIC	BIF	BAS	1	26.7	
P1443	153	G	EU	7	1X1		1/4"	50	60	LITHIC	DEB	BAS	19	33.9	
P1443	154	G	EU	7	1X1		1/4"	60	70	LITHIC	DEB	BAS	24	32.5	
P1443	155	G	EU	7	1X1		1/4"	60	70	LITHIC	COR	CCS	1	64.0	
P1443	156	G	EU	7	1X1		1/4"	60	70	LITHIC	BIF	BAS	1	30.2	
P1443	157	G	STU	3	1X1		1/4"	0	10	LITHIC	DEB	BAS	1	0.2	
P1443	158	G	EU	7	1X1		1/4"	40	50	GRDSTN	MLLSTN	GRA	1		
P1443	159	F				SURFACE ARTIFACT 1, 148° @ 2.3 M FROM DATUM				LITHIC	BIF	BAS	1	30.8	

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Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	160	F				SURFACE ARTIFACT 2, 105° @ 5.5 M FROM DATUM				LITHIC	BIF	BAS	1	35.5	
P1443	161	F				SURFACE ARTIFACT 3, 337° @ 11 M FROM DATUM				LITHIC	BIF	BAS	1	32.8	
P1443	162	F				SURFACE ARTIFACT 4, 337° @ 18 M FROM DATUM				LITHIC	BIF	BAS	1	19.4	
P1443	163	F				SURFACE ARTIFACT 5, 347° @ 21 M FROM DATUM				LITHIC	FLKTL	BAS	1	35.1	
P1443	164	F				SURFACE ARTIFACT 6, 351° @ 32 m FROM DATUM				LITHIC	BIF	BAS	1	6.1	
P1443	165	F				SURFACE ARTIFACT 7, 316° @ 20 M FROM DATUM				LITHIC	EMF	BAS	1	30.7	
P1443	166	F				SURFACE ARTIFACT 8, 284° @ 34 M FROM DATUM				LITHIC	FLKTL	BAS	1	9.8	
P1443	167	F				SURFACE ARTIFACT 9, 227° @ 11 M FROM DATUM				LITHIC	BIF	BAS	1	17.6	
P1443	168	F				SURFACE ARTIFACT 10, 34° @ 18 M FROM DATUM				LITHIC	BIF	BAS	1	5.9	
P1443	169	F				SURFACE ARTIFACT 11, 64° @ 33 M FROM DATUM				LITHIC	BIF	BAS	1	8.3	
P1443	170	F	STU	1	1X1		1/4"	0	10	LITHIC	DEB	BAS	29	42.6	
P1443	171	F	STU	1	1X1		1/4"	0	10	LITHIC	PPT	BAS	1	4.0	
P1443	172	F	STU	2	1X1		1/4"	0	10	LITHIC	DEB	BAS	47	48.3	

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Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	173	F	STU	2	1X1		1/4"	0	10	LITHIC	DEB	CCS	2	1.2	
P1443	174	F	STU	3	1X1		1/4"	0	10	LITHIC	PPT	BAS	1	3.8	
P1443	175	F	STU	3	1X1		1/4"	0	10	LITHIC	DEB	BAS	25	10.9	
P1443	176	F	STU	4	1X1		1/4"	0	10	LITHIC	DEB	BAS	26	19.1	
P1443	177	F	STU	5	1X1		1/4"	0	10	LITHIC	BIF	BAS	1	3.4	
P1443	178.1	F	STU	5	1X1		1/4"	0	10	LITHIC	DEB	BAS	18	24.2	
P1443	178.2	F	STU	5	1X1		1/4"	0	10	LITHIC	DEB	OBS	1	0.1	
P1443	180	F	STU	7	1X1		1/4"	0	10	LITHIC	DEB	BAS	30	41.2	
P1443	181	F	STU	8	1X1		1/4"	0	10	LITHIC	DEB	CCS	3	2.4	
P1443	182.1	F	STU	8	1X1		1/4"	0	10	LITHIC	BIF	BAS	1	2.3	
P1443	182.2	F	STU	8	1X1		1/4"	0	10	LITHIC	DEB	BAS	45	21.5	
P1443	183	F	STU	9	1X1		1/4"	0	10	LITHIC	DEB	BAS	1	9.5	
P1443	184	F	STU	10	1X1		1/4"	0	10	LITHIC	DEB	BAS	1	4.5	
P1443	185	F	STU	11	1X1		1/4"	0	10	LITHIC	DEB	CCS	1	1.8	
P1443	186	F	STU	11	1X1		1/4"	0	10	LITHIC	DEB	BAS	10	21.5	
P1443	187	F	STU	12	1X1		1/4"	0	10	LITHIC	DEB	BAS	88	38.9	
P1443	188	F	STU	12	1X1		1/4"	0	10	LITHIC	BIF	BAS	1	6.5	
P1443	189	F	EU	1	1X1		1/4"	0	10	LITHIC	DEB	BAS	6	11.8	
P1443	190	F	EU	1	1X1		1/4"	0	10	LITHIC	BIF	CCS	1	7.9	
P1443	191	F	EU	1	1X1		1/4"	0	10	BONE	FAU	BON	247	123.7	
P1443	192	F	EU	1	1X1		1/4"	10	20	BONE	FAU	BON	68	46.5	
P1443	193	F	EU	1	1X1		1/4"	10	20	LITHIC	DEB	CCS	1	0.3	
P1443	194	F	EU	1	1X1		1/4"	20	30	BONE	FAU	BON	79	43.6	
P1443	195	F	EU	1	1X1		1/4"	20	30	LITHIC	DEB	BAS	6	4.9	
P1443	196	F	EU	1	1X1		1/4"	30	40	BONE	FAU	BON	5	3.7	
P1443	197	F	EU	1	1X1		1/4"	40	50	LITHIC	DEB	BAS	3	2.2	
P1443	198	F	EU	2	1X1		1/4"	0	10	LITHIC	DEB	BAS	17	13.3	
P1443	199	F	EU	2	1X1		1/4"	0	10	LITHIC	DEB	CCS	2	1.4	
P1443	200.1	F	EU	2	1X1		1/4"	10	20	LITHIC	DEB	BAS	14	14.7	
P1443	200.2	F	EU	2	1X1		1/4"	10	20	LITHIC	DEB	CCS	1	0.1	
P1443	201	F	EU	2	1X1		1/4"	20	30	LITHIC	DEB	BAS	17	7.1	
P1443	202	F	EU	2	1X1		1/4"	20	30	LITHIC	DEB	CCS	1	0.1	
P1443	203	F	EU	2	1X1		1/4"	30	40	LITHIC	DEB	BAS	5	1.4	
P1443	204	F	EU	1	1X1		1/4"	30	40	LITHIC	DEB	BAS	4	4.1	
P1443	205.1	F	EU	2	1X1		1/4"	40	50	LITHIC	DEB	BAS	11	13.6	
P1443	205.2	F	EU	2	1X1		1/4"	40	50	LITHIC	DEB	CCS	1	0.1	
P1443	206	F	EU	2	1X1		1/4"	50	60	LITHIC	DEB	BAS	13	6.62	
P1443	207	F	EU	2	1X1		1/4"	50	60	LITHIC	DEB	OBS	1	0.1	
P1443	208	F	EU	2	1X1		1/4"	60	70	LITHIC	DEB	BAS	8	4.6	
P1443	209	F	EU	2	1X1		1/4"	70	80	LITHIC	DEB	BAS	1	0.6	
P1443	210	F	EU	2	1X1		1/4"	80	90	LITHIC	DEB	BAS	6	12.1	
P1443	211	F	EU	2	1X1		1/4"	80	90	LITHIC	PPT	BAS	1	4.1	
P1443	212	F	EU	2	1X1		1/4"	80	90	LITHIC	BIF	BAS	1	4.4	
P1443	213	F	EU	2	1X1		1/4"	90	100	LITHIC	DEB	BAS	1	0.8	
P1443	214	F	EU	2	1X1		1/4"	100	110	LITHIC	DEB	BAS	1	3.6	
P1443	215.1	F	EU	3	1X1		1/4"	0	10	LITHIC	DEB	BAS	32	34.3	

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Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	215.2	F	EU	3	1X1		1/4"	0	10	LITHIC	DEB	CCS	1	0.4	
P1443	216.1	F	EU	3	1X1		1/4"	10	20	LITHIC	DEB	BAS	22	14.8	
P1443	216.2	F	EU	3	1X1		1/4"	10	20	LITHIC	DEB	CCS	1	0.1	
P1443	217	F	EU	3	1X1		1/4"	20	30	LITHIC	DEB	BAS	33	24.4	
P1443	218	F	EU	3	1X1		1/4"	30	40	LITHIC	DEB	BAS	21	12.4	
P1443	219	F	EU	3	1X1		1/4"	40	50	LITHIC	DEB	BAS	27	46.3	
P1443	220	F	EU	3	1X1		1/4"	40	50	LITHIC	DEB	OBS	1	0.5	
P1443	221	F	EU	3	1X1		1/4"	50	60	LITHIC	DEB	BAS	24	16.3	
P1443	222.1	F	EU	3	1X1		1/4"	60	70	LITHIC	DEB	BAS	33	49.3	
P1443	222.2	F	EU	3	1X1		1/4"	60	70	LITHIC	DEB	CCS	1	0.5	
P1443	223	F	EU	3	1X1		1/4"	70	80	LITHIC	UNF	BAS	1	75.4	
P1443	224	F	EU	3	1X1		1/4"	70	80	LITHIC	FLKTL	BAS	1	6.9	
P1443	225	F	EU	3	1X1		1/4"	70	80	LITHIC	DEB	OBS	1	0.2	
P1443	226	F	EU	3	1X1		1/4"	70	80	LITHIC	DEB	BAS	16	7.1	
P1443	227	F	EU	3	1X1		1/4"	80	90	LITHIC	DEB	BAS	11	31.6	
P1443	228	F	EU	3	1X1		1/4"	80	90	LITHIC	DEB	OBS	1	0.3	
P1443	229	F	EU	3	1X1		1/4"	80	90	LITHIC	DRL	CCS	1	2.0	
P1443	230	F	EU	3	1X1		1/4"	90	100	LITHIC	DEB	BAS	7	4.1	
P1443	231	F	EU	4	1X1		1/4"	0	10	LITHIC	DEB	BAS	70	77.3	
P1443	232	F	EU	4	1X1		1/4"	10	20	LITHIC	DEB	BAS	59	46.4	
P1443	233	F	EU	4	1X1		1/4"	20	30	LITHIC	DEB	BAS	53	68.5	
P1443	234.1	F	EU	4	1X1		1/4"	30	40	LITHIC	FLKTL	BAS	1	2.1	
P1443	234.2	F	EU	4	1X1		1/4"	30	40	LITHIC	DEB	BAS	71	73.7	
P1443	235	F	EU	4	1X1		1/4"	40	50	LITHIC	UNF	BAS	1	37.6	
P1443	236	F	EU	4	1X1		1/4"	40	50	LITHIC	BIF	BAS	1	27.2	
P1443	237	F	EU	4	1X1		1/4"	40	50	LITHIC	DEB	OBS	1	0.2	
P1443	238	F	EU	4	1X1		1/4"	40	50	LITHIC	DEB	BAS	80	62.8	
P1443	240	F	EU	4	1X1		1/4"	50	60	LITHIC	DEB	OBS	2	0.3	
P1443	241	F	EU	4	1X1		1/4"	50	60	LITHIC	DEB	BAS	78	117.1	
P1443	242	F	EU	4	1X1		1/4"	60	70	LITHIC	DEB	CCS	1	0.2	
P1443	243	F	EU	4	1X1		1/4"	60	70	LITHIC	DEB	OBS	1	0.3	
P1443	244	F	EU	4	1X1		1/4"	60	70	LITHIC	DEB	BAS	34	23.2	
P1443	245	F	EU	4	1X1		1/4"	60	70	LITHIC	FLKTL	CCS	1	10.3	
P1443	246	F	EU	4	1X1		1/4"	60	70	LITHIC	FLKTL	BAS	1	106.8	
P1443	247	F	EU	4	1X1		1/4"	70	80	LITHIC	DEB	BAS	13	17.3	
P1443	248	F	EU	5	1X1		1/4"	0	10	LITHIC	DEB	BAS	50	33.3	
P1443	249	F	EU	5	1X1		1/4"	10	20	LITHIC	DEB	BAS	56	48.1	
P1443	250	F	EU	5	1X1		1/4"	20	30	LITHIC	DEB	BAS	88	129.5	
P1443	251.1	F	EU	5	1X1		1/4"	30	40	LITHIC	BIF	BAS	1	25.8	
P1443	251.2	F	EU	5	1X1		1/4"	30	40	LITHIC	DEB	BAS	40	28.9	
P1443	252.1	F	EU	5	1X1		1/4"	40	50	LITHIC	DEB	BAS	44	37.8	
P1443	252.2	F	EU	5	1X1		1/4"	40	50	LITHIC	DEB	CCS	2	1.0	
P1443	253.1	F	EU	5	1X1		1/4"	50	60	LITHIC	DEB	BAS	31	16.2	
P1443	253.2	F	EU	5	1X1		1/4"	50	60	LITHIC	DEB	CCS	1	0.5	
P1443	254	F	EU	5	1X1		1/4"	60	70	LITHIC	DEB	BAS	7	7.7	
P1443	255	F	EU	5	1X1		1/4"	70	80	LITHIC	DEB	BAS	8	3.2	

CA-NEV-13/H, Locus F & G Catalog

Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	256	F	EU	5	1X1		1/4"	80	90	LITHIC	DEB	BAS	2	10.7	
P1443	257	F	EU	5	1X1		1/4"	90	100	LITHIC	DEB	BAS	1	0.2	
P1443	258	F	EU	6	1X1		1/4"	0	10	LITHIC	DEB	BAS	161	158.7	
P1443	259	F	EU	6	1X1		1/4"	0	10	LITHIC	DEB	CCS	1	0.2	
P1443	260	F	EU	6	1X1		1/4"	0	10	LITHIC	DEB	OBS	1	0.1	
P1443	261	F	EU	6	1X1		1/4"	0	10	LITHIC	PPT	BAS	1	4.7	
P1443	262.1	F	EU	6	1X1		1/4"	10	20	LITHIC	DEB	BAS	84	80.0	
P1443	262.2	F	EU	6	1X1		1/4"	10	20	LITHIC	DEB	CCS	1	0.2	
P1443	263	F	EU	6	1X1		1/4"	20	30	LITHIC	DEB	BAS	104	106.4	
P1443	264	F	EU	6	1X1		1/4"	20	30	LITHIC	DEB	OBS	1	0.4	
P1443	265	F	EU	6	1X1		1/4"	30	40	LITHIC	PPT	BAS	1	5.4	
P1443	266.1	F	EU	6	1X1		1/4"	30	40	LITHIC	BIF	BAS	1	5.3	
P1443	266.2	F	EU	6	1X1		1/4"	30	40	LITHIC	DEB	BAS	91	44.4	
P1443	267	F	EU	6	1X1		1/4"	40	50	LITHIC	DEB	BAS	88	173.3	
P1443	268	F	EU	6	1X1		1/4"	50	60	LITHIC	BIF	BAS	1	13.1	
P1443	269	F	EU	6	1X1		1/4"	50	60	LITHIC	BIF	BAS	1	53.51	
P1443	270.1	F	EU	6	1X1		1/4"	50	60	LITHIC	BIF	BAS	1	0.3	
P1443	270.2	F	EU	6	1X1		1/4"	50	60	LITHIC	FLKTL	BAS	1	26.0	
P1443	270.3	F	EU	6	1X1		1/4"	50	60	LITHIC	DEB	BAS	80	129.5	
P1443	270.4	F	EU	6	1X1		1/4"	50	60	LITHIC	DEB	OBS	1	0.1	
P1443	270.5	F	EU	6	1X1		1/4"	50	60	LITHIC	DEB	CCS	2	0.9	
P1443	271.1	F	EU	6	1X1		1/4"	60	70	LITHIC	EMF	BAS	1	5.3	
P1443	271.2	F	EU	6	1X1		1/4"	60	70	LITHIC	DEB	BAS	28	38.5	
P1443	272	F	EU	6	1X1		1/4"	70	80	LITHIC	DEB	BAS	38	43.6	
P1443	273	F	EU	6	1X1		1/4"	80	90	LITHIC	DEB	BAS	23	18.5	
P1443	274.1	F	EU	6	1X1		1/4"	90	100	LITHIC	DEB	BAS	3	1.8	
P1443	274.2	F	EU	6	1X1		1/4"	90	100	LITHIC	DEB	CCS	1	0.9	
P1443	275.1	F	STU	6	1X1		1/4"	0	10	LITHIC	DEB	BAS	18	10.7	
P1443	275.2	F	STU	6	1X1		1/4"	0	10	LITHIC	DEB	OBS	1	0.1	
P1443	279	F	EU	1	1X1		1/4"	0	10	HISTORIC	FOOTWARE	LEATH	1	17.41	Sole Fragment
P1443	280	F	EU	1	1X1		1/4"	0	10	HISTORIC	BUTTON	SHELL	1	0.87	Four-hole, beige
P1443	281	F	EU	1	1X1		1/4"	0	10	HISTORIC	PIPE	CER	1	1.46	Bowl Fragment
P1443	282.1	F	EU	1	1X1		1/4"	0	10	HISTORIC	TABLEWARE	CER	2	7.55	Bamboo Design
P1443	282.2	F	EU	1	1X1		1/4"	0	10	HISTORIC	TABLEWARE	CER	2	31.46	Brown Chinese
P1443	282.3	F	EU	1	1X1		1/4"	0	10	HISTORIC	TABLEWARE	CER	15	9.3	WIE
P1443	283	F	EU	1	1X1		1/4"	0	10	HISTORIC	JAR	GLA	2	1.15	White Opaque
P1443	284.1	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	44.95	Aqua Base
P1443	284.2	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	4.39	Aqua Body Frag
P1443	284.3	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	19.83	Cobalt Body Fragment w/ "C[H]"
P1443	284.4	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	60.13	Olive Champagne Base Fragment
P1443	284.5	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	10	26.50	Amethyst
P1443	284.6	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	27	340.2	Aqua
P1443	284.7	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	32	90.89	Olive
P1443	284.8	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	44	170.22	Brown
P1443	285	F	EU	1	1X1		1/4"	0	10	HISTORIC	BOTTLE	FOIL	1	0.73	Champagne
P1443	286	F	EU	1	1X1		1/4"	0	10	HISTORIC	CLOTHING	MET	1	0.85	Metal Button-Star

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Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	287	F	EU	1	1X1		1/4"	0	10	HISTORIC	CLOTHING	MET	2	2.14	Rivet
P1443	288	F	EU	1	1X1		1/4"	0	10	HISTORIC	WIRE	MET	1	5.56	Bundle
P1443	289	F	EU	1	1X1		1/4"	0	10	HISTORIC	PIN	MET	1	4.61	
P1443	290	F	EU	1	1X1		1/4"	0	10	HISTORIC	UNID	MET	1	27.61	
P1443	291	F	EU	1	1X1		1/4"	0	10	HISTORIC	CLOSURE	MET	4	6.6	Crown Bottle Cap
P1443	292	F	EU	1	1X1		1/4"	0	10	HISTORIC	HORSESHOE	MET	1	408.2	
P1443	293	F	EU	1	1X1		1/4"	0	10	HISTORIC	AXE HEAD	MET	1	680.4	
P1443	294	F	EU	1	1X1		1/4"	0	10	HISTORIC	STOVE	MET	1	907.2	Fragment
P1443	295	F	EU	1	1X1		1/4"	0	10	HISTORIC	CAN	MET	2	53.69	Sardine
P1443	296	F	EU	1	1X1		1/4"	0	10	HISTORIC	BAR	MET	1	30.35	
P1443	297	F	EU	1	1X1		1/4"	0	10	HISTORIC	WHEEL	MET	1	26.18	Pulley Part
P1443	298	F	EU	1	1X1		1/4"	0	10	HISTORIC	WASHER	MET	1	8.65	
P1443	299	F	EU	1	1X1		1/4"	0	10	HISTORIC	CLOSURE	MET	1	0.62	Bottle Cap w/ "[TRADE/DU…"
P1443	300	F	EU	1	1X1		1/4"	0	10	HISTORIC	STOVE	MET	1	179.92	Fragment
P1443	301	F	EU	1	1X1		1/4"	0	10	HISTORIC	SPRING	MET	1	3.06	
P1443	302.1	F	EU	1	1X1		1/4"	0	10	HISTORIC	UNID	MET	1	9.82	
P1443	302.2	F	EU	1	1X1		1/4"	0	10	HISTORIC	UNID	MET	1	29.87	
P1443	302.3	F	EU	1	1X1		1/4"	0	10	HISTORIC	UNID	MET	1	72.68	
P1443	303	F	EU	1	1X1		1/4"	0	10	HISTORIC	CAN	MET	126	272.2	Fragments
P1443	304	F	EU	1	1X1		1/4"	0	10	HISTORIC	WIRE	MET	20	133.2	
P1443	305	F	EU	1	1X1		1/4"	0	10	HISTORIC	UNID	MET	13	82.46	
P1443	306	F	EU	1	1X1		1/4"	0	10	HISTORIC	STRAP	MET	5	141.1	
P1443	307.1	F	EU	1	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	39	59.30	1 1/2"
P1443	307.2	F	EU	1	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	97	226.8	2"
P1443	307.3	F	EU	1	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	21	79.62	2 1/2"
P1443	307.4	F	EU	1	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	56	272.2	3"
P1443	307.5	F	EU	1	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	27	182.13	3 5/8"
P1443	307.6	F	EU	1	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	46	120.35	Fragments
P1443	308.1	F	EU	1	1X1		1/4"	0	10	HISTORIC	WR NAIL	MET	2	2.89	1 5/8"
P1443	308.2	F	EU	1	1X1		1/4"	0	10	HISTORIC	WR NAIL	MET	3	6.55	2"
P1443	308.3	F	EU	1	1X1		1/4"	0	10	HISTORIC	WR NAIL	MET	5	16.90	2 1/2"
P1443	308.4	F	EU	1	1X1		1/4"	0	10	HISTORIC	WR NAIL	MET	3	18.02	3"
P1443	309.1	F	EU	1	1X1		1/4"	0	10	HISTORIC	SCREW	MET	2	7.26	1 1/4"
P1443	309.2	F	EU	1	1X1		1/4"	0	10	HISTORIC	WINDOW	GLA	63	793.8	
P1443	310	F	EU	1	1X1		1/4"	0	10	HISTORIC	CLOSURE	CORK	6	2.0	Fragments
P1443	311	F	EU	1	1X1		1/4"	0	10	HISTORIC	CHARCOAL	CHARCOAL	4	8.77	
P1443	312	F	EU	1	1X1		1/4"	0	10	HISTORIC	FLORAL	SEED	1	1.48	Peach Pit
P1443	313	F	EU	1	1X1		1/4"	10	20	HISTORIC	FOOTWARE	LEATH	10	181.4	Boot Fragments
P1443	314	F	EU	1	1X1		1/4"	10	20	HISTORIC	TABLEWARE	CER	8	8.48	WIE
P1443	315	F	EU	1	1X1		1/4"	10	20	HISTORIC	MUG	GLA	1	57.26	Fragment
P1443	316.1	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	17.31	Medicine
P1443	316.2	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	32.48	Aqua Neck & Finish
P1443	316.3	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	20.11	Aqua Octagonal Base
P1443	316.4	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	9.47	Aqua Body Fragment w/ "…[Y-YO]…"
P1443	316.5	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	21.64	Aqua Body Fragment w/ "…D"
P1443	316.6	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	37.26	Olive Wine Neck & Finish

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Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	316.7	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	4.93	Brown Finish
P1443	316.8	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	21.78	Brown Body Fragment w/ "…S CO."
P1443	316.9	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	1	92.02	Brown Base w/ "S.G. CO/7"
P1443	316.10	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	17	81.19	Aqua
P1443	316.11	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	4	11.39	Cobalt
P1443	316.12	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	11	135.39	Olive
P1443	316.13	F	EU	1	1X1		1/4"	10	20	HISTORIC	BOTTLE	GLA	14	84.16	Brown
P1443	317	F	EU	1	1X1		1/4"	10	20	HISTORIC	WINDOW	GLA	122	294.8	
P1443	318	F	EU	1	1X1		1/4"	10	20	HISTORIC	CLOTHING	MET	1	0.85	Button-Star
P1443	319	F	EU	1	1X1		1/4"	10	20	HISTORIC	CLOSURE	MET	1	3.05	
P1443	320	F	EU	1	1X1		1/4"	10	20	HISTORIC	AMMUNITION	MET	1	0.67	Cartridge 22 w/ "P"
P1443	321	F	EU	1	1X1		1/4"	10	20	HISTORIC	UNID	MET	1	1.84	Part w/ Teeth
P1443	322	F	EU	1	1X1		1/4"	10	20	HISTORIC	CLOTHING	MET	1	0.90	Eyelet
P1443	323.1	F	EU	1	1X1		1/4"	10	20	HISTORIC	CAN	MET	2	6.56	Sardine Lid Fragment
P1443	323.2	F	EU	1	1X1		1/4"	10	20	HISTORIC	CAN LID	MET	1	14.26	Sanitary
P1443	324	F	EU	1	1X1		1/4"	10	20	HISTORIC	HORSESHOE	MET	1	191.88	Fragment
P1443	325	F	EU	1	1X1		1/4"	10	20	HISTORIC	STOVE	MET	3	317.5	Parts
P1443	326	F	EU	1	1X1		1/4"	10	20	HISTORIC	CAN	MET	133	125.07	Fragments
P1443	327	F	EU	1	1X1		1/4"	10	20	HISTORIC	WIRE	MET	36	156.55	
P1443	328	F	EU	1	1X1		1/4"	10	20	HISTORIC	UNID	MET	6	33.49	
P1443	329.1	F	EU	1	1X1		1/4"	10	20	HISTORIC	SQ NAIL	MET	36	52.20	1 1/2"
P1443	329.2	F	EU	1	1X1		1/4"	10	20	HISTORIC	SQ NAIL	MET	31	75.14	2"
P1443	329.3	F	EU	1	1X1		1/4"	10	20	HISTORIC	SQ NAIL	MET	10	37.63	2 1/2"
P1443	329.4	F	EU	1	1X1		1/4"	10	20	HISTORIC	SQ NAIL	MET	24	92.39	3"
P1443	329.5	F	EU	1	1X1		1/4"	10	20	HISTORIC	SQ NAIL	MET	7	66.01	3 5/8"
P1443	329.6	F	EU	1	1X1		1/4"	10	20	HISTORIC	SQ NAIL	MET	1	25.63	4 3/4"
P1443	329.7	F	EU	1	1X1		1/4"	10	20	HISTORIC	SQ NAIL	MET	80	160.87	Fragments
P1443	330.1	F	EU	1	1X1		1/4"	10	20	HISTORIC	WR NAIL	MET	1	1.35	1 1/2"
P1443	330.2	F	EU	1	1X1		1/4"	10	20	HISTORIC	WR NAIL	MET	1	5.11	2 5/8"
P1443	330.3	F	EU	1	1X1		1/4"	10	20	HISTORIC	WR NAIL	MET	1	6.87	3"
P1443	331	F	EU	1	1X1		1/4"	20	30	HISTORIC	TEXTILE	FAB	1	0.67	
P1443	332	F	EU	1	1X1		1/4"	20	30	HISTORIC	FOOTWARE	LEAT	4	29.88	Shoe/Boot Fragments
P1443	333.1	F	EU	1	1X1		1/4"	20	30	HISTORIC	TABLEWARE	CER	2	0.48	WIE
P1443	333.2	F	EU	1	1X1		1/4"	20	30	HISTORIC	TABLEWARE	CER	1	3.32	Brown
P1443	334	F	EU	1	1X1		1/4"	20	30	HISTORIC	MUG	GLA	1	40.79	Fragment
P1443	335.1	F	EU	1	1X1		1/4"	20	30	HISTORIC	BOTTLE	GLA	1	11.03	Amethyst Body Fragment w/ "NO…"
P1443	335.2	F	EU	1	1X1		1/4"	20	30	HISTORIC	BOTTLE	GLA	3	17.85	Amethyst
P1443	335.3	F	EU	1	1X1		1/4"	20	30	HISTORIC	BOTTLE	GLA	12	72.41	Aqua
P1443	335.4	F	EU	1	1X1		1/4"	20	30	HISTORIC	BOTTLE	GLA	5	14.56	Olive
P1443	335.5	F	EU	1	1X1		1/4"	20	30	HISTORIC	BOTTLE	GLA	6	66.17	Brown
P1443	336	F	EU	1	1X1		1/4"	20	30	HISTORIC	WINDOW	GLA	92	204.1	
P1443	337	F	EU	1	1X1		1/4"	20	30	HISTORIC	CLOSURE	MET	1	8.67	Cap, 1 1/2" Diameter
P1443	338	F	EU	1	1X1		1/4"	20	30	HISTORIC	STRAP	MET	1	15.32	
P1443	339	F	EU	1	1X1		1/4"	20	30	HISTORIC	TACK	MET	1	1.25	
P1443	340.1	F	EU	1	1X1		1/4"	20	30	HISTORIC	SQ NAIL	MET	12	19.27	1 1/2"
P1443	340.2	F	EU	1	1X1		1/4"	20	30	HISTORIC	SQ NAIL	MET	31	77.92	2"

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Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	340.3	F	EU	1	1X1		1/4"	20	30	HISTORIC	SQ NAIL	MET	5	26.15	2 1/2"
P1443	340.4	F	EU	1	1X1		1/4"	20	30	HISTORIC	SQ NAIL	MET	21	115.89	3"
P1443	340.5	F	EU	1	1X1		1/4"	20	30	HISTORIC	SQ NAIL	MET	8	67.79	3 1/2"
P1443	340.6	F	EU	1	1X1		1/4"	20	30	HISTORIC	SQ NAIL	MET	1	18.18	
P1443	340.7	F	EU	1	1X1		1/4"	20	30	HISTORIC	SQ NAIL	MET	46	101.59	Fragments
P1443	341	F	EU	1	1X1		1/4"	20	30	HISTORIC	SCREW	MET	1	6.40	1 3/4"
P1443	342	F	EU	1	1X1		1/4"	20	30	HISTORIC	CAN	MET	77	61.62	Fragments
P1443	343	F	EU	1	1X1		1/4"	20	30	HISTORIC	WIRE	MET	19	72.25	
P1443	344	F	EU	1	1X1		1/4"	30	40	HISTORIC	UNID	LEAT	1	0.54	
P1443	345.1	F	EU	1	1X1		1/4"	30	40	HISTORIC	BOTTLE	GLA	6	5.86	Olive
P1443	345.2	F	EU	1	1X1		1/4"	30	40	HISTORIC	BOTTLE	GLA	1	1.69	Brown
P1443	346	F	EU	1	1X1		1/4"	30	40	HISTORIC	WINDOW	GLA	20	23.65	
P1443	347	F	EU	1	1X1		1/4"	30	40	HISTORIC	CLOSURE	MET	1	5.13	Crown Bottle Cap
P1443	348.1	F	EU	1	1X1		1/4"	30	40	HISTORIC	SQ NAIL	MET	5	5.90	1 1/2"
P1443	348.2	F	EU	1	1X1		1/4"	30	40	HISTORIC	SQ NAIL	MET	4	9.36	2"
P1443	348.3	F	EU	1	1X1		1/4"	30	40	HISTORIC	SQ NAIL	MET	4	19.22	2 1/2"
P1443	348.4	F	EU	1	1X1		1/4"	30	40	HISTORIC	SQ NAIL	MET	8	18.55	
P1443	349	F	EU	1	1X1		1/4"	30	40	HISTORIC	CAN	MET	11	14.12	
P1443	350	F	EU	1	1X1		1/4"	30	40	HISTORIC	WIRE	MET	5	16.78	
P1443	351	F	EU	1	1X1		1/4"	40	50	HISTORIC	TABLEWARE	CER	1	0.59	
P1443	352.1	F	EU	1	1X1		1/4"	40	50	HISTORIC	BOTTLE	GLA	1	0.89	Aqua
P1443	352.2	F	EU	1	1X1		1/4"	40	50	HISTORIC	BOTTLE	GLA	1	1.76	Olive
P1443	353	F	EU	1	1X1		1/4"	40	50	HISTORIC	WINDOW	GLA	1	1.18	
P1443	354.1	F	EU	1	1X1		1/4"	40	50	HISTORIC	SQ NAIL	MET	1	2.20	1 1/2"
P1443	354.2	F	EU	1	1X1		1/4"	40	50	HISTORIC	SQ NAIL	MET	2	6.10	2"
P1443	354.3	F	EU	1	1X1		1/4"	40	50	HISTORIC	SQ NAIL	MET	4	11.36	Fragments
P1443	355	F	EU	1	1X1		1/4"	40	50	HISTORIC	UNID	MET	4	2.04	
P1443	356	F	EU	5	1X1		1/4"	0	10	HISTORIC	TABLEWARE	CER	2	0.21	WIE
P1443	357.1	F	EU	5	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	0.34	Colorless
P1443	357.2	F	EU	5	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	7	4.48	Olive
P1443	357.3	F	EU	5	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	2	1.79	Brown
P1443	358	F	EU	5	1X1		1/4"	0	10	HISTORIC	WINDOW	GLA	1	0.85	
P1443	359	F	EU	5	1X1		1/4"	0	10	HISTORIC	CAN	MET	7	6.44	Fragments
P1443	360	F	EU	5	1X1		1/4"	0	10	HISTORIC	FASTENER	MET	1	0.85	
P1443	361	F	STU	3	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	5.88	Possibly worked
P1443	362.1	F	STU	5	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	4.73	Aqua Body Fragment w/ "…AB…"
P1443	362.2	F	STU	5	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	19.9	Brown Body Fragment w/ "…Co…./…EHUN…"
P1443	362.3	F	STU	5	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	6.46	Brown Body Fragment w/ "…ACE"
P1443	363	F	STU	6	1X1		1/4"	0	10	HISTORIC	COIN	COP	1	3.12	"1949"
P1443	364.1	F	STU	11	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	1.06	Amethyst
P1443	364.2	F	STU	11	1X1		1/4"	0	10	HISTORIC	BOTTLE	GLA	1	13.92	Brown
P1443	365.1	F	STU	17	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	1		3 1/2"
P1443	365.2	F	STU	17	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	5		5"
P1443	365.3	F	STU	17	1X1		1/4"	0	10	HISTORIC	SQ NAIL	MET	19		Fragments
P1443	365.4	F	STU	17	1X1		1/4"	0	10	HISTORIC	WR NAIL	MET	6		1 1/2'

CA-NEV-13/H, Locus F & G Catalog

Acc#	Cat#	Locus	Unit	Unit#	Unit Sz	Prov	Mesh	Hi Depth	Low Depth	Class	Type	Material	Cnt	Weight	Comments
P1443	365.5	F	STU	17	1X1		1/4"	0	10	HISTORIC	WR NAIL	MET	6		2 1/2"
P1443	365.6	F	STU	17	1X1		1/4"	0	10	HISTORIC	WR NAIL	MET	4		3"
P1443	365.7	F	STU	17	1X1		1/4"	0	10	HISTORIC	WIRE	MET	3		

APPENDIX C:
PREHISTORIC ARTIFACT ANALYSIS DATA TABLES

Appendix Table A1. CA-NEV-13/H Test, Locus F and G Projectile Point Data

Cat#	Locus	Unit		Depth		TLS	CND	Type	Blank	Break	Flaking	Use Wear	Comments
171	F	STU	1	0	10	BAS	NCO	MCN	Flake	IND	Pressure	Yes	Probable use blade attrition and basal break
174	F	STU	3	0	10	BAS	PRX	MCN	IND	Bending	Perc/Pres	IND	Possible use break
211	F	EU	2	80	90	BAS	PRX	ECN	IND	IND	Pressure	IND	Huge, prob percussion also, prob use break
261	F	EU	6	0	10	BAS	WHL	LAN	IND	None	Pressure	IND	Possible edge rounding
265	F	EU	6	30	40	BAS	NCO	ECN	IND	Bending	Perc/Pres	IND	Prob blade and base maintenance, prob use break
140	G	EU	7	0	10	BAS	NCO	ECN	Flake	Bend/Finial	Pressure	Yes	Probable use blade attrition and basal break
147	G	EU	7	40	50	BAS	WHL	LAN	IND	None	Perc/Pres	IND	Possible tip break and edge rounding

TLS = toolstone; BAS = basalt; CND = condition; WHL = whole; NCO = nearly complete; PRX = proximal fragment;

MCN = Martis Corner-notched; ECN = Elko Corner-notched; LAN = lanceolate; Bend/Finial = bending with finial;

Perc/Pres = percussion and pressure; IND = indeterminate;

Appendix Table A2. CA-NEV-13/H Test, Locus F and G Projectile Point Metric Data

Cat#	Locus	Unit		Depth		TLS	CND	WT	ML	AL	STL	MW	MWP	BW	NW	TH	PSA	DSA	Type
171	F	STU	1	0	10	BAS	NCO	4.0	-36.8	-36.8	-9.7	28.0	---	---	14.7	4.3	100/105	200/195	MCN
174	F	STU	3	0	10	BAS	PRX	3.8	-24.1	-24.1	13.9	21.1	---	19.6	16.5	5.7	105/115	230/220	MCN
211	F	EU	2	80	90	BAS	PRX	4.1	-22.6	-22.6	15.7	- 33.2	---	27.4	21.0	8.1	130/120	---/175	ECN
261	F	EU	6	0	10	BAS	WHL	4.7	49.8	49.8	---	14.5	47%	5.1	---	6.6	---	---	LAN
265	F	EU	6	30	40	BAS	NCO	5.4	-31.5	-31.5	10.5	25.2	---	13.7	12.6	6.5	135/---	170/---	ECN
140	G	EU	7	0	10	BAS	NCO	2.7	-32.6	-32.6	-6.4	22.9	---	- 13.8	12.4	4.3	---/140	180/190	ECN
147	G	EU	7	40	50	BAS	WHL	10.4	68.9	68.9	---	18.4	39%	7.0	---	9.3	---	---	LAN

TLS = toolstone; BAS = basalt; CND = condition; WHL = whole; NCO = nearly complete; PRX = proximal fragment;

MCN = Martis Corner-notched; ECN = Elko Corner-notched; LAN = lanceolate;

See Thomas 1970, 1981 for metric attribute discussions; WT = weight; ML = maximum length; AL = Axial length;

STL = stem length; MW = maximum width; MWP = maximum width position; BW = basal width; NW = neck width; TH = thickness;

PSA = proximal shoulder angle; DSA = distal shoulder angle; --- = no data or not applicable;

Appendix Table A3. CA-NEV-13/H Test, Locus F and G Biface Data

Cat #	Locus	Unit		Depth		TLS	CND	WT	LTH	WTH	TH	Blank	Break	Flaking	Stage	Use Wear	Manuf Fail	Comments
159	F	---	---	Surf		BAS	DST	30.8	-57.4	-50.3	12.0	Flake	Percussion	Percussion	3	IND	IND	Possible rounding
160	F	---	---	Surf		BAS	END	35.5	-74.8	-45.0	-11.8	Flake	Percussion	Percussion	2	None	Yes	Plunging percussion break
161	F	---	---	Surf		BAS	MRG	32.8	-43.6	-56.9	-14.7	SINT	Bending	Percussion	2	None	Yes	
162	F	---	---	Surf		BAS	END	19.4	-34.7	-43.6	-11.4	IND	Bending	Percussion	4	IND	IND	Early 4, possible rounding
164	F	---	---	Surf		BAS	PRX	6.1	-26.3	-34.4	-4.9	Flake	Bending	Pressure	2	None	Yes	Thin wide possible ppt preform
167	F	---	---	Surf		BAS	DST	17.6	-49.7	-42.2	-7.7	CORT	T Bend	Percussion	2	None	Yes	Cobble cortex
168	F	---	---	Surf		BAS	END	5.9	-27.2	-29.0	-8.0	IND	Bending	Percussion	Early	None	Yes	
169	F	---	---	Surf		BAS	END	8.3	-26.4	-38.6	-11.0	Flake	Bending	Percussion	Early	None	Yes	
177	F	STU	5	0	10	BAS	NCO	3.4	-29.6	16.4	8.1	IND	IND	Pressure	5	IND	No	Possible crescent, possible rounding
182.1	F	STU	8	0	10	BAS	MED	2.3	-21.6	-21.4	-4.9	Flake	Bending	Pressure	Late	None	Yes	
188	F	STU	12	0	10	BAS	NCO	6.5	-38.0	24.2	6.5	IND	IND	Pressure	5	IND	No	Possible crescent, possible rounding
190	F	EU	1	0	10	CCS	MRG	7.9	-45.4	-18.8	-13.0	IND	Bending	Percussion	Early	None	IND	Possible uniface or flake tool margin
212	F	EU	2	80	90	BAS	END	4.4	-23.6	-25.5	-7.3	IND	IND	Percussion	Early	None	Yes	
236	F	EU	4	40	50	BAS	PRX	27.2	-48.0	42.5	10.8	IND	Bending	Percussion	4	None	Yes	Early 4, cortical end
251.1	F	EU	5	30	40	BAS	END	25.8	-42.4	40.1	15.1	Flake	Bending	Percussion	2	None	Yes	
266.1	F	EU	6	30	40	BAS	MRG	5.3	-41.2	-18.9	-5.4	Flake	Bending	Percussion	2	None	Yes	
268	F	EU	6	50	60	BAS	DST	13.1	-56.5	-36.6	-7.5	IND	Bend/Mat Flaw	Perc/Pres	4	None	IND	Asymmetrical, wide blade fragment
269	F	EU	6	50	60	BAS	WHL	53.5	91.2	43.7	15.4	IND	None	Percussion	4	None	No	Possibly not finished
270.1	F	EU	6	50	60	BAS	MED	0.3	-7.8	-11.9	-2.8	IND	IND	Pressure	Late	IND	IND	Prob ppt part, poss facial burination break
6	G	STU	5	0	10	BAS	END	3.1	-20.7	-26.3	-5.9	IND	Bending	Perc/Pres	Late	IND	IND	Unifacial pressure to one face
27	G	---	---	Surf		BAS	END	23.2	-57.5	-31.4	12.2	IND	Bending	Percussion	3	None	Yes	Cortical end

Appendix Table A3. CA-NEV-13/H Test, Locus F and G Biface Data (continued)

Cat #	Locus	Unit		Depth		TLS	CND	WT	LTH	WTH	TH	Blank	Break	Flaking	Stage	Use Wear	Manuf Fail	Comments
28	G	---	---	Surf		BAS	MED	1.5	-17.4	-16.0	-4.7	IND	Bend/Finial	Pressure	5	IND	No	Probable use breaks, ppt blade
29	G	---	---	Surf		BAS	DST	10.7	-44.5	-30.2	-9.8	IND	T Bend	Percussion	3	None	Yes	
30	G	---	---	Surf		BAS	END	12.9	-38.8	-27.5	-12.1	IND	T Bend	Percussion	3	None	Yes	Cortical tip
34	G	EU	1	10	20	BAS	PRX	10.2	-38.0	-22.4	-9.5	IND	Bending	Perc/Pres	5	IND	No	Prob lateral burination use, poss GBS base
58	G	EU	3	20	30	BAS	END	30.9	-53.0	-49.8	13.2	Flake	IND	Percussion	3	None	Yes	
59	G	EU	3	20	30	BAS	DST	20.5	-56.7	-33.0	11.9	IND	Bending	Percussion	3	None	Yes	
62	G	EU	6	0	10	BAS	DST	20.3	-62.2	-31.6	10.6	IND	Bending	Perc/Pres	4	Micro/Rnd	No	
63	G	EU	6	0	10	BAS	END	7.4	-27.7	-32.5	-10.0	Flake	Bending	Percussion	2	None	Yes	
69	G	EU	6	30	40	BAS	PRX	28.4	-53.8	36.5	12.7	IND	Bending	Percussion	3	IND	IND	Possible crush/step use wear
92	G	EU	4	50	60	BAS	END	23.4	-65.4	-36.6	11.6	CORT	Bend/Mat Flaw	Percussion	3	None	Yes	Red iron stain on cortex
94	G	EU	4	60	70	BAS	PRX	13.9	-41.2	29.3	10.2	IND	Bending	Perc/Pres	4	IND	IND	Possible rounding
109	G	EU	5	20	30	BAS	END	16.2	-31.5	-39.0	-12.5	SINT	Bending	Percussion	2	None	Yes	
123	G	EU	5	60	70	BAS	MED	40.8	-57.5	-46.3	-15.1	Flake	Bending	Percussion	2	None	Yes	
127	G	EU	5	70	80	OBS	DST	3.9	-38.7	18.2	6.6	IND	Bending	Pressure	5	Crush/Rnd	No	Shouldered, break near base, prob hafted knife
133	G	EU	5	80	90	OBS	MRG	8.7	-50.8	-20.4	-11.2	IND	Outrepassé	Percussion	Early	None	Yes	
146	G	EU	7	40	50	BAS	NCO	16.3	-50.9	31.0	9.7	Flake	T Bend	Percussion	2	None	Yes	Thick stepped margin, cortical end
152	G	EU	7	50	60	BAS	MRG	26.7	-45.2	-39.0	-13.7	Flake	Bending	Percussion	2	None	Yes	
156	G	EU	7	60	70	BAS	NCO	30.2	-75.6	32.3	12.2	IND	Bending	Percussion	3	IND	IND	Possible rounding

TLS = toolstone; BAS = basalt; OBS = obsidian; CCS = cryptocrystalline silicate; CND = condition; WHL = whole; NCO = nearly complete;

DST = distal; MED = medial; PRX = proximal; END = undifferentiated end; MRG = margin;

WT = weight; LTH = length; WTH = width; TH = thickness; CORT - cortical flake; SINT = simple interior flake; T Bend = transverse bending;

Bend/Mat Flaw = bending with a material flaw; Bend/Finial = bending with finial; Perc/Pres = percussion/pressure;

Micro/Rnd = microflaking and rounding; Crush/Rnd = crushing and rounding; Manuf Fail = manufacture failure; IND = indeterminate;

Appedix Table A4. CA-NEV-13H Test, Locus F and G Drill Data

Cat #	Locus	Unit		Depth		TLS	CND	WT	LTH	WTH	TH	Blank	Break	Flaking	Bit Mod.	Bit x-sec.	Base Mod.	Use Wear	Comments
229	F	EU	3	80	90	CCS	WHL	2.0	17.7	18.2	5.8	SINT	None	Pressure	Unifacial	Square	IND	Micro	Weathered, neck pressure shaped
8.1	G	STU	6	0	10	CCS	WHL	0.7	18.2	11.9	4.2	SINT	None	Pressure	Unifacial	Triangular	None	Micro	Bit neck pressure shaped on one margin

TLS = toolstone; CCS = cryptocrystalline silicate; CND = condition; WHL = whole;

WT = weight; LTH = length; WTH = width; TH = thickness; SINT = simple interior flake;

Micro = microflaking; Mod = modification; IND = indeterminate;

Appendix Table A5. CA-NEV-13/H Test, Locus F and G Uniface Data

Cat #	Locus	Unit		Depth		TLS	CND	WT	LTH	WTH	TH	Blank	Break	Flaking	NME	Primary Edge Shape	Use Wear	Comments
223	F	EU	3	70	80	BAS	NCO	75.4	71.1	-58.4	16.8	CORT	Bending	Percussion	3	Convex	IND	
235	F	EU	4	40	50	BAS	END	37.6	- 68.9	-42.0	15.1	SINT	Bending	Perc/Pres	1	Convex	Micro/Rnd	
31	G	---	- - -	Surf		BAS	WHL	34.4	47.0	48.7	12.1	SINT	None	Perc/Pres	4	Convex	Micro/Rnd	One concave edge, facial grinding
56	G	EU	3	10	20	CCS	END	8.0	36.2	-17.1	12.3	SINT	IND	Perc/Pres	2	Convex	IND	Pres flaked use edges to opposite faces
100	G	EU	4	70	80	CCS	WHL	46.0	44.0	52.1	19.5	SINT	None	Perc/Pres	4	Convex	IND	Probable microflake use wear

TLS = toolstone; BAS = basalt; CCS = cryptocrystalline silicate; CND = condition; WHL = whole; NCO = nearly complete; END = undifferentiated end;

WT = weight; LTH = length; WTH = width; TH = thickness; CORT = cortical flake; SINT = simple interior flake;

Perc/Pres = percussion and pressure; NME = number of modified edges; Micro = microflaking; Rnd = rounding;

Appendix Table A6. CA-NEV-13/H Test, Locus F and G Flake Tool Data

Cat #	Locus	Unit		Depth		TLS	CND	WT	LTH	WTH	TH	Blank	Break	Flaking	NME	Primary Mod.	Prim. Edge Shape	Use Wear	Manuf Fail	Comments
163	F	---	---	Surf		BAS	WHL	35.1	55.3	35.0	12.6	SINT	None	Perc/Pres	2	Unifacial	Concave	Micro/Rnd	No	Light use
166	F	---	---	Surf		BAS	WHL	9.8	53.7	22.2	7.3	SF	None	Pressure	1	Unifacial	Convex	Rounding	No	Some bifacial flaking
224	F	EU	3	70	80	BAS	WHL	6.9	37.3	39.6	4.4	EBT	None	Pressure	5	Unifacial	Convex	Micro/Rnd	No	
234.1	F	EU	4	30	40	BAS	WHL	2.1	24.7	18.5	4.5	LBT	None	Pressure	1	Bifacial	Convex	IND	No	Poss unif micro use on 2nd convex edge
245	F	EU	4	60	70	CCS	NCO	10.3	30.9	-31.7	11.7	SINT	IND	Pressure	1	Unifacial	Concave	Micro/Rnd	No	Possible thermal break
246	F	EU	4	60	70	BAS	WHL	106.8	61.0	79.5	24.9	CORT	None	Pressure	2	Unifacial	Concave	Micro/Rnd	No	
270.2	F	EU	6	50	60	BAS	NCO	26.0	62.8	38.1	11.1	CORT	IND	Micro	1	Unifacial	Convex	Micro	No	
50	G	EU	2	60	70	BAS	WHL	55.1	66.1	48.2	19.5	Bif Frag	None	Micro	1	Unifacial	Straight	Micro/Rnd	No	Undulating edge
79	G	EU	4	10	20	BAS	WHL	15.8	45.8	59.9	9.2	SINT/ CP	None	Micro	4	Unifacial	Straight	Micro	No	Some bifacial flaking, some step use wear
129.1	G	EU	5	70	90	CCS	MRG	0.7	- 15.9	-7.2	- 10.3	IND	IND	Pressure	1	Unifacial	Convex	IND	No	Possible micro/roundin g
131	G	EU	5	80	90	BAS	NCO	19.9	27.5	-85.0	7.3	SINT	Bending	Pressure	2	Unifacial	Straight	Micro/Rnd	No	Slight convex

TLS = toolstone; BAS = basalt; CCS = cryptocrystalline silicate; CND = condition; WHL = whole; NCO = nearly complete; END = undifferentiated end; MRG = margin;

WT = weight; LTH = length; WTH = width; TH = thickness; SINT = simple interior flake; CORT = cortical flake; SINTCP = simple interior/complex platform;

EBT = early biface thinning flake; LBT = late biface thinning flake; SF = simple fragment; Bif Frag = biface fragment;

Micro = microflaking; Perc/Pres = percussion and pressure; NME = number of modified edges; Mod = modification; Rnd = rounding; IND = indeterminate;

Appendix Table A7. CA-NEV-13/H Test, Locus F and G Edge Modified Flake Data

Cat #	Locus	Unit		Depth		TLS	CND	WT	LTH	WTH	TH	Blank	Break	Flaking	NME	Primary Mod.	Prim. Edge Shape	Use Wear	Manuf Fail	Comments
165	F	---	---	Surf		BAS	MED	30.7	-35.5	-61.3	-12.8	SINT	Bending	Perc/Pres	2	Unifacial	Concave	None	Yes	One pres, one perc
271.1	F	EU	6	60	70	BAS	END	5.3	-29.2	-32.5	5.2	LBT	Bending	Perc/Pres	3	Unifacial	Concave	IND	IND	
42.1	G	EU	2	0	10	BAS	MED	3.7	-29.0	28.7	4.9	IND	Bending	Pressure	2	Unifacial	Convex	IND	IND	Poss micro on straight 2nd edge
84.1	G	EU	4	30	40	BAS	MED	12.0	-25.5	-47.3	-8.2	IND	Bending	Perc/Pres	2	Unifacial	Straight	IND	IND	Some bif, short mod areas
102.1	G	EU	4	80	90	BAS	END	4.0	-23.4	-30.2	-5.4	CORT	Bending	Pressure	2	Unifacial	Convex	IND	IND	
139	G	EU	5	100	110	BAS	END	2.8	-19.6	-24.6	-7.2	SINT	Bending	Pressure	2	Unifacial	Convex	None	Yes	Possible biface

TLS = toolstone; BAS = basalt; CND = condition; MED = medial; END = undifferentiated end;

WT = weight; LTH = length; WTH = width; TH = thickness; CORT = cortical flake; SINT = simple interior flake; LBT = late biface thinning flake;

Perc/Pres = percussion and pressure; NME = number of modified edges; Mod = modification; Micro = microflaking; IND = indeterminate;

Appendix Table A8. CA-NEV-13/H Test, Locus F and G Core Data

Cat #	Locus	Unit		Depth		TLS	CND	WT	LTH	WTH	TH	Blank	Break	Flaking	Core Type	Use Wear	Comments
155	G	EU	7	60	70	CCS	END	64.0	-45.9	-52.2	-26.3	IND	IND	Percussion	Bifacial	None	Dark brown-mottled, thermal damage

TLS = toolstone; CCS = cryptocrystalline silicate; CND = condition; END - undifferentiated end;

WT = weight; LTH = length; WTH = width; TH = thickness; IND = indeterminate;

Appendix Table A9. CA-NEV-13/H Test, Locus F and G Faunal Data

Cat #	Locus	Unit	Depth	Taxon/Sicentific Name	Taxon/Common Name	Anotomical Part	Portion	Side	Age/Fusion	Natural Modification	Cultural Modification	Other Modification	Burning	Count	Comments
20	G	STU 17	0-10		med-lrg mammal	indet	frag	indet	indet	weathered	none	none	cal	9	
20	G	STU 17	0-10	*Capra aegagrus hircus*	goat	distal tibia	comp	lft	fused	weathered	none	none	cal	1	
20	G	STU 17	0-10		medium mammal	axis	frag	n/a	fused	weathered	cut/sawed	none	cal	1	2nd cervicle vert
191	F	EU 1	0-10		med-lrg mammal	indet	frag	indet	indet	weathered	none	none	burn-cal	202	
191	F	EU 1	0-10		med-lrg mammal	indet	frag	indet	indet	weathered	cut/sawed	none	burn-cal	40	
191	F	EU 1	0-10		med-lrg mammal	indet	frag	indet	indet	weathered	none	none	ub	3	
191	F	EU 1	0-10		large mammal	vert	frag	indet	indet	none	none	none	burn-cal	1	articular surface
191	F	EU 1	0-10		large mammal	indet	frag	indet	indet	weathered	none	none	burn-cal	1	articular surface
191	F	EU 1	0-10		large mammal	axis	frag	indet	indet	none	none	none	burn-cal	1	2nd cervicle vert
192	F	EU 1	10-20		med-lrg mammal	indet	frag	indet	indet	weathered	cut/sawed	none	burn-cal	6	
192	F	EU 1	10-20		med-lrg mammal	indet	frag	indet	indet	weathered	none	none	burn-cal	58	
192	F	EU 1	10-20		large mammal	longbone	shaft	indet	indet	weathered	none	none	ub	1	
192	F	EU 1	10-20	*Bos tarus*	cow	carpal/tarsal	nc	indet	indet	none	none	none	burn-cal	1	
194	F	EU 1	20-30		med-lrg mammal	indet	frag	indet	indet	weathered	cut/sawed	none	burn-cal	7	
194	F	EU 1	20-30		med-lrg mammal	indet	frag	indet	indet	weathered	none	none	ub	9	
194	F	EU 1	20-30		med-lrg mammal	indet	frag	indet	indet	weathered	none	none	burn-cal	59	
194	F	EU 1	20-30	*Bos tarus*	cow	carpal/tarsal	nc	indet	indet	none	none	none	burn-cal	1	
196	F	EU 1	30-40		med-lrg mammal	indet	frag	indet	unfused	weathered	none	none	burn-cal	1	
196	F	EU 1	30-40		med-lrg mammal	indet	frag	indet	indet	weathered	none	none	burn-cal	5	

comp = complete; nc = nearly complete;

cal = calcined; burn-cal = burned and calcined; ub = unburned;

Appendix A. Table A10. CA-NEV-13/H Test, Locus F and G *Itdemge* Data

CAT #	Locus	Unit	Depth	TLS	CND	WT	LTH	WTH	TH	Type	Shaped	Wear Texture	Use Area Shape	Use Area Depth	Pecking	Striations	Pigment	Comments
158	G	EU 7	40-50	GRA	WHL	9752.4	275.0	225.0	120.0	Unifacial	No	Smooth/ Polished	Oval	Dished	No	No	None	Split boulder, entire surface used
150	G	EU 7	50-60	GRA	FRG	72.0	-54.5	-28.1	-37.0	Unifacial	IND	Smooth/ Polished	IND	IND	IND	IND	None	Small probably burned fragment
151	G	EU 7	50-60	GRA	FRG	245.9	-89.2	-61.9	-36.0	Unifacial	IND	Smooth/ Polished	IND	IND	No	No	None	Small probably burned fragment

TLS = toolstone; GRA = granite; CND = condition; WHL = whole; FRG = fragment;

WT = weight; LTH = length; WTH = width; TH = thickness;

APPENDIX D:
NORTHWEST RESEARCH OBSIDIAN STUDIES LABORATORY REPORT 2006-99

X-Ray Fluorescence Analysis and Obsidian Hydration Measurement of Artifact Obsidian and Basalt from CA-NEV-13/H, Nevada County, California

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Northwest Research Obsidian Studies Laboratory

Fifty-five obsidian (N=28) and basalt (N=27) artifacts from CA-NEV-13/H, Nevada County, California, were submitted for energy dispersive X-ray fluorescence trace element provenance analysis. The 28 obsidian specimens and an additional 15 artifacts were also processed for hydration rim measurements. The samples were prepared and analyzed at the Northwest Research Obsidian Studies Laboratory under the accession number 2006-99.

Analytical Methods

X-Ray Fluorescence Analysis. Nondestructive trace element analysis of the samples was completed using a Spectrace 5000 energy dispersive X-ray fluorescence spectrometer. The system is equipped with a Si(Li) detector with a resolution of 155 eV FHWM for 5.9 keV X-rays (at 1000 counts per second) in an area 30 mm^2. Signals from the spectrometer are amplified and filtered by a time variant pulse processor and sent to a 100 MHZ Wilkinson type analog-to-digital converter. The X-ray tube employed is a Bremsstrahlung type, with a rhodium target, and 5 mil Be window. The tube is driven by a 50 kV 1 mA high voltage power supply, providing a voltage range of 4 to 50 kV. For the elements Zn, Rb, Sr, Y, Zr, Nb, and Pb that are reported in Table A-1, we analyzed the collection with a collimator installed and used a 45 kV tube voltage setting and 0.60 mA tube current setting.

The diagnostic trace element values used to characterize the samples are compared directly to those for known obsidian and basalt sources reported in the literature and with unpublished trace element data collected through analysis of geologic source samples (Northwest Research 2006a). Artifacts are correlated to a parent obsidian source (or geochemical source group) if diagnostic trace element values fall within about two standard deviations of the analytical uncertainty of the known upper and lower limits of chemical variability recorded for the source. Occasionally, visual attributes are used to corroborate the source assignments although sources are never assigned solely on the basis of megascopic characteristics.

Obsidian Hydration Analysis. An appropriate section of each artifact is selected for hydration slide preparation. Two parallel cuts are made into the edge of the artifact using a lapidary saw equipped with 4-inch diameter diamond-impregnated .004" thick blades. The resultant cross-section of the artifact (approximately one millimeter thick) is removed and mounted on a petrographic microscope slide with Lakeside thermoplastic cement and is then ground to a final thickness of 30-50 microns.

The prepared slide is measured using an Olympus BHT petrographic microscope fitted with a video micrometer unit and a digital imaging video camera. When a clearly defined hydration layer is identified, the section is centered in the field of view to minimize parallax effects. Four rim measurements are typically recorded for each artifact or examined surface. Hydration rinds smaller than one micron often cannot be resolved by optical microscopy. Hydration thicknesses are reported to the nearest 0.1 µm and represent the mean value for all readings. Standard deviation values for each measured surface indicate the variability for hydration thickness measurements recorded for each specimen. It is important to note that these values reflect only the reading uncertainty of the rim values and do not take into account the resolution limitations of the microscope or other sources of uncertainty that enter into the formation of hydration rims.

Additional details about specific analytical methods and procedures used for the analysis of the elements reported in Table A-1 and the preparation and measurement of hydration rims are available at the Northwest Research Obsidian Studies Laboratory World Wide Web site at *www.obsidianlab.com* (Northwest Research 2006a).

Results of Analysis

X-Ray Fluorescence Analysis. Ten geochemical groups, all of which were correlated with known obsidian sources, were identified among the 28 obsidian artifacts that were characterized by X-ray fluorescence analysis. The 27 characterized basalt artifacts fell into four known geochemical basalt groups and a single unknown source.

The locations of the site and the obsidian and basalt sources are shown in Figure 1. Analytical results are presented in Table A-1 in the Appendix and are summarized in tables 1 and 2 and in figures 2 and 3. Additional trace element studies of obsidian and basalt artifacts from CA-NEV-13/H have been previously carried out by Skinner and Thatcher (2005).

Table 1. Summary of results of trace element studies of obsidian artifacts from the site.

Obsidian Source	**N=**	**Percentage**
Bodie Hills	4	14.3
BS/PP/FM	5	17.8
Buck Mountain	1	3.6
Buffalo Hills	1	3.6
East Medicine Lake	1	3.6
Massacre Lake/Guano Valley	1	3.6
Mt. Hicks	5	17.8
Napa Valley	1	3.6
South Warners	1	3.6
Sutro Springs	8	28.5
Total	**28**	**100.0**

Table 2. Summary of results of trace element studies of basalt artifacts from the site.

Basalt Source	N=	Percentage
Alder Hill	22	81.5
Alder Hill/Watson Creek	1	3.7
Gold Lake	2	7.4
Steamboat Hills	1	3.7
Unknown Basalt 4	1	3.7
Total	**27**	**100.0**

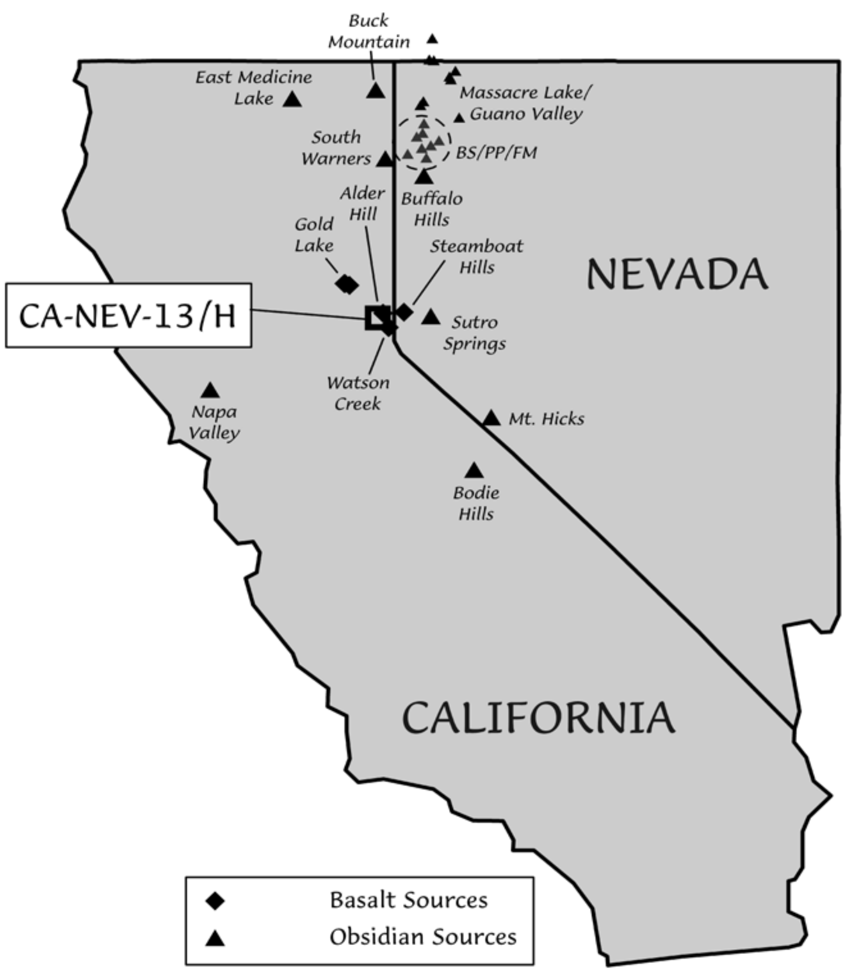


Figure 1. Locations of CA-NEV-13/H and the obsidian and basalt sources that were identified by provenance studies.

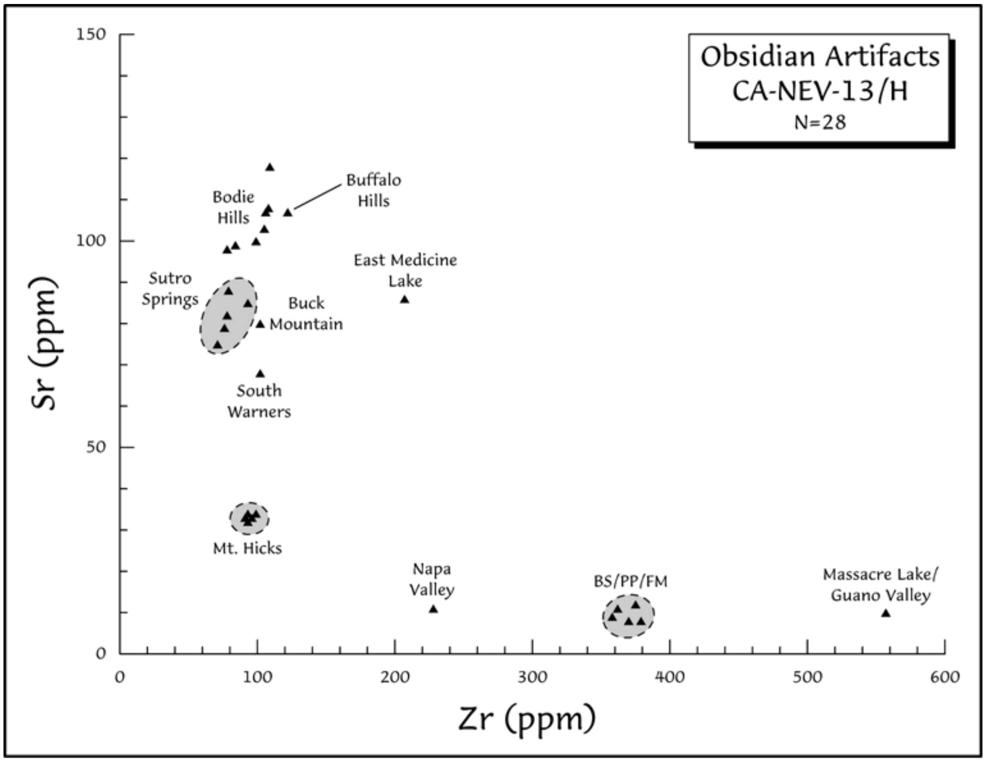


Figure 2. Scatterplot of zirconium plotted versus strontium for the obsidian artifacts.

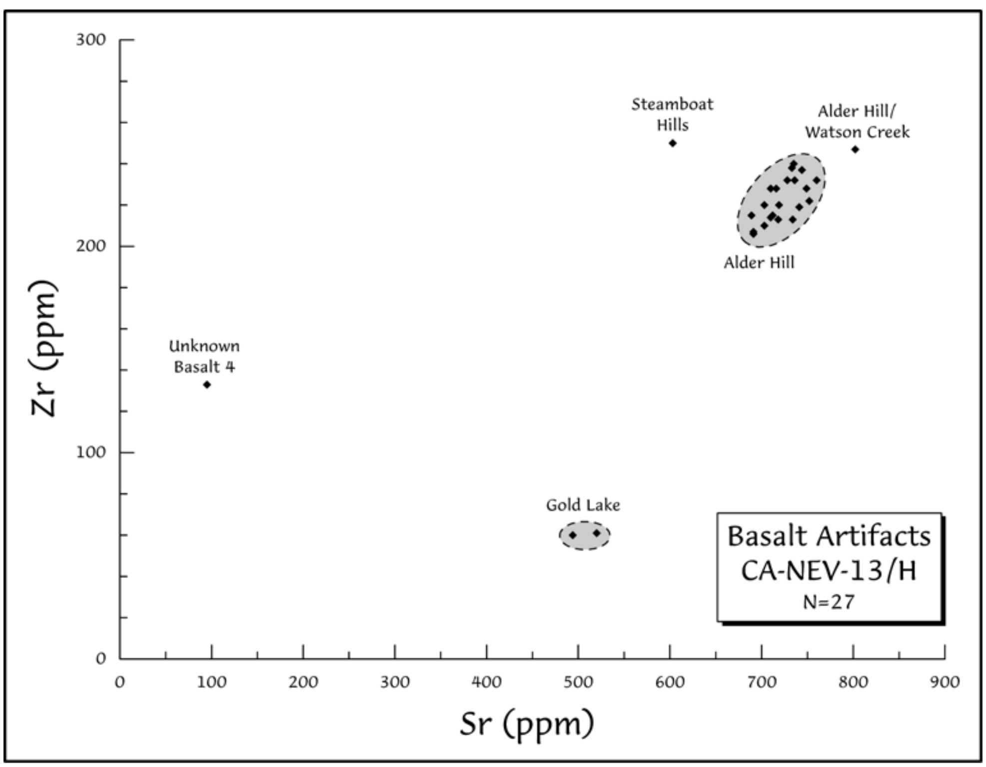


Figure 3. Scatterplot of strontium plotted versus zirconium for the basalt artifacts.

Additional descriptive information about the obsidian and basalt sources found in the current investigation may be found at *www.sourcecatalog.com* (Northwest Research 2006b).

Obsidian Hydration Analysis. The 28 obsidian artifacts that were characterized by X-ray fluorescence analysis and an additional 15 specimens were prepared for obsidian hydration analysis and yielded 41 measurable rims. The specimen slides are curated at the Northwest Research Obsidian Studies Laboratory under accession number 2006-99. The results are reported in Table B-1 in the Appendix and are summarized in Table 3.

Table 3. Summary of results of obsidian hydration analysis of artifacts.

Obsidian Source	Hydration rim measurements (microns)	Total
Bodie Hills	4.9, 5.3, 6.0, 6.9	4
BS/PP/FM	6.0, 6.1, 6.4, 6.6, 7.7	5
Buck Mountain	5.9	1
Buffalo Hills	4.5	1
East Medicine Lake	5.0	1
Massacre Lake/Guano Valley	8.5	1
Mt. Hicks	1.4, 1.8, 3.5, 5.2, 8.0	5
Napa Valley	7.2	1
South Warners	5.1	1
Sutro Springs	1.2, 5.0, 5.4, 5.5, 5.6, 5.6, 6.2	7
No Source Determined	2.2, 2.5, 4.8, 4.9, 5.1, 5.1, 5.7, 5.7, 5.9, 5.9, 5.9, 6.3, 6.3, 6.7	14
Total	—	**41**

References Cited

Northwest Research Obsidian Studies Laboratory

2006a Northwest Research Obsidian Studies Laboratory World Wide Web Site (www.obsidianlab.com).

2006b Northwest Research U. S. Obsidian Source Catalog (www.sourcecatalog.com).

Skinner, Craig E. And Jennifer J. Thatcher

2005 *X-Ray Fluorescence Analysis and Obsidian Hydration Measurement of Artifact Obsidian and Basalt from CA-NEV-13/H, Nevada County, California.* Report 12005-131 prepared for Susan Lindstrom, Truckee, Calfornia, by Northwest Research Obsidian Studies Laboratory, Corvallis, Oregon.

Appendix

Results of X-Ray Fluorescence and Obsidian Hydration Analysis

Northwest Research Obsidian Studies Laboratory

Table A-1. Results of Obsidian and Basalt XRF Studies: CA-NEV-13/H, Nevada County, California

Site	Specimen No.	Catalog No.		Trace Element Concentrations Zn	Pb	Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	$Fe_2O_3^T$	Ratios Fe:Mn	Fe:Ti	Geochemical Source
CA-NEV-13/H	1	140		101	38	49	494	14	60	5	2770	887	995	3.80	35.1	45.6	Gold Lake
			±	12	6	4	10	3	10	2	94	29	32	0.11			
CA-NEV-13/H	2	147		91	13	71	802	20	247	15	4349	463	1386	3.41	60.7	26.2	Alder Hill/Watson Creek
			±	11	6	4	10	3	10	2	98	28	33	0.11			
CA-NEV-13/H	3	171		98	14	65	735	17	240	17	5643	544	1314	4.35	65.4	25.7	Alder Hill
			±	12	6	4	10	3	10	2	100	28	33	0.11			
CA-NEV-13/H	4	174		76	12	65	728	20	232	14	4985	574	1406	4.14	59.0	27.6	Alder Hill
			±	12	6	4	10	3	10	2	99	28	33	0.11			
CA-NEV-13/H	5	211		55	ND	76	95	22	133	6	3091	383	3266	1.99	43.4	21.8	Unknown Basalt 4
			±	11	ND	4	9	3	10	2	98	28	35	0.11			
CA-NEV-13/H	6	261		96	27	48	520	13	61	6	2378	818	966	3.05	30.6	42.7	Gold Lake
			±	11	5	4	10	3	10	2	93	28	33	0.11			
CA-NEV-13/H	7	265		70	8	60	733	17	238	16	5777	624	1430	4.74	61.9	27.3	Alder Hill
			±	12	7	4	10	3	10	2	101	28	33	0.11			
CA-NEV-13/H	8	027		103	6	62	749	19	228	18	5426	652	1412	4.45	55.8	27.3	Alder Hill
			±	12	7	4	10	3	10	2	100	28	33	0.11			
CA-NEV-13/H	9	028		96	34	89	603	22	250	9	2093	591	1212	2.26	31.8	36.2	Steamboat Hills *
			±	11	5	4	10	3	10	2	93	28	33	0.11			
CA-NEV-13/H	10	034		86	20	68	760	17	232	18	4907	607	1415	3.92	52.9	26.6	Alder Hill
			±	11	5	4	10	3	10	2	99	28	33	0.11			
CA-NEV-13/H	11	069		69	3	67	710	18	228	18	5350	513	1285	4.02	64.3	25.0	Alder Hill
			±	12	13	4	10	3	10	2	100	28	33	0.11			
CA-NEV-13/H	12	092		80	22	61	744	18	237	16	6207	682	1400	4.51	54.0	24.2	Alder Hill
			±	12	6	4	10	3	10	2	102	28	33	0.11			
CA-NEV-13/H	13	146		79	13	56	736	18	232	15	5681	557	1416	4.59	67.3	26.9	Alder Hill
			±	12	6	4	10	3	10	2	101	28	33	0.11			
CA-NEV-13/H	14	160		76	20	59	703	20	220	17	5242	573	1433	4.42	63.1	28.1	Alder Hill
			±	12	6	4	10	3	10	2	100	28	33	0.11			
CA-NEV-13/H	15	162		81	29	67	716	19	228	15	4655	494	1421	4.09	67.9	29.3	Alder Hill
			±	12	6	4	10	3	10	2	99	28	33	0.11			
CA-NEV-13/H	16	164		84	19	65	710	20	214	13	4820	538	1219	4.07	62.0	28.1	Alder Hill
			±	12	6	4	10	3	10	2	99	28	33	0.11			

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide.
NA = Not available; ND = Not detected; NM = Not measured.; * = Small sample.

Table A-1. Results of Obsidian and Basalt XRF Studies: CA-NEV-13/H, Nevada County, California

	Specimen			Trace Element Concentrations										Ratios		
Site	No.	Catalog No.		Zn	Pb	Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	$Fe_2O_3^T$	Fe:Mn	Fe:Ti	Geochemical Source
CA-NEV-13/H	17	167		88	19	58	719	21	220	11	4242	732	1275	3.44	38.5	27.0	Alder Hill
			±	12	6	4	10	3	10	2	98	28	33	0.11			
CA-NEV-13/H	18	236		54	13	62	689	17	215	15	4648	759	1319	3.65	39.4	26.2	Alder Hill
			±	13	6	4	10	3	10	2	98	28	33	0.11			
CA-NEV-13/H	19	269		70	21	72	752	19	222	14	4760	517	1354	3.66	58.2	25.7	Alder Hill
			±	11	5	4	10	3	10	2	98	28	33	0.11			
CA-NEV-13/H	20	031		93	14	62	691	20	207	13	4552	743	1301	3.61	39.8	26.5	Alder Hill
			±	11	6	4	10	3	10	2	98	28	33	0.11			
CA-NEV-13/H	21	223		68	21	63	734	16	213	13	4421	601	1260	3.58	48.8	27.0	Alder Hill
			±	12	6	4	10	3	10	2	98	28	33	0.11			
CA-NEV-13/H	22	235		80	12	61	703	17	210	10	5311	521	1319	4.06	63.9	25.5	Alder Hill
			±	12	6	4	10	3	10	2	100	28	32	0.11			
CA-NEV-13/H	23	079		78	13	58	691	21	206	16	4332	761	1287	3.58	38.5	27.6	Alder Hill
			±	12	6	4	10	3	10	2	98	28	33	0.11			
CA-NEV-13/H	24	131		88	11	61	712	18	215	14	4615	458	1383	3.53	63.5	25.6	Alder Hill
			±	12	6	4	10	3	10	2	98	28	33	0.11			
CA-NEV-13/H	25	166		68	20	58	703	19	220	14	5166	523	1383	4.23	66.2	27.2	Alder Hill
			±	13	6	4	10	3	10	2	100	28	33	0.11			
CA-NEV-13/H	26	224		91	11	63	741	18	219	12	4758	475	1324	3.83	66.2	26.8	Alder Hill
			±	11	6	4	10	3	10	2	99	28	33	0.11			
CA-NEV-13/H	27	246		75	6	58	718	20	213	14	5429	514	1381	4.27	68.0	26.2	Alder Hill
			±	12	8	4	10	3	10	2	100	28	33	0.11			
CA-NEV-13/H	28	127		127	32	211	10	86	557	31	1465	789	0	1.96	20.7	44.8	Massacre Lake/Guano Valley
			±	11	5	5	10	3	10	2	91	28	31	0.11			
CA-NEV-13/H	29	133		42	25	159	88	17	79	20	606	539	419	0.69	11.4	39.3	Sutro Springs
			±	10	5	4	9	3	10	2	89	28	32	0.11			
CA-NEV-13/H	30	016		44	34	167	99	9	84	13	250	250	NM	0.31	12.4	44.5	Sutro Springs *
			±	12	6	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	31	024		71	32	195	11	45	228	10	206	91	NM	0.64	66.1	99.0	Napa Valley *
			±	12	6	5	10	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	33	044		39	37	188	34	12	99	23	266	201	NM	0.26	13.7	37.0	Mt. Hicks *
			±	12	6	5	9	3	10	2	88	27	NM	0.11			

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide.
NA = Not available; ND = Not detected; NM = Not measured.; * = Small sample.

Northwest Research Obsidian Studies Laboratory

Table A-1. Results of Obsidian and Basalt XRF Studies: CA-NEV-13/H, Nevada County, California

	Specimen			Trace Element Concentrations											Ratios		
Site	No.	Catalog No.		Zn	Pb	Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	$Fe_2O_3^T$	Fe:Mn	Fe:Ti	Geochemical Source
CA-NEV-13/H	34	070A		30	41	194	33	16	96	22	208	149	NM	0.18	13.9	34.4	Mt. Hicks *
			±	13	6	5	9	3	10	2	87	27	NM	0.11			
CA-NEV-13/H	35	070B		29	43	182	33	18	91	26	314	184	NM	0.27	15.3	32.8	Mt. Hicks *
			±	12	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	36	076		26	35	182	32	16	93	22	253	145	NM	0.20	15.4	31.3	Mt. Hicks *
			±	12	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	37	077A		29	39	175	34	15	93	21	205	115	NM	0.15	16.1	30.8	Mt. Hicks *
			±	13	5	5	9	3	10	2	87	27	NM	0.11			
CA-NEV-13/H	40	086		40	29	164	85	18	93	21	679	509	NM	0.41	7.6	22.2	Sutro Springs *
			±	10	5	5	9	3	10	2	89	28	NM	0.11			
CA-NEV-13/H	41	089A		56	41	191	68	19	102	10	234	207	NM	0.42	19.5	61.3	South Warners *
			±	11	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	43	096		26	40	200	107	12	106	16	313	187	NM	0.27	14.9	32.6	Bodie HIlls *
			±	13	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	44	104		48	22	141	79	16	76	21	245	219	NM	0.28	13.3	42.4	Sutro Springs *
			±	11	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	45	106A		120	27	161	12	57	375	18	514	280	NM	1.39	42.5	88.1	BS/PP/FM *
			±	11	5	5	10	3	10	2	88	28	NM	0.11			
CA-NEV-13/H	48	116A		26	34	190	103	10	105	16	960	278	NM	0.48	16.0	18.2	Sutro Springs *
			±	12	5	5	9	3	10	2	90	27	NM	0.11			
CA-NEV-13/H	52	124		34	19	139	75	16	71	20	325	298	NM	0.43	13.7	46.2	Sutro Springs *
			±	12	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	54	135A		51	25	142	82	18	78	24	273	240	NM	0.34	14.0	44.4	Sutro Springs *
			±	11	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	55	135B		45	40	226	118	11	109	15	352	171	NM	0.25	15.5	27.6	Bodie HIlls *
			±	12	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	56	135C		41	22	121	80	19	102	12	243	176	NM	0.28	16.3	41.8	Buck Mountain *
			±	12	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	57	136A		60	41	182	98	20	78	20	145	96	NM	0.09	14.7	31.0	Sutro Springs *
			±	11	5	5	9	3	10	2	87	27	NM	0.11			
CA-NEV-13/H	62	220		34	27	180	100	15	99	19	352	214	NM	0.36	16.4	36.9	Bodie HIlls *
			±	11	5	5	9	3	10	2	88	27	NM	0.11			

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide.
NA = Not available; ND = Not detected; NM = Not measured.; * = Small sample.

Northwest Research Obsidian Studies Laboratory

Table A-1. Results of Obsidian and Basalt XRF Studies: CA-NEV-13/H, Nevada County, California

Site	Specimen No.	Catalog No.		Trace Element Concentrations Zn	Pb	Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	Fe^2O^{3T}	Ratios Fe:Mn	Fe:Ti	Geochemical Source
CA-NEV-13/H	63	225		39	37	209	108	10	108	14	266	170	NM	0.24	14.9	34.1	Bodie HIlls *
			±	11	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	64	228		171	39	186	8	60	370	17	471	195	NM	1.18	52.5	81.6	BS/PP/FM *
			±	11	5	5	12	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	65	237		131	27	182	11	59	362	19	507	177	NM	1.08	53.2	70.2	BS/PP/FM *
			±	11	5	5	10	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	66	240A		179	44	193	9	63	358	17	416	112	NM	0.66	54.2	53.5	BS/PP/FM *
			±	12	5	5	11	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	67	240B		133	37	191	8	65	379	17	394	163	NM	0.90	49.1	75.3	BS/PP/FM *
			±	12	5	5	12	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	68	243		79	39	171	107	26	122	16	307	218	NM	0.28	13.2	34.2	Buffalo Hills *
			±	11	5	5	9	3	10	2	88	27	NM	0.11			
CA-NEV-13/H	70	264		71	31	163	86	28	207	13	575	104	NM	0.55	50.0	33.7	East Medicine Lake *
			±	11	5	5	9	3	10	2	89	27	NM	0.11			
NA	RGM-1	RGM-1		41	26	150	108	24	216	11	1699	366	759	1.80	41.3	35.7	RGM-1 Reference Standard
			±	11	5	5	9	3	10	2	92	28	32	0.11			

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide.
NA = Not available; ND = Not detected; NM = Not measured.; * = Small sample.

Northwest Research Obsidian Studies Laboratory

Table B-1. Obsidian Hydration Results and Sample Provenience: CA-NEV-13/H, Nevada County, California

Site	Specimen No.	Catalog No.	Unit	Depth (cm)	Artifact Type[A]	Artifact Source	Hydration Rims Rim 1	Hydration Rims Rim 2	Comments[B]
CA-NEV-13/H	1	140	EU 7	0-10	PPT	Gold Lake	NM ± NM	NM ± NM	--
CA-NEV-13/H	2	147	EU 7	40-50	PPT	Alder Hill/Watson Creek	NM ± NM	NM ± NM	--
CA-NEV-13/H	3	171	STU 1	0-10	PPT	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	4	174	STU 3	0-10	PPT	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	5	211	EU 2	80-90	PPT	Unknown Basalt 4	NM ± NM	NM ± NM	--
CA-NEV-13/H	6	261	EU 6	0-10	PPT	Gold Lake	NM ± NM	NM ± NM	--
CA-NEV-13/H	7	265	EU 6	30-40	PPT	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	8	027	--	Surface	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	9	028	--	Surface	BIF	Steamboat Hills *	NM ± NM	NM ± NM	--
CA-NEV-13/H	10	034	EU 1	10-20	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	11	069	EU 6	30-40	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	12	092	EU 4	50-60	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	13	146	EU 7	40-50	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	14	160	--	Surface	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	15	162	--	Surface	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	16	164	--	Surface	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	17	167	--	Surface	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	18	236	EU 4	40-50	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	19	269	EU 6	50-60	BIF	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	20	031	--	Surface	UNI	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	21	223	EU 3	70-80	UNI	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	22	235	EU 4	40-50	UNI	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	23	079	EU 4	10-20	FLT	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	24	131	EU 5	80-90	FLT	Alder Hill	NM ± NM	NM ± NM	--

[A] BIF = Biface; CTL = Core Tool; COR = Core; DEB = Debitage; EMF = Edge-Modified Flake; FTL = Flake Tool; PPT = Projectile Point
[B] See text for explanation of comment abbreviations
NA = Not Available; NM = Not Measured; * = Small sample

Table B-1. Obsidian Hydration Results and Sample Provenience: CA-NEV-13/H, Nevada County, California

Site	Specimen No.	Catalog No.	Unit	Depth (cm)	Artifact Type[A]	Artifact Source	Hydration Rims: Rim 1	Hydration Rims: Rim 2	Comments[B]
CA-NEV-13/H	25	166	--	Surface	FLT	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	26	224	EU 3	70-80	FLT	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	27	246	EU 4	60-70	FLT	Alder Hill	NM ± NM	NM ± NM	--
CA-NEV-13/H	28	127	EU 5	70-80	BIF	Massacre Lake/Guano Valley	8.5 ± 0.1	NM ± NM	Same rim on BRE
CA-NEV-13/H	29	133	EU 5	80-90	BIF	Sutro Springs	5.4 ± 0.1	NM ± NM	--
CA-NEV-13/H	30	016	STU	0-10	DEB	Sutro Springs *	NA ± NA	NM ± NM	OPA, UNR
CA-NEV-13/H	31	024	STU	0-10	DEB	Napa Valley *	7.2 ± 0.1	NM ± NM	--
CA-NEV-13/H	32	041	EU 2	0-10	DEB	Source Not Determined	2.2 ± 0.1	NM ± NM	--
CA-NEV-13/H	33	044	EU 2	10-20	DEB	Mt. Hicks *	1.4 ± 0.1	NM ± NM	--
CA-NEV-13/H	34	070A	EU 6	40-50	DEB	Mt. Hicks *	1.8 ± 0.0	NM ± NM	--
CA-NEV-13/H	35	070B	EU 6	40-50	DEB	Mt. Hicks *	3.5 ± 0.1	NM ± NM	REC
CA-NEV-13/H	36	076	EU 4	0-10	DEB	Mt. Hicks *	8.0 ± 0.1	NM ± NM	--
CA-NEV-13/H	37	077A	EU 4	10-20	DEB	Mt. Hicks *	5.2 ± 0.1	NM ± NM	--
CA-NEV-13/H	38	077B	EU 4	10-20	DEB	Source Not Determined	5.1 ± 0.1	NM ± NM	--
CA-NEV-13/H	39	082	EU 4	20-30	DEB	Source Not Determined	5.1 ± 0.1	NM ± NM	REC
CA-NEV-13/H	40	086	EU 4	30-40	DEB	Sutro Springs *	5.6 ± 0.1	NM ± NM	--
CA-NEV-13/H	41	089A	EU 4	40-50	DEB	South Warners *	4.1 ± 0.1	NM ± NM	--
CA-NEV-13/H	42	089B	EU 4	40-50	DEB	Source Not Determined	2.5 ± 0.1	NM ± NM	--
CA-NEV-13/H	43	096	EU 4	70-80	DEB	Bodie HIlls *	6.0 ± 0.1	NM ± NM	--
CA-NEV-13/H	44	104	EU 5	0-10	DEB	Sutro Springs *	1.2 ± 0.1	NM ± NM	--
CA-NEV-13/H	45	106A	EU 5	10-20	DEB	BS/PP/FM *	6.1 ± 0.1	NM ± NM	--
CA-NEV-13/H	46	106B	EU 5	10-20	DEB	Source Not Determined	4.9 ± 0.1	NM ± NM	--
CA-NEV-13/H	47	114	EU 5	10-20	DEB	Source Not Determined	6.3 ± 0.1	NM ± NM	--
CA-NEV-13/H	48	116A	EU 5	40-50	DEB	Sutro Springs *	6.2 ± 0.1	NM ± NM	--

[A] BIF = Biface; CTL = Core Tool; COR = Core; DEB = Debitage; EMF = Edge-Modified Flake; FTL = Flake Tool; PPT = Projectile Point
[B] See text for explanation of comment abbreviations
NA = Not Available; NM = Not Measured; * = Small sample

Table B-1. Obsidian Hydration Results and Sample Provenience: CA-NEV-13/H, Nevada County, California

Site	Specimen No.	Catalog No.	Unit	Depth (cm)	Artifact Type[A]	Artifact Source	Hydration Rims Rim 1	Hydration Rims Rim 2	Comments[B]
CA-NEV-13/H	49	116B	EU 5	40-50	DEB	Source Not Determined	6.3 ± 0.1	NM ± NM	--
CA-NEV-13/H	50	116C	EU 5	40-50	DEB	Source Not Determined	5.9 ± 0.1	NM ± NM	--
CA-NEV-13/H	51	119	EU 5	50-60	DEB	Source Not Determined	5.9 ± 0.1	NM ± NM	--
CA-NEV-13/H	52	124	EU 5	60-70	DEB	Sutro Springs *	5.6 ± 0.1	NM ± NM	--
CA-NEV-13/H	53	130	EU 5	70-90	DEB	Source Not Determined	6.7 ± 0.1	NM ± NM	--
CA-NEV-13/H	54	135A	EU 5	90-100	DEB	Sutro Springs *	5.0 ± 0.1	NM ± NM	REC
CA-NEV-13/H	55	135B	EU 5	90-100	DEB	Bodie HIlls *	6.6 ± 0.1	NM ± NM	--
CA-NEV-13/H	56	135C	EU 5	90-100	DEB	Buck Mountain *	5.9 ± 0.1	NM ± NM	--
CA-NEV-13/H	57	136A	EU 5	100-110	DEB	Sutro Springs *	5.5 ± 0.1	NM ± NM	DFV
CA-NEV-13/H	58	136B	EU 5	100-110	DEB	Source Not Determined	5.7 ± 0.1	NM ± NM	--
CA-NEV-13/H	59	148A	EU 7	40-50	DEB	Source Not Determined	5.9 ± 0.1	NM ± NM	REC
CA-NEV-13/H	60	148B	EU 7	40-50	DEB	Source Not Determined	4.8 ± 0.1	NM ± NM	--
CA-NEV-13/H	61	207	EU 2	50-60	DEB	Source Not Determined	5.7 ± 0.1	NM ± NM	--
CA-NEV-13/H	62	220	EU 3	40-50	DEB	Bodie HIlls *	4.9 ± 0.1	NM ± NM	--
CA-NEV-13/H	63	225	EU 3	70-80	DEB	Bodie HIlls *	5.3 ± 0.1	NM ± NM	--
CA-NEV-13/H	64	228	EU 3	80-90	DEB	BS/PP/FM *	6.4 ± 0.1	NM ± NM	--
CA-NEV-13/H	65	237	EU 4	40-50	DEB	BS/PP/FM *	6.6 ± 0.1	NM ± NM	--
CA-NEV-13/H	66	240A	EU 4	50-60	DEB	BS/PP/FM *	6.0 ± 0.1	NM ± NM	--
CA-NEV-13/H	67	240B	EU 4	50-60	DEB	BS/PP/FM *	7.7 ± 0.1	NM ± NM	--
CA-NEV-13/H	68	243	EU 4	60-70	DEB	Buffalo Hills *	4.5 ± 0.1	NM ± NM	--
CA-NEV-13/H	69	260	EU 6	0-10	DEB	Source Not Determined	NA ± NA	NM ± NM	REC; UNR, BEV
CA-NEV-13/H	70	264	EU 6	20-30	DEB	East Medicine Lake *	5.0 ± 0.1	NM ± NM	--

[A] BIF = Biface; CTL = Core Tool; COR = Core; DEB = Debitage; EMF = Edge-Modified Flake; FTL = Flake Tool; PPT = Projectile Point
[B] See text for explanation of comment abbreviations
NA = Not Available; NM = Not Measured; * = Small sample

Abbreviations and Definitions Used in the Comments Column

All hydration rim measurements are recorded in microns.

BEV - (Beveled). Artifact morphology or cut configuration resulted in a beveled thin section edge.

BRE - (BREak). The thin section cut was made across a broken edge of the artifact. Resulting hydration measurements may reveal when the artifact was broken, relative to its time of manufacture.

DES - (DEStroyed). The artifact or flake was destroyed in the process of thin section preparation. This sometimes occurs during the preparation of extremely small items, such as pressure flakes.

DFV - (Diffusion Front Vague). The diffusion front, or the visual boundary between hydrated and unhydrated portions of the specimen, are poorly defined. This can result in less precise measurements than can be obtained from sharply demarcated diffusion fronts. The technician must often estimate the hydration boundary because a vague diffusion front often appears as a relatively thick, dark line or a gradation in color or brightness between hydrated and unhydrated layers.

DIS - (DIScontinuous). A discontinuous or interrupted hydration rind was observed on the thin section.

HV - (Highly Variable). The hydration rind exhibits variable thickness along continuous surfaces. This variability can occur with very well- defined bands as well as those with irregular or vague diffusion fronts.

IRR - (IRRegular). The surfaces of the thin section (the outer surfaces of the artifact) are uneven and measurement is difficult.

1SO - (1 Surface Only). Hydration was observed on only one surface or side of the thin section.

NOT - (NOT obsidian). Petrographic characteristics of the artifact or obsidian specimen indicate that the specimen is not obsidian.

NVH - (No Visible Hydration). No hydration rind was observed on one or more surfaces of the specimen. This does not mean that hydration is absent, only that hydration was not observed. Hydration rinds smaller than one micron often are not birefringent and thus cannot be seen by optical microscopy. "NVH" may be reported for the manufacture surface of a tool while a hydration measurement is reported for another surface, e.g. a remnant ventral flake surface.

OPA - (OPAque). The specimen is too opaque for measurement and cannot be further reduced in thickness.

PAT - (PATinated). This description is usually noted when there is a problem in measuring the thickness of the hydration rind, and refers to the unmagnified surface characteristics of the artifact, possibly indicating the source of the measurement problem. Only extreme patination is normally noted.

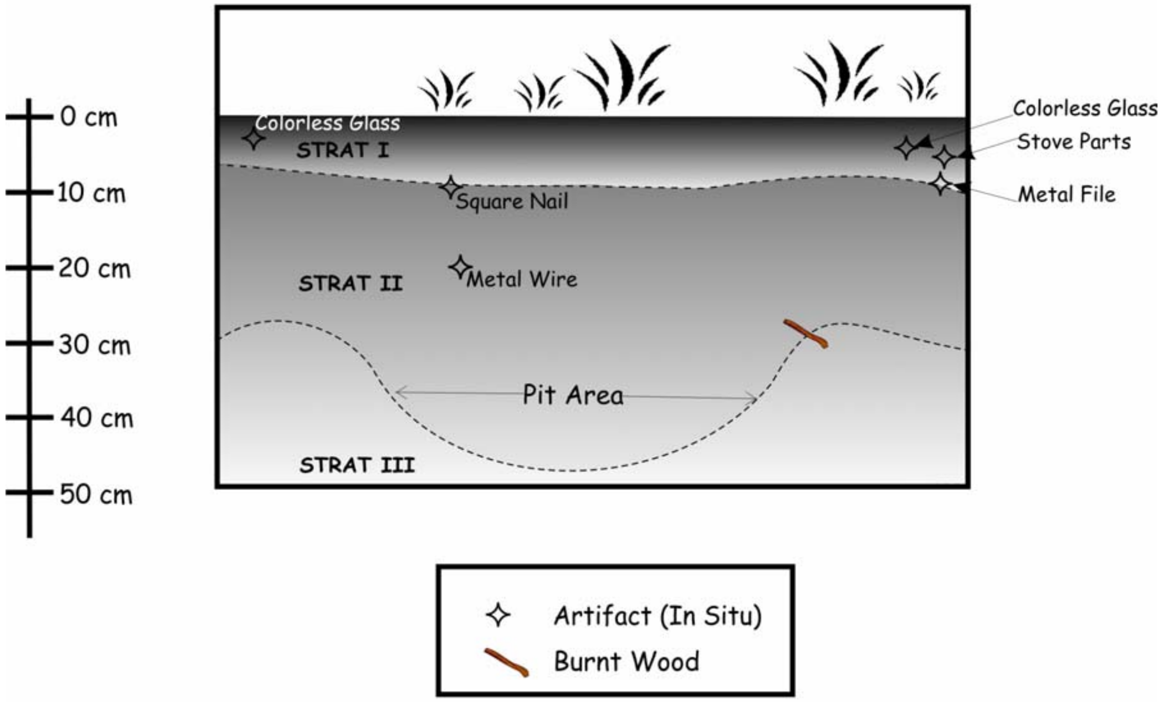
REC - (RECut). More than one thin section was prepared from an archaeological specimen. Multiple thin sections are made if preparation quality on the initial specimen is suspect or obviously poor. Additional thin sections may also be prepared if it is perceived that more information concerning an artifact's manufacture or use can be obtained.

UNR - (UNReadable). The optical quality of the hydration rind is so poor that accurate measurement is not possible. Poor thin section preparation is not a cause.

WEA - (WEAthered). The artifact surface appears to be damaged by wind erosion or other mechanical action.

APPENDIX E:
UNIT STRATIGRAPHIC PROFILES

LOCUS F, EU 1 NORTH WALL PROFILE

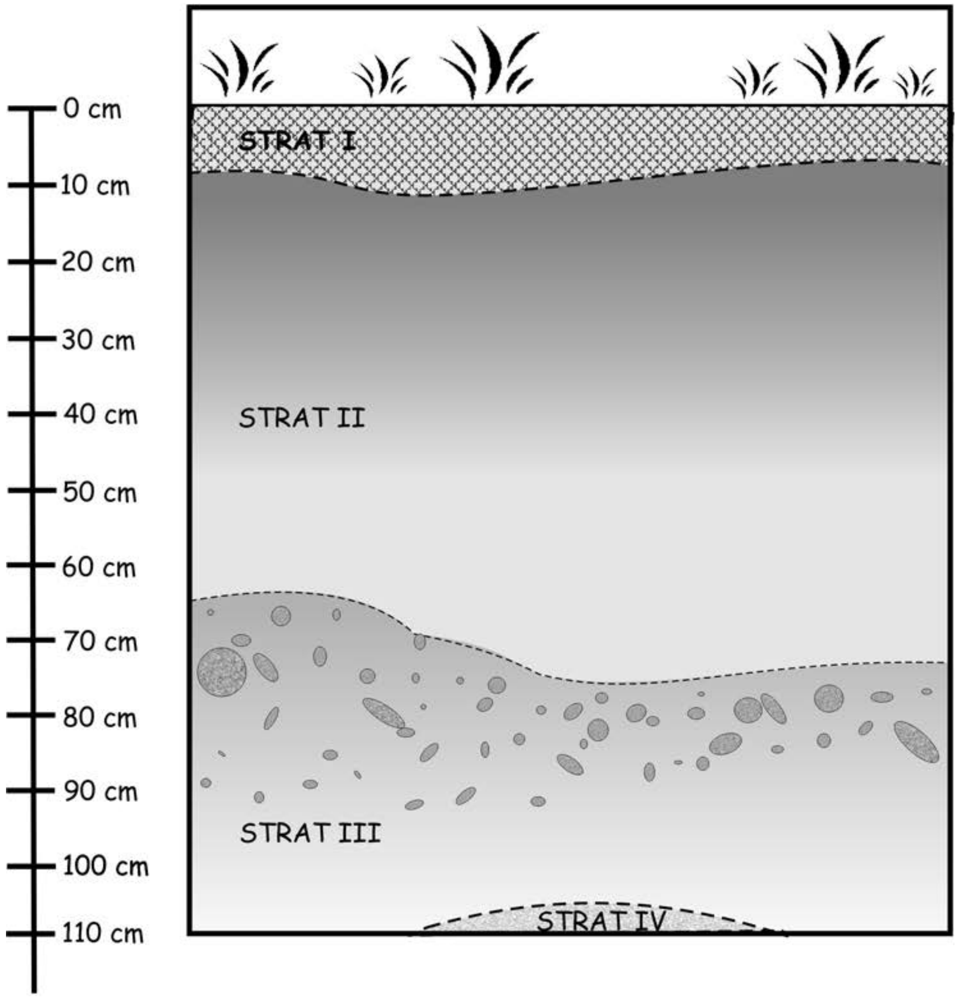


STRAT I: Very fine, loose silty loam; light brown; subrounded, angular gravels; historic glass, metal, square nails, metal, window glass and charcoal.

STRAT II: Darker, more consolidated matrix; silty loam; subangular gravels; historic artifacts.

STRAT III: Silty loam, light pale tan; few historic artifacts; larger subangular/subrounded gravels.

LOCUS F, EU 2 NORTH WALL PROFILE



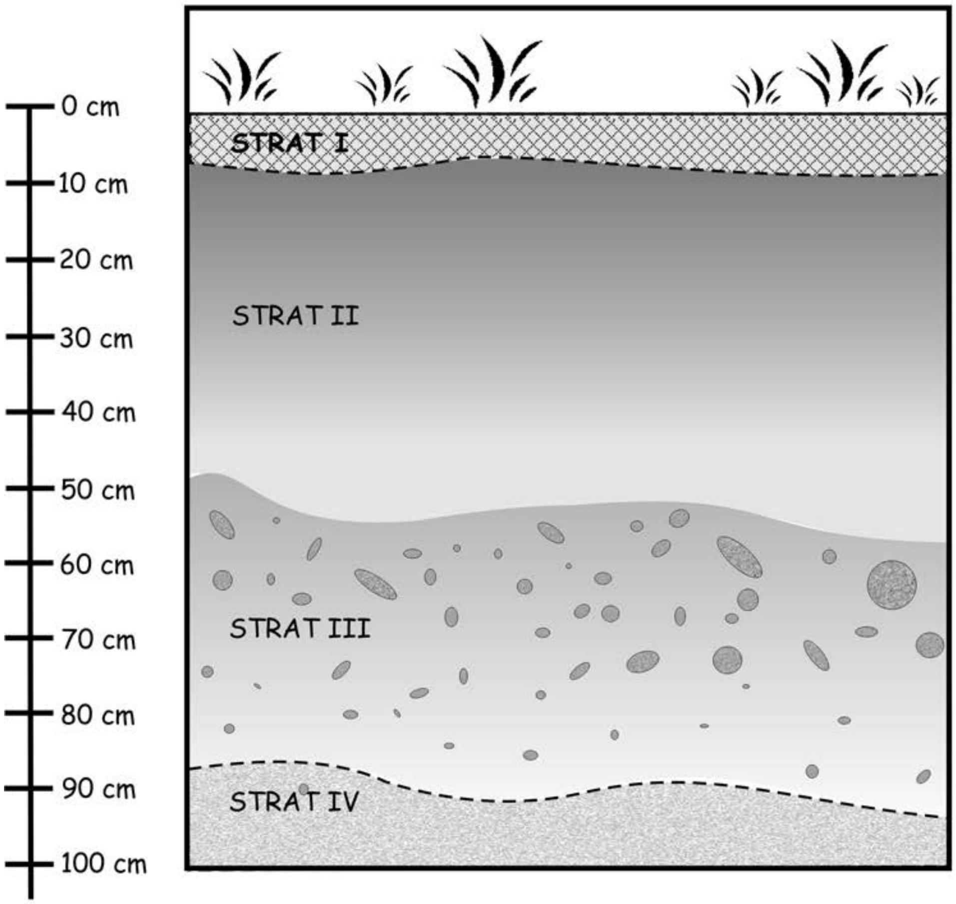
STRAT I: Fine silty loam; 10YR 3/2 (very dark grayish brown); pea-sized to 2 cm diameter gravels.

STRAT II: Organic silty loam; 10YR 3/2 to 3/3 (very dark grayish brown to dark brown); soil color gradually fades from dark to light; gravel and small rounded cobbles.

STRAT III: Sandy loam with little silt; 10YR 5/4 (yellowish brown); substantially more coarse sediment; coarse sand, rounded and subrounded pebbles and small cobbles.

STRAT IV: Fine to medium coarse sand; 10YR 6/4 (light yellowish brown); some small pebbles.

LOCUS F, EU 5 NORTH WALL PROFILE



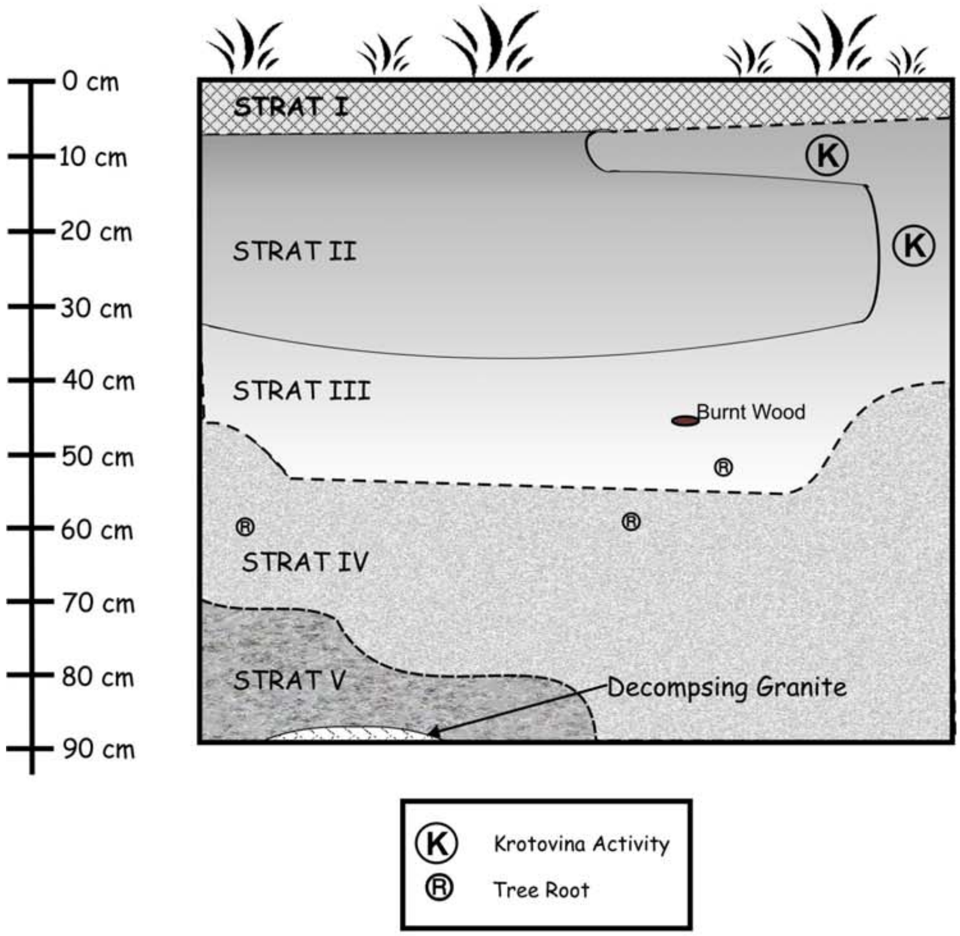
STRAT I: Decomposed forest organic silty loam; 10YR 4/2 (dark grayish brown); minimal sand and gravels.

STRAT II: Organic silty loam; 10YR 4/2 (dark grayish brown); more consolidated than previous level.

STRAT III: Sandy loam with little silt; 10YR 5/4 (yellowish brown); substantially more coarse sediment; coarse sand, pebbles and small cobbles.

STRAT IV: Fine to medium coarse sand; 10YR 6/4 (light yellowish brown); some small pebbles but no gravels.

LOCUS G, EU 1 NORTH WALL PROFILE



STRAT I: Decomposed forest organic silty loam; 10YR 4/2 (dark grayish brown); some sand with subrounded/subangular gravels.

STRAT II: Organic silty loam; 10YR 4/2 (dark grayish brown); lighter brown in color; subrounded/subangular gravels with fine sands; contains a relatively high density of cultural materials compared with other stratigraphic levels.

STRAT III: Represents a lighter, transitional gradation from Strat II to a lighter, less organically rich matrix with increasing sands and gravels.

STRAT IV: Lighter, less organic sediment with more gravels and significantly less cultural material recovered; evidence of past alluvial activity.

STRAT V: Substrate with coarse sands, decomposing granite and oxidized granite; silt and clay content increase; cultural materials are notably few and likely are the result of rodent activity and/or bioturbation.
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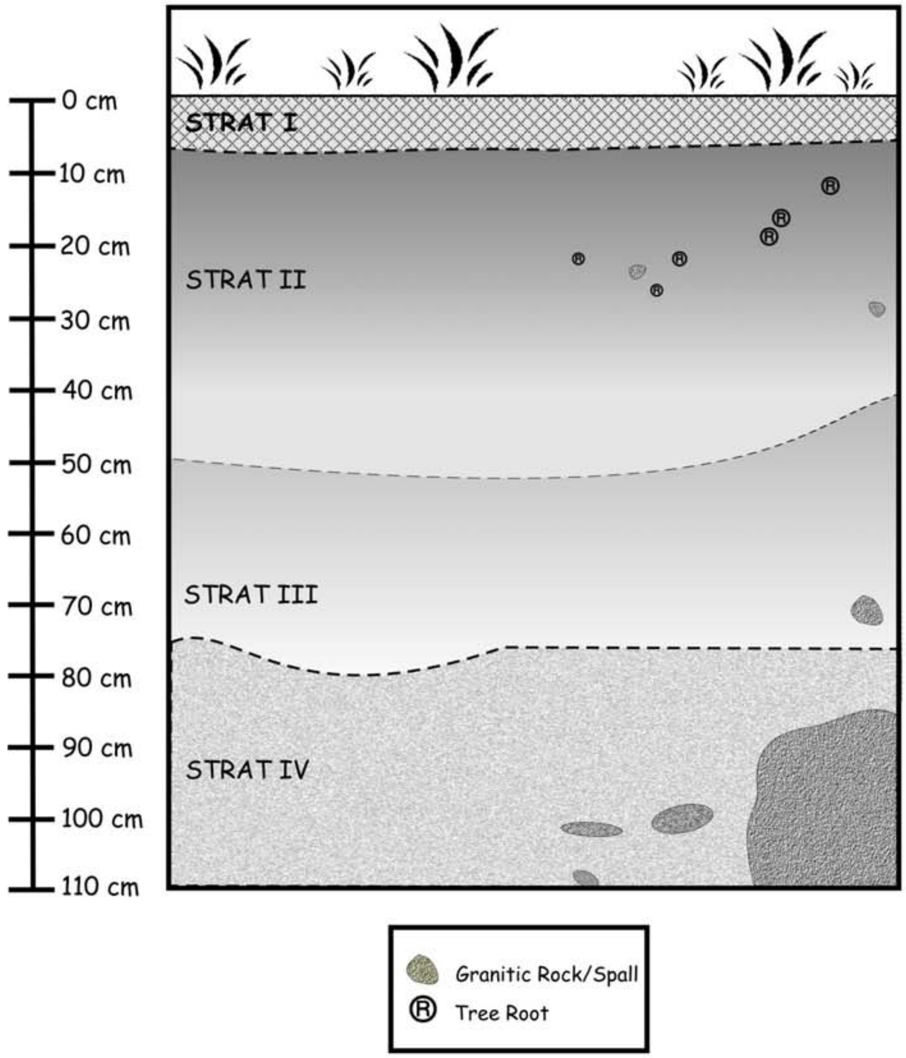
LOCUS G, EU 5 NORTH WALL PROFILE



STRAT I: Unconsolidated organic silty loam; 10YR 4/2 (dark grayish brown); pea-sized rounded and subangular gravels; natural forest humus/duff and cones.

STRAT II: Organic silty loam; 10YR 4/2 (dark grayish brown); lighter brown in color; subrounded/subangular gravels with fine sands; roots.

STRAT III: Organic Silty loam; 10YR 5/2 to 5/3 (grayish brown/brown); represents a lighter, transitional gradation from Strat II to a lighter, organically rich matrix; maintains a silty loam with more sands and small to medium gravels.

STRAT IV: Decomposed organic silty loam; 10YR 6/2 (light grayish brown); grades into a lighter pale tan; pea-size gravels and more angular granitic gravels; increasing granitic spalls, cobbles and boulders; glacial till and water-worn cobbles.

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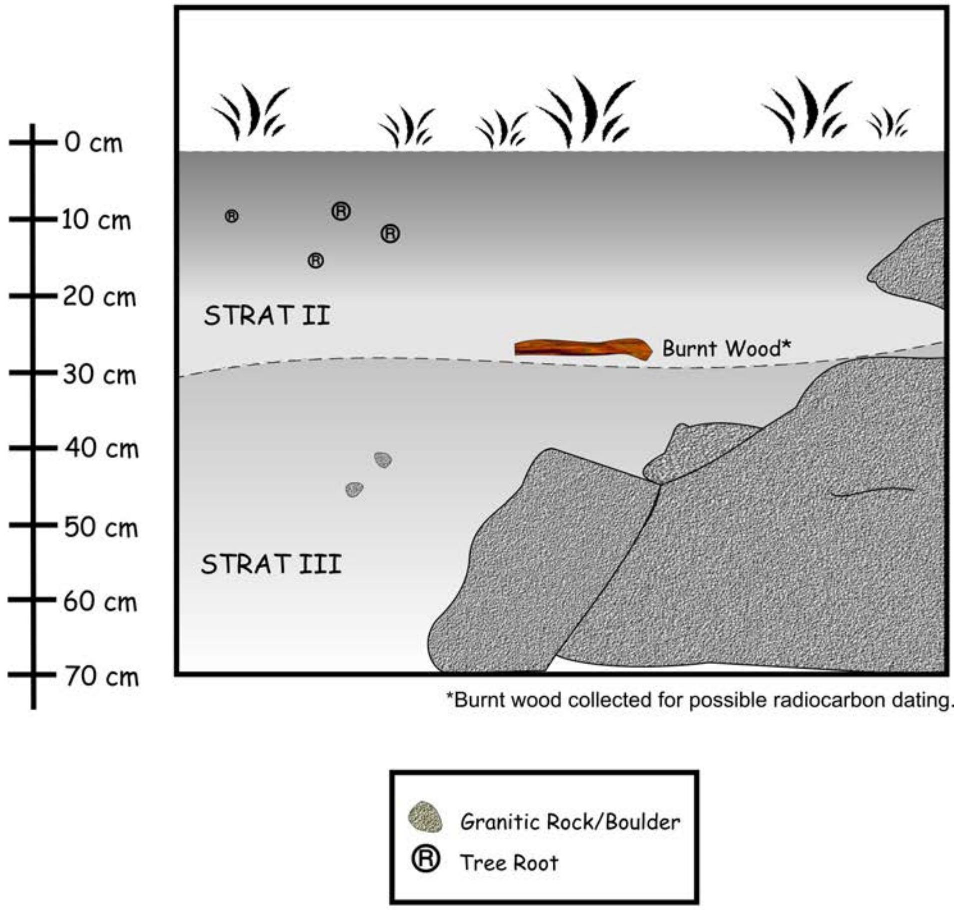
LOCUS G, EU 7 NORTH WALL PROFILE



*Burnt wood collected for possible radiocarbon dating.

STRAT II: Dark brown, silt with fine sands and small gravels.

STRAT III: Increased fine grain silts and few small gravels.

APPENDIX F:
BETA ANALYTIC INC. RADIOCARBON DATING ANALYSIS REPORT

Beta Analytic Inc.
4985 SW 74 Court
Miami, Florida 33155 USA
Tel: 305 667 5167
Fax: 305 663 0964
beta@radiocarbon.com
www.radiocarbon.com

Consistent Accuracy
Delivered On Time.

MR. DARDEN HOOD
Director

Mr. Ronald Hatfield
Mr. Christopher Patrick
Deputy Directors

March 12, 2008

Mr. James S. Nelson
Furlong Archaeological Consulting
89 Wind Ridge Drive
Yankee Hill, CA 95965
USA

RE: Radiocarbon Dating Result For Sample CA-Nev-12/13/H, EU7

Dear Mr. Nelson:

Enclosed is the radiocarbon dating result for one sample recently sent to us. It provided plenty of carbon for an accurate measurement and the analysis proceeded normally. The report sheet contains the method used, material type, and applied pretreatments and, where applicable, the two-sigma calendar calibration range.

This report has been both mailed and sent electronically. All results (excluding some inappropriate material types) which are less than about 20,000 years BP and more than about ~250 BP include a calendar calibration page (also digitally available in Windows metafile (.wmf) format upon request). Calibration is calculated using the newest (2004) calibration database with references quoted on the bottom of the page. Multiple probability ranges may appear in some cases, due to short-term variations in the atmospheric 14C contents at certain time periods. Examining the calibration graph will help you understand this phenomenon. Don't hesitate to contact us if you have questions about calibration.

We analyzed this sample on a sole priority basis. No students or intern researchers who would necessarily be distracted with other obligations and priorities were used in the analysis. We analyzed it with the combined attention of our entire professional staff.

Information pages are also enclosed with the mailed copy of this report. If you have any specific questions about the analysis, please do not hesitate to contact us. Someone is always available to answer your questions.

The cost of the analysis was charged to the American Express card provided. A receipt is enclosed. Thank you. As always, if you have any questions or would like to discuss the results, don't hesitate to contact me.

Sincerely,

Darden Hood

BETA

BETA ANALYTIC INC.

DR. M.A. TAMERS and MR. D.G. HOOD

UNIVERSITY BRANCH
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305/667-5167 FAX: 305/663-0964
E-MAIL: beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. James S. Nelson — Report Date: 3/12/2008

Furlong Archaeological Consulting — Material Received: 2/6/2008

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 240946	2270 +/- 40 BP	-23.1 o/oo	2300 +/- 40 BP

SAMPLE : CA-Nev-12/13/H, EU7
ANALYSIS : AMS-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal BC 410 to 360 (Cal BP 2360 to 2300) AND Cal BC 290 to 240 (Cal BP 2240 to 2180)

Dates are reported as RCYBP (raduicarbon years before present, "present" = 1950A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.1:lab. mult=1)

Laboratory number: **Beta-240946**

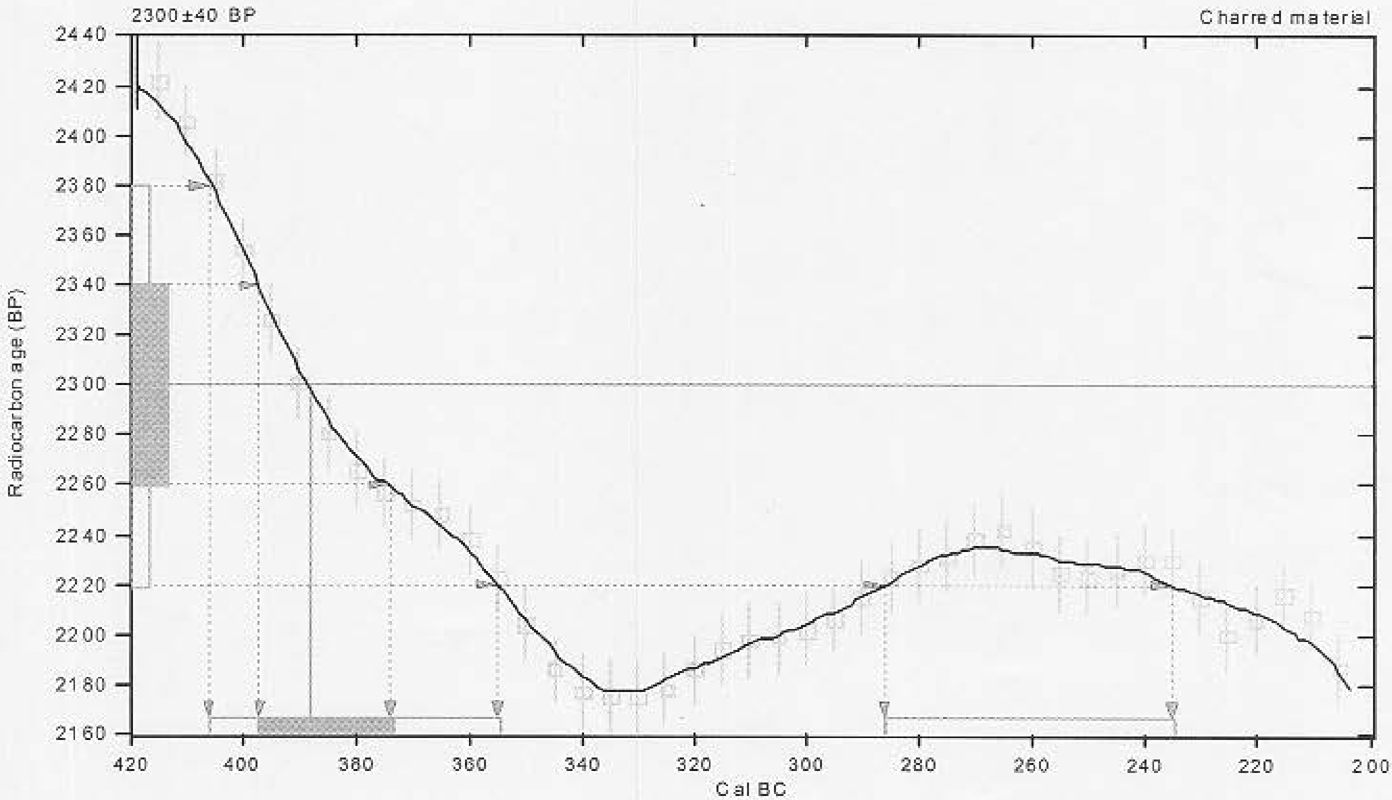
Conventional radiocarbon age: **2300±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 410 to 360 (Cal BP 2360 to 2300) and Cal BC 290 to 240 (Cal BP 2240 to 2180)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 390 (Cal BP 2340)

1 Sigma calibrated result: (68% probability) Cal BC 400 to 370 (Cal BP 2350 to 2320)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

PRETREATMENT GLOSSARY
Standard Pretreatment Protocols at Beta Analytic

Unless otherwise requested by a submitter or discussed in a final date report, the following procedures apply to pretreatment of samples submitted for analysis. This glossary defines the pretreatment methods applied to each result listed on the date report form (e.g. you will see the designation "acid/alkali/acid" listed along with the result for a charcoal sample receiving such pretreatment).

Pretreatment of submitted materials is required to eliminate secondary carbon components. These components, if not eliminated, could result in a radiocarbon date, which is too young or too old. Pretreatment does not ensure that the radiocarbon date will represent the time event of interest. This is determined by the sample integrity. Effects such as the old wood effect, burned intrusive roots, bioturbation, secondary deposition, secondary biogenic activity incorporating recent carbon (bacteria) and the analysis of multiple components of differing age are just some examples of potential problems. The pretreatment philosophy is to reduce the sample to a single component, where possible, to minimize the added subjectivity associated with these types of problems. If you suspect your sample requires special pretreatment considerations be sure to tell the laboratory prior to analysis.

"acid/alkali/acid"

The sample was first gently crushed/dispersed in deionized water. It was then given hot HCI acid washes to eliminate carbonates and alkali washes (NaOH) to remove secondary organic acids. The alkali washes were followed by a final acid rinse to neutralize the solution prior to drying. Chemical concentrations, temperatures, exposure times, and number of repetitions, were applied accordingly with the uniqueness of the sample. Each chemical solution was neutralized prior to application of the next. During these serial rinses, mechanical contaminants such as associated sediments and rootlets were eliminated. This type of pretreatment is considered a "full pretreatment". On occasion the report will list the pretreatment as "acid/alkali/acid - insolubles" to specify which fraction of the sample was analyzed. This is done on occasion with sediments (See "acid/alkali/acid - solubles"

Typically applied to: charcoal, wood, some peats, some sediments, and textiles "acid/alkali/acid - solubles"

On occasion the alkali soluble fraction will be analyzed. This is a special case where soil conditions imply That the soluble fraction will provide a more accurate date. It is also used on some occasions to verify the present/absence or degree of contamination present from secondary organic acids. The sample was first pretreated with acid to remove any carbonates and to weaken organic bonds. After the alkali washes (as discussed above) are used, the solution containing the alkali soluble fraction is isolated/filtered and combined with acid. The soluble fraction, which precipitates, is rinsed and dried prior to combustion.

"acid/alkali/acid/cellulose extraction"

Following full acid/alkali/acid pretreatments, the sample is bathed in (sodium chlorite) $NaClO_2$ under very controlled conditions (Ph = 3, temperature = 70 degrees C). This eliminates all components except wood cellulose. It is useful for woods that are either very old or highly contaminated.

Applied to: wood

"acid washes"

Surface area was increased as much a possible. Solid chunks were crushed, fibrous materials were shredded, and sediments were dispersed. Acid (HCI) was applied repeatedly to ensure the absence of carbonates. Chemical concentrations, temperatures, exposure times, and number of repetitions, were applied accordingly with the uniqueness of each sample. The sample was not be subjected to alkali washes to ensure the absence of secondary organic acids for intentional reasons. The most common reason is that the primary carbon is soluble in the alkali. Dating results reflect the total organic content of the analyzed material. Their accuracy depends on the researcher's ability to subjectively eliminate potential contaminants based on contextual facts.

Typically applied to: organic sediments, some peats, small wood or charcoal, special cases

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Director

Mr. Ronald Hatfield
Mr. Christopher Patrick
Deputy Directors

Final Report

The final report package includes the final date report, a statement outlining our analytical procedures, a glossary of pretreatment terms, calendar calibration information, billing documents (containing balance/credit information and the number of samples submitted within the yearly discount period), and peripheral items to use with future submittals. The final report includes the individual analysis method, the delivery basis, the material type and the individual pretreatments applied. The final report has been sent by mail and e-mail (where available).

Pretreatment

Pretreatment methods are reported along with each result. All necessary chemical and mechanical pretreatments of the submitted material were applied at the laboratory to isolate the carbon which may best represent the time event of interest. When interpreting the results, it is important to consider the pretreatments. Some samples cannot be fully pretreated, making their ^{14}C ages more subjective than samples which can be fully pretreated. Some materials receive no pretreatments. Please look at the pretreatment indicated for each sample and read the pretreatment glossary to understand the implications.

Analysis

Materials measured by the radiometric technique were analyzed by synthesizing sample carbon to benzene (92% C), measuring for ^{14}C content in one of 53 scintillation spectrometers, and then calculating for radiocarbon age. If the Extended Counting Service was used, the ^{14}C content was measured for a greatly extended period of time. AMS results were derived from reduction of sample carbon to graphite (100% C), along with standards and backgrounds. The graphite was then detected for ^{14}C content in one of 9 accelerator-mass-spectrometers (AMS) .

The Radiocarbon Age and Calendar Calibration

The "Conventional ^{14}C Age (*)" is the result after applying $^{13}C/^{12}C$ corrections to the measured age and is the most appropriate radiocarbon age. If an "*" is attached to this date, it means the $^{13}C/^{12}C$ was estimated rather than measured (The ratio is an option for radiometric analysis, but included on all AMS analyses.) Ages are reported with the units "BP" (Before Present). "Present" is defined as AD 1950 for the purposes of radiocarbon dating.

Results for samples containing more ^{14}C than the modern reference standard are reported as "percent modern carbon" (pMC). These results indicate the material was respiring carbon after the advent of thermo-nuclear weapons testing (and is less than ~ 50 years old).

Applicable calendar calibrations are included for materials between about 100 and 19,000 BP. If calibrations are not included with a report, those results were either too young, too old, or inappropriate for calibration. Please read the enclosed page discussing calibration.

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Calendar Calibration at Beta Analytic

Calibrations of radiocarbon age determinations are applied to convert BP results to calendar years. The short-term difference between the two is caused by fluctuations in the heliomagnetic modulation of the galactic cosmic radiation and, recently, large scale burning of fossil fuels and nuclear devices testing. Geomagnetic variations are the probable cause of longer-term differences.

The parameters used for the corrections have been obtained through precise analyses of hundreds of samples taken from known-age tree rings of oak, sequoia, and fir up to about 10,000 BP. Calibration using tree-rings to about 12,000 BP is still being researched and provides somewhat less precise correlation. Beyond that, up to about 20,000 BP, correlation using a modeled curve determined from U/Th measurements on corals is used. This data is still highly subjective. Calibrations are provided up to about 19,000 years BP using the most recent calibration data available.

The Pretoria Calibration Procedure (Radiocarbon, Vol 35, No.1, 1993, pg 317) program has been chosen for these calendar calibrations. It uses splines through the tree-ring data as calibration curves, which eliminates a large part of the statistical scatter of the actual data points. The spline calibration allows adjustment of the average curve by a quantified closeness-of-fit parameter to the measured data points. A single spline is used for the precise correlation data available back to 9900 BP for terrestrial samples and about 6900 BP for marine samples. Beyond that, splines are taken on the error limits of the correlation curve to account for the lack of precision in the data points.

In describing our calibration curves, the solid bars represent one sigma statistics (68% probability) and the hollow bars represent two sigma statistics (95% probability). Marine carbonate samples that have been corrected for $^{13}C/^{12}C$, have also been corrected for both global and local geographic reservoir effects (as published in Radiocarbon, Volume 35, Number 1, 1993) prior to the calibration. Marine carbonates that have not been corrected for $^{13}C/^{12}C$ are adjusted by an assumed value of 0 %0 in addition to the reservoir corrections. Reservoir corrections for fresh water carbonates are usually unknown and are generally not accounted for in those calibrations. In the absence of measured $^{13}C/^{12}C$ ratios, a typical value of -5 %0 is assumed for freshwater carbonates.

(Caveat: the correlation curve for organic materials assume that the material dated was living for exactly ten years (e.g. a collection of 10 individual tree rings taken from the outer portion of a tree that was cut down to produce the sample in the feature dated). For other materials, the maximum and minimum calibrated age ranges given by the computer program are uncertain. The possibility of an "old wood effect" must also be considered, as well as the potential inclusion of younger or older material in matrix samples. Since these factors are indeterminant error in most cases, these calendar calibration results should be used only for illustrative purposes. In the case of carbonates, reservoir correction is theoretical and the local variations are real, highly variable and dependent on provenience. Since imprecision in the correlation data beyond 10,000 years is high, calibrations in this range are likely to change in the future with refinement in the correlation curve. The age ranges and especially the intercept ages generated by the program must be considered as approximations.)

APPENDIX G:
PROJECT PHOTOGRAPHS AND LOG

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH RECORD

Primary #
HRI#
Trinomial CA-Nev-13/H

 Resource Name or #: **Year** 2005

Camera Format: Digital Power Shot Lens Size:
Film Type and Speed: Negatives Kept at:

Mo.	Day	Time	Exp./Frame	Subject/Description	View Toward	Accession #
9	19	1:41 PM		Overview Locus G-Pin flags denote basalt flake surface scatter. Green and Doty working EU 1. View toward SE.	140°/SE	
9	19	1:42 PM		Overview Locus G-Pin flags denote basalt flake surface scatter. Doty & Green working EU 1. View toward NW.	320°/NW	
9	19	1:57 PM		SW of Locus G in vicinity of EU 2 (outside G boundaries). Pin flags mark surface flake scatter.	NW	
9	19	1:58 PM		SW of Locus G in vicinity of EU 2 (outside G boundaries). Pin flags mark surface flake scatter. View to SE.	SE	
9	19	2:40 PM		Locus G. Basalt lithic debris concentration #1.	W/260°	
9	19	2:43 PM		Locus G. Basalt lithic debris concentration #1.	E/80°	
9	19	2:45 PM		Locus G concentration #1. Large granite boulder in background.	S/160°	
9	19	2:47 PM		Locus G concentration #1. Taken from on top of boulder.	N/344°	
9	20	10:47 AM		West of Locus G- EU 2, D. Jaffke excavating with B. Bloomer screening.	NE/40°	
9	20	11:12 AM		Locus G EU 1 South wall, 0-90 cmbs.	S/180°	
9	20	11:13 PM		Locus G EU 1 South wall, 0-90 cmbs.	S/180°	
9	20	11:14 PM		Locus G EU 1 South wall, 0-90 cmbs.	S/180°	
9	20	11:15 PM		Locus G EU 1 South wall, 0-90 cmbs.	S/180°	
9	21	12:24 PM	338	Locus G North wall of EU 1, 0-90 cmbs.-stratigraphic zones demarcated, note larger granitic gravels and oxidized sand @ 80 cm in western ½ of unit.	N/360°	
9	21	12:26 PM	339	Locus G North wall of EU 1, 0-90 cmbs.-stratigraphic zones demarcated, note larger granitic gravels and oxidized sand @ 80 cm in western ½ of unit.	N/360°	
9	21	12:55 PM	340	Locus G North wall of EU 1, 0-90 cmbs.-stratigraphic zones demarcated, note larger granitic gravels and oxidized sand @ 80 cm in western ½ of unit.	N/360°	
9	21	1:48 PM	341	Locus G EU 3 with granite boulder in unit.	-	
9	21	1:50 PM	342	Loc. G DJ, BB, KL, KL @ concentration #1 setting up EU 4. Large boulder in right frame.	E	
9	21	1:52 PM	343	Overview showing visitors and folks hard at work.	-	
9	21		344	Lab puppy-Franklin.		
9	21		345	Closeup of Franklin.		
9	21		346	Franklin and BM's feet.		
9	21		347	BM, Eve, JR, and Franklin at Locus G concentration #1.	E	
9	21		349	KL, KL, DJ writing up excavated materials from EU 4, Loc G. DJ checking out landscape.		
9	21		352	OP, DJ and SG working an STU at the NE edge of Locus G.		

9	21		353	BB, and KL at EU 4 and EU 5. DJ in background.		
9	22		354	BB and JF discussing basalt sourcing issues at EU 5.		
9	22	3:39 PM	355	SG and OP excavating EU 7, Locus G.		
9	22	3:39 PM	356	SG and OP excavating EU 7, Locus G. JF right of frame screeining EU 5.	W/NW	
9	22	3:40 PM	357	JD and BN visiting DJ at EU6, Locus G.		
9	22	3:42 PM	358	BB and JF engaged in a discussion.		
9	22	3:43 PM	359	OP and SG excavating EU 7, Locus G. Overview from boulder.		
9	23	8:30 AM	360	BB and JF discussing interesting issues while screening sediments from EU 5, Locus G.		
9	23	8:32 AM	362	Overview of granitic brm at northeast end of Locus G. LAM#1.		
9	23	8:32 AM	363	Overview of LAM #1 with two cupules and 3 possible 4 milling slicks.		
9	23	8:32 AM	364	LAM #1 located on NE edge of Locus G.		
9	23	12:45 PM	365	North wall of EU 5, 0-110 cmbs, Locus G.	N wall	
9	23	1:03 PM	366	North wall of EU 5, 0-110 cmbs, Locus G. Clouds shading unit.	N wall	
9	23	1:23 PM	367	LAM #2, southeast edge of Locus G. Trowel for scale. Pine needles in cupule.		
9	23	1:24 PM	368	LAM #2, southeast edge of Locus G.		
9	23	1:29 PM	369	North wall of EU 5, 0-110 cmbs. Locus G, Concentration #1.	N	
9	23	1:30 PM	370	North wall of EU 5, 0-110 cmbs with cloud cover. Locus G, Concentration #1.	N	
9	23	3:12 PM	371	North wall profile of EU 6, 0-70 cmbs. Locus G.	N	
9	23	3:13 PM	372	North wall profile of EU 6, 0-70 cmbs. Locus G.	N	
9	23	3:23 PM	373	Visitors Dave Abbott and Jen.	E	
9	23	3:28 PM	374	South view of EU 5 and 4. North to south. EU 5 in foreground.	S	
9	23	3:29 PM	375	North view of EU 4 and 5. South to north. EU 5 north wall.	N	
9	23	3:31 PM	376	South view of EU 4 and 5. South to north. EU 5 north wall.	S	
9	23	3:33 PM	377	EU 7, 0-70 cmbs, north wall. Note carbonized wood in center frame (27 cmbs).	N	
9	24	9:20 AM	378	Locus F overview of visible lithic concentration.	N	
9	24	9:24 AM	379	Locus F overview of lithic concentrations with Donner Pass Road in background.	N	
9	24	9:30 AM	380	Locus F OP and JD excavating EU1 in historic concentration.	W	
9	24	9:33 AM	381	Locus F overview of lithic concentration near Donner Pass Road.	E	
9	24	9:40 AM	382	Locus F overview of lithic concentration near Donner Pass Road.	E	
9	25	1:04 PM	383	Locus F EU 1, 0-50 cmbs north wall. Note pit shape of darker sediment.	N	

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH RECORD

Primary #
HRI#
Trinomial CA-Nev-13/H

 Resource Name or #: Year 2005

Camera Format: Digital Power Shot Lens Size:
Film Type and Speed: Negatives Kept at:

Mo.	Day	Time	Exp./Frame	Subject/Description	View Toward	Accession #
9	25	1:04 PM	384	Locus F EU 1, 0-50 cmbs north wall. Note pit shape of darker sediment.	N	
9	25	1:23 PM	385	Locus F EU 1, 0-50 cmbs floor view with cobbles sterile yellowish sediment.	W	
9	25	1:23 PM	386	Locus F EU 1, 0-50 cmbs floor view with cobbles sterile yellowish sediment. Different lighting.	W	
9	26	10:19 AM	388	Locus F EU 2, 0-110 cmbs north wall profile.	N	
9	26	10:21 AM	389	Locus F EU 2, 0-110 cmbs north wall profile. Trowel facing north.	N	
9	26	10:23 AM	390	Locus F EU 2, 0-110 cmbs overview facing down.		
9	26	10:32 AM	391	Locus F EU 3, 0-100 cmbs north wall profile.	N	
9	26	10:33 AM	392	Locus F EU 3, 0-100 cmbs north wall profile.	N	
9	26	3:55 PM	393	Locus F EU 4, 0-80 cmbs north wall profile.	N	
9	26	3:57 PM	394	Locus F EU 4, 0-80 cmbs, trowel pointing north.	E	
9	27	2:48 PM	395	Locus F EU 6, OP excavating while Lynda Shoshone looks on.	SE	
9	27	2:54 PM	396	Locus F STU 6 SG poses while JD finishes documentation.		
9	27	2:56 PM	397	Locus F STU 6 overview.		
9	27	2:46 PM	398	Locus F STU 6 SG backfilling unit while JD puts final touches on notes.	SW	
9	28	12:04 PM	399	Locus F EU 5, 0-100, trowel pointing north.	N	
9	28	12:05 PM	400	Locus F EU 5, 0-100, trowel pointing north.	N	
9	28	12:05 PM	401	Locus F EU 6, 0-100 cmbs, south wall profile.	S	
9	28	12:05 PM	402	Locus F EU 6, 0-100 cmbs, south wall profile.	S	
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9						

H Locus G concentration #1. Large granite boulder in backgro.JPG

Locus G concentration #1. Taken from on top of boulder. N3.JPG

Locus G. Basalt lithic debris concentration #1. E80°.JPG

Locus G. Basalt lithic debris concentration #1. W260°.JPG

Overview Locus G-Pin flags denote basalt flake surface s (1).JPG

Overview Locus G-Pin flags denote basalt flake surface scatt.JPG

SW of Locus G in vicinity of EU 2 (outside G boundaries) (1).JPG

SW of Locus G in vicinity of EU 2 (outside G boundaries). P.JPG

Locus G EU 1 South wall, 0-90 cmbs. (2).JPG

Locus G EU 1 South wall, 0-90 cmbs. (3).JPG

Locus G EU 1 South wall, 0-90 cmbs. (4).JPG

Locus G EU 1 South wall, 0-90 cmbs..JPG

West of Locus G- EU 2, D. Jaffke excavating with B. Bloomer .JPG

BM, Eve, JR, and Franklin at Locus G concentration #1..JPG

Closeup of Franklin..JPG

Franklin and BM's feet..JPG

KL, KL, DJ writing up excavated materials from EU 4, Loc G. .JPG

Lab puppy Franklin..JPG

Loc G North wall EU 1, 0-90 cmbs.-strat zones, note larg (1).JPG

Loc G North wall EU 1, 0-90 cmbs.-strat zones, note larg (2).JPG

Loc G North wall EU 1, 0-90 cmbs.-strat zones, note larger g.JPG

Loc. G DJ, BB, KL, KL @ concentration #1 setting up EU 4. L.JPG

Locus G EU 3 with granite boulder in unit..JPG

Overview showing visitors and folks hard at work..JPG

BB and JF discussing basalt sourcing issues at EU 5..JPG

BB and JF engaged in a discussion..JPG

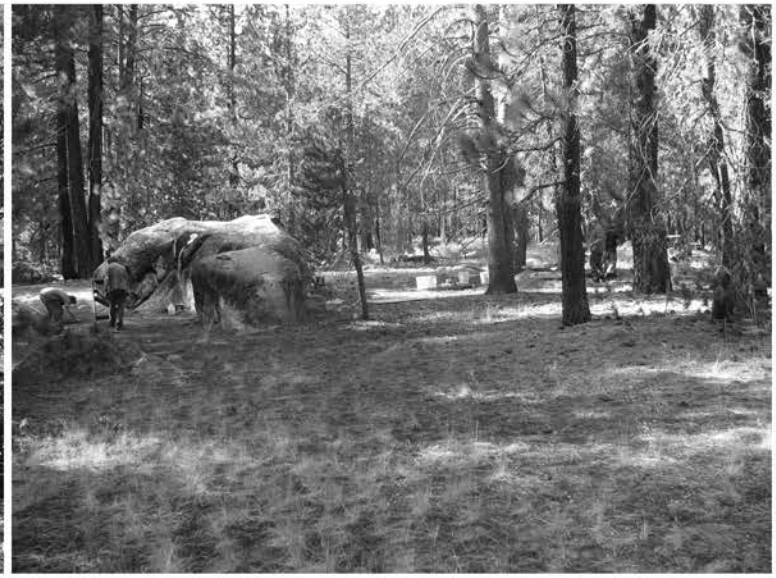
BB, and KL at EU 4 and EU 5. DJ in background..JPG

IMG_0360.JPG

JD and BN visiting DJ at EU6, Locus G..JPG

OP and SG excavating EU 7, Locus G. Overview from boulder..JPG

OP, DJ and SG working an STU at the NE edge of Locus G..JPG



SG and OP excavating EU 7, Locus G. JF right of frame scree.JPG

SG and OP excavating EU 7, Locus G..JPG

EU 7, 0-70 cmbs, north wall. Note carbonized wood in center.JPG

LAM #1 located on NE edge of Locus G..JPG

LAM #2, southeast edge of Locus G. Trowel for scale. Pine n.JPG

LAM #2, southeast edge of Locus G..JPG

North view of EU 4 and 5. South to north. EU 5 north wall..JPG

North wall of EU 5, 0-110 cmbs with cloud cover. Locus G, C.JPG

North wall of EU 5, 0-110 cmbs, Locus G. Clouds shading uni.JPG

North wall of EU 5, 0-110 cmbs, Locus G..JPG

North wall of EU 5, 0-110 cmbs. Locus G, Concentration #1..JPG

North wall profile of EU 6, 0-70 cmbs. Locus G. (2).JPG

North wall profile of EU 6, 0-70 cmbs. Locus G..JPG

Overview of granitic brm at northeast end of Locus G.   LAM#.JPG

Overview of LAM #1 with two cupules and 3 possible 4 milling.JPG

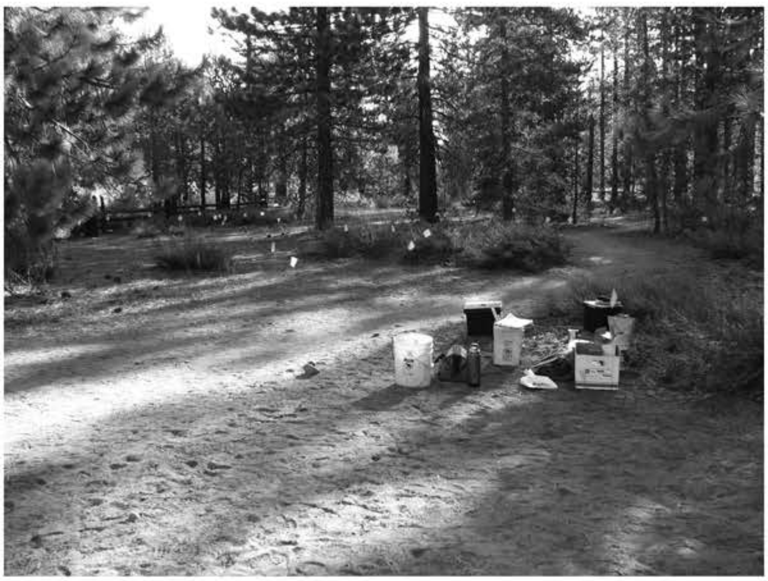
South view of EU 4 and 5. South to north. EU 5 north wall.JPG

South view of EU 5 and 4. North to south. EU 5 in foregrou.JPG

Visitors Dave Abbott and Jen..JPG

IMG_0382.JPG

Locus F OP and JD excavating EU1 in historic concentration..JPG



Locus F overview of lithic concentration near Donner Pass Ro.JPG

Locus F overview of lithic concentrations with Donner Pass R.JPG

Locus F overview of visible lithic concentration..JPG

Locus F EU 1, 0-50 cmbs floor view with cobbles sterile (1).JPG

Locus F EU 1, 0-50 cmbs floor view with cobbles sterile yell.JPG

Locus F EU 1, 0-50 cmbs north wall. Note pit shape of d (1).JPG

Locus F EU 1, 0-50 cmbs north wall. Note pit shape of darke.JPG

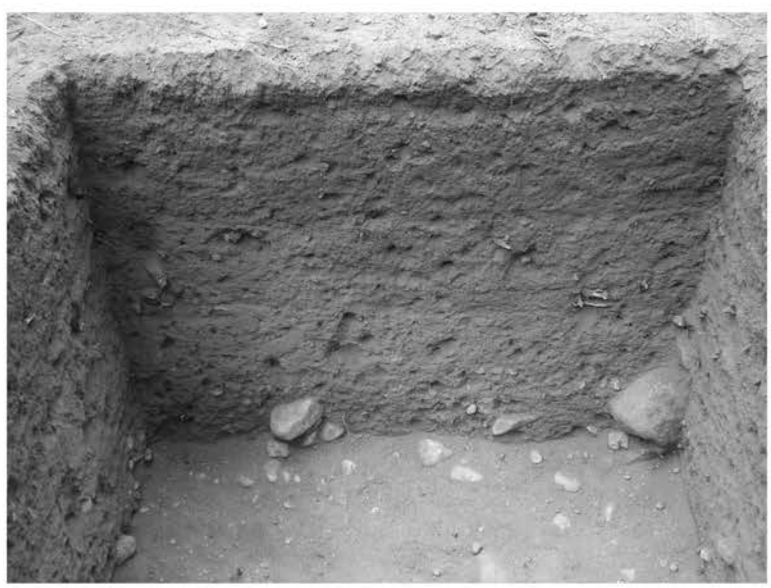
Locus F EU 2, 0-110 cmbs north wall profile. Trowel facing .JPG

Locus F EU 2, 0-110 cmbs north wall profile..JPG

Locus F EU 2, 0-110 cmbs overview facing down..JPG

Locus F EU 3, 0-100 cmbs north wall profile. (2).JPG

Locus F EU 3, 0-100 cmbs north wall profile..JPG



Locus F EU 4, 0-80 cmbs north wall profile..JPG

Locus F EU 4, 0-80 cmbs, trowel pointing north..JPG

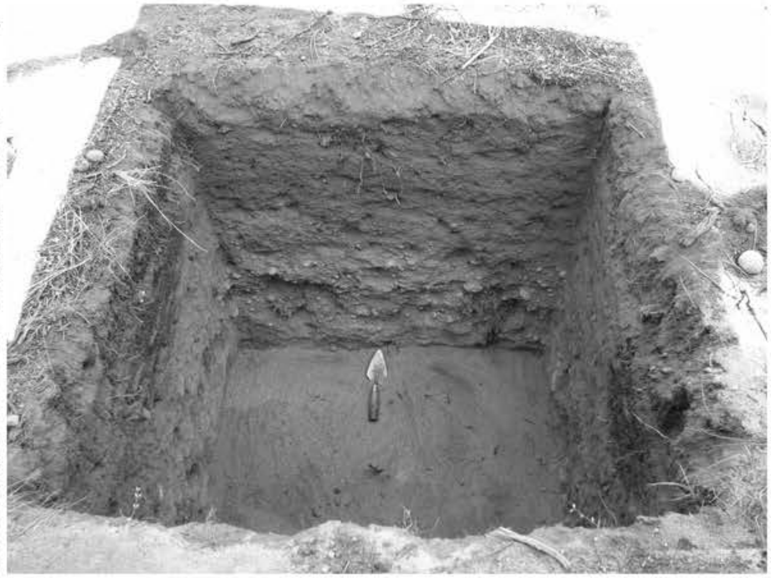
IMG_0398.JPG

Locus F EU 6, OP excavating while Lynda Shoshone looks on..JPG

Locus F STU 6 overview..JPG

Locus F STU 6 SG poses while JD finishes documentation..JPG

Locus F EU 5, 0-100, trowel pointing north. (2).JPG



Locus F EU 5, 0-100, trowel pointing north..JPG

Locus F EU 6, 0-100 cmbs, south wall profile. (2).JPG

Locus F EU 6, 0-100 cmbs, south wall profile..JPG