

**HIGH SIERRA SURVEYS IN SEQUOIA AND KINGS CANYON NATIONAL PARKS:
A SUMMARY OF SITES, SOURCING, PROTEIN, PROJECTILES, AND HYDRATION**

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Archaeological surveys were conducted in the higher elevations of Sequoia and Kings Canyon National Parks from 1997 to 2004. A total of 88 sites were recorded or revisited. Seasonal occupation of alpine and subalpine zones is documented. Site types and artifacts are outlined, with a prevalence of Late Prehistoric projectile points being noted. Sixty-eight obsidian specimens were submitted for sourcing and hydration analysis. Ten obsidian specimens were submitted for protein residue analysis. The results of these analyses are presented and summarized.

Archaeological surveys were conducted from 1997 to 2004 in the alpine reaches of two southern Sierra Nevada national parks, Sequoia and Kings Canyon (Figure 1). Using small groups of trained volunteers, including U.S. Forest Service and National Park Service staff, five selected areas were intensively surveyed for the presence of cultural resources. The survey methodology was consistent throughout all eight seasons, with minor variations to accommodate for slope or vegetative cover. Pedestrian surveyors were spaced approximately 30 m apart and proceeded in parallel transects across prescribed terrain; transects were tightened to smaller intervals upon the discovery of cultural material. Easily recognizable natural features, including passes, meadows, benches, knolls, and forested slopes were thus surveyed. Observed artifacts and features were marked with individual pinflags to easily demarcate site or feature boundaries. Standard recording techniques were used, including the production of scaled site maps, supported by photographs. Additionally, some videotape footage was recorded in 1998, 1999, and 2004. Site forms were prepared for all newly recorded sites. Site forms for previously recorded sites were updated. Lastly, locations and brief descriptions were recorded for all newly encountered “isolated finds”.

All five areas that were surveyed were in excess of 3,000 m in elevation. They included subalpine and alpine terrain, often extending above the current treeline. Of note, with the exception of the north/south-trending Rae Lakes basin, the survey areas were situated adjacent to, or very near, the parks’ eastern boundary lines, and they incorporated east/west-trending passes along the Sierran crest. Crossing the crest to the east, into the Inyo National Forest, a modern hiker descends into the desert terrain of the Owens Valley (Figure 2). Averaging between 3,200 and 3,350 m in elevation, the surveyed areas consisted of:

- 1) Taoose Pass area, Kings Canyon NP (1997 through 1999)
- 2) Rae Lakes area, Kings Canyon NP (2000)
- 3) Kearsarge Lakes area, Kings Canyon NP (2001 and 2002)
- 4) Siberian Outpost area, Sequoia NP (2003)
- 5) Dusy Basin area, Kings Canyon NP (2004)

In total, 59 sites were newly recorded, 29 previously recorded sites were relocated or acknowledged, 188 isolated finds were recorded, and an estimated 1,310 acres were surveyed (Table 1). With the exception of the Siberian Outpost area, the numbers of isolated finds were relatively few and more-or-less widely scattered across the survey areas, the isolates ranging from four to 22 in number. Siberian Outpost, a very prominent plateau situated in the extreme southeastern reaches of Sequoia

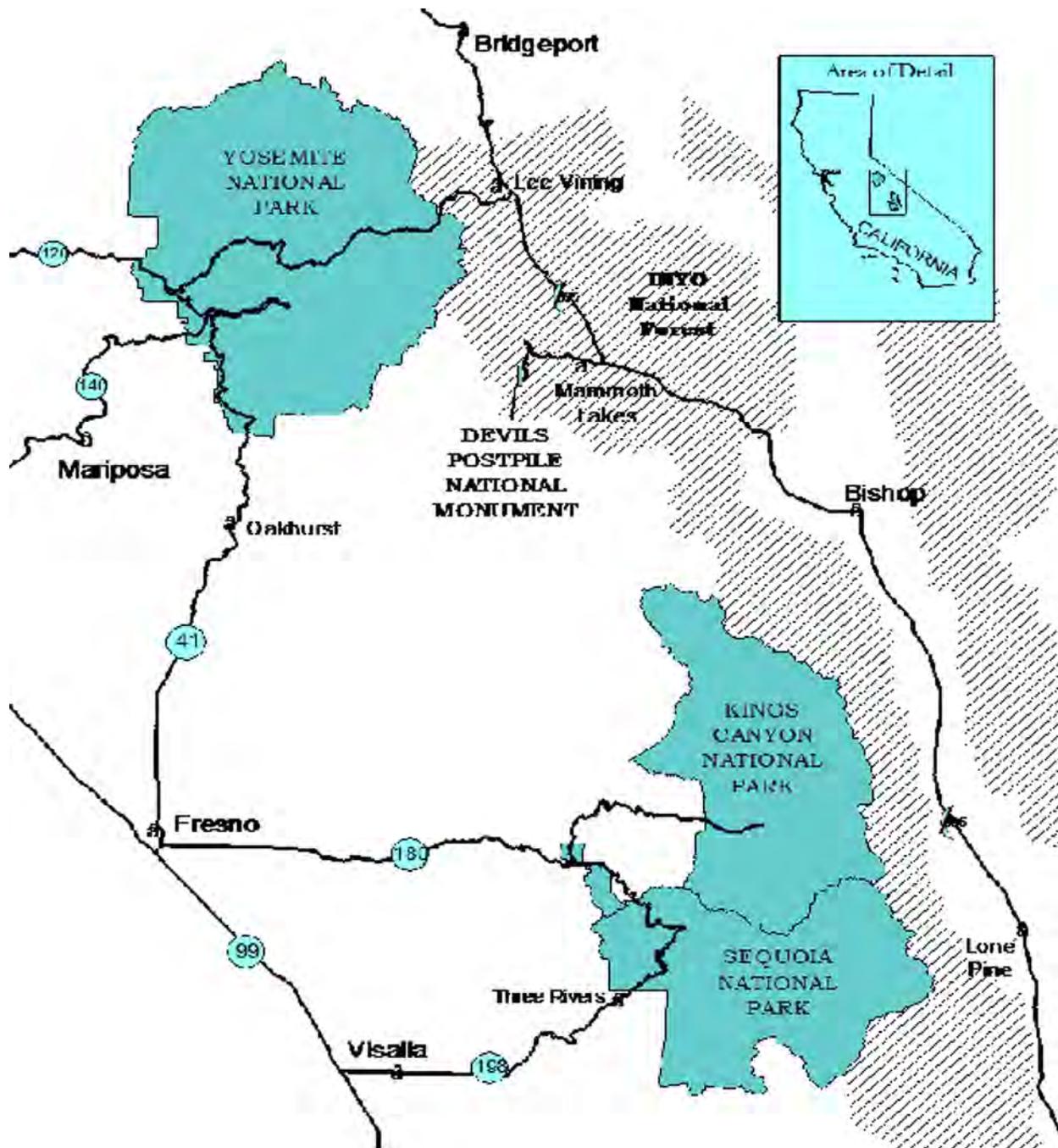


Figure 1. Location map of Sequoia and Kings Canyon National Parks, California.

National Park, was readily recognized as the anomaly with regard to the number of isolated finds. It yielded evidence of no less than 138 isolated finds, including many biface tips and fragments. The vast majority of these latter isolated finds were concentrated on the rocky, southern margin of the plateau, a natural feature that drops abruptly several hundred feet to the rocky slopes north of Big Whitney Meadow (Sequoia National Forest). The southern reaches of Siberian Outpost incorporate a treeless, seasonally well-watered swale that is a natural attractant to wildlife (Figure 3). Game animals could be ambushed from the plateau's rocky southern margin while they were seeking water, or, more likely if bighorn sheep

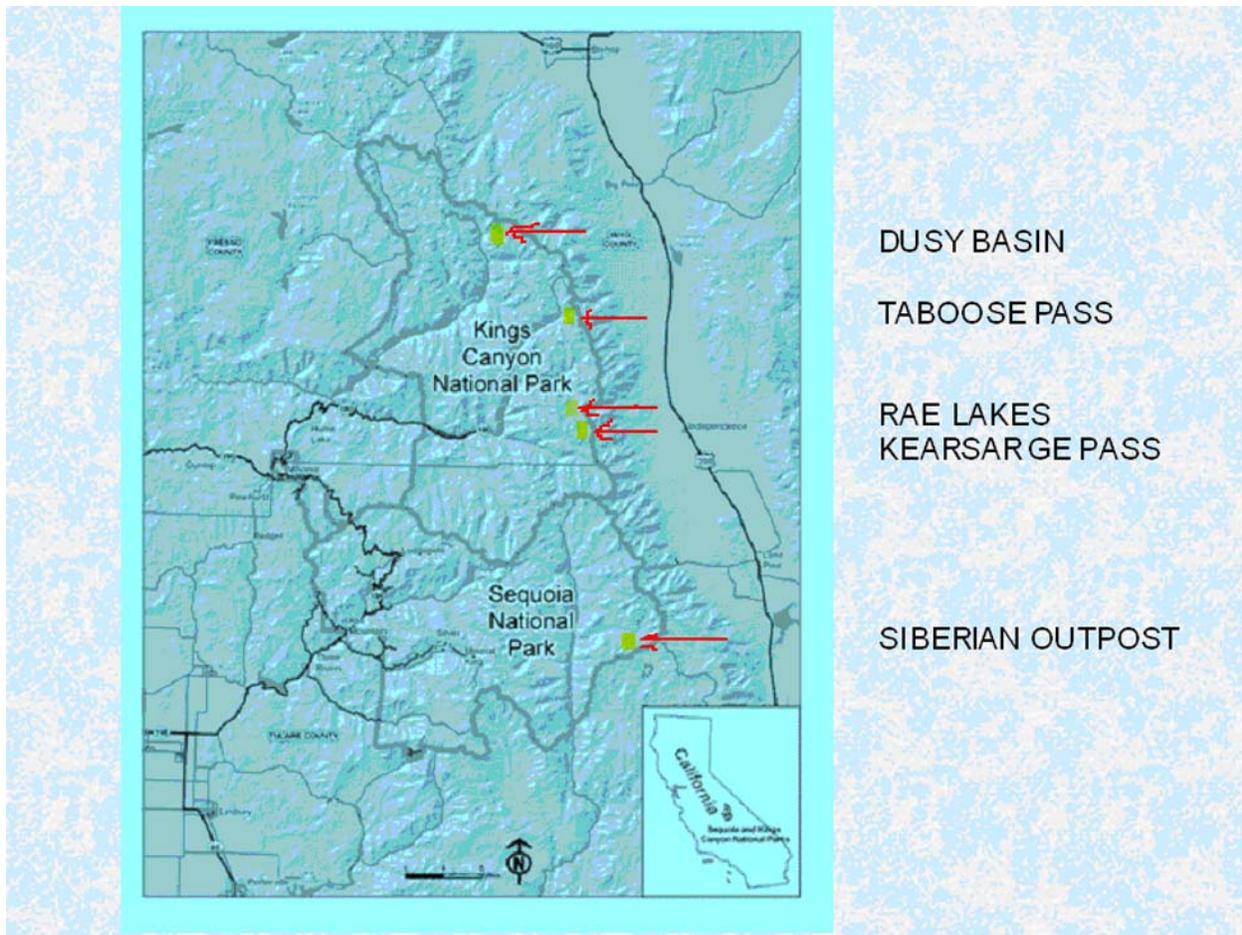


Figure 2. Location map showing the five areas surveyed within the two parks.

Table 1. Summary of results by project area.

PROJECT AREA	NUMBER OF NEW SITES	NUMBER OF KNOWN SITES	NUMBER OF ISOLATED FINDS	ACRES SURVEYED (APPROX.)
Taboose Pass	26	0	4	200
Rae Lakes	1	0	9	80
Kearsarge and Bullfrog	12	9	15	410
Siberian Outpost	5	5	138	200
Bishop Pass / Dusy Basin	15	15	22	320
Totals	59	29	188	1310

were the prey, the game could be ambushed from hiding as they fled from game drivers into the rocky expanse – either pattern leaving behind the exceptional concentration of often-broken isolated finds.

The sites ranged from small, sparse lithic scatters consisting of a minimum of five flakes, to large, extensive scatters of obsidian tools, flakes, and debitage that covered in excess of 100 m square, the later often displaying two to three distinct loci within their surface-visible boundaries. Several large, more complex sites included stone circle features that clearly represented the foundations of shelters (e.g., windbreaks or wikiups), at least one of which contained a mano and portable metate within its interior. Other sites, lacking such stone circle features, contained hammer stones, and metates/milling slabs (some portable and some stationary). A few sites also yielded fragments of steatite or sherds of Owens

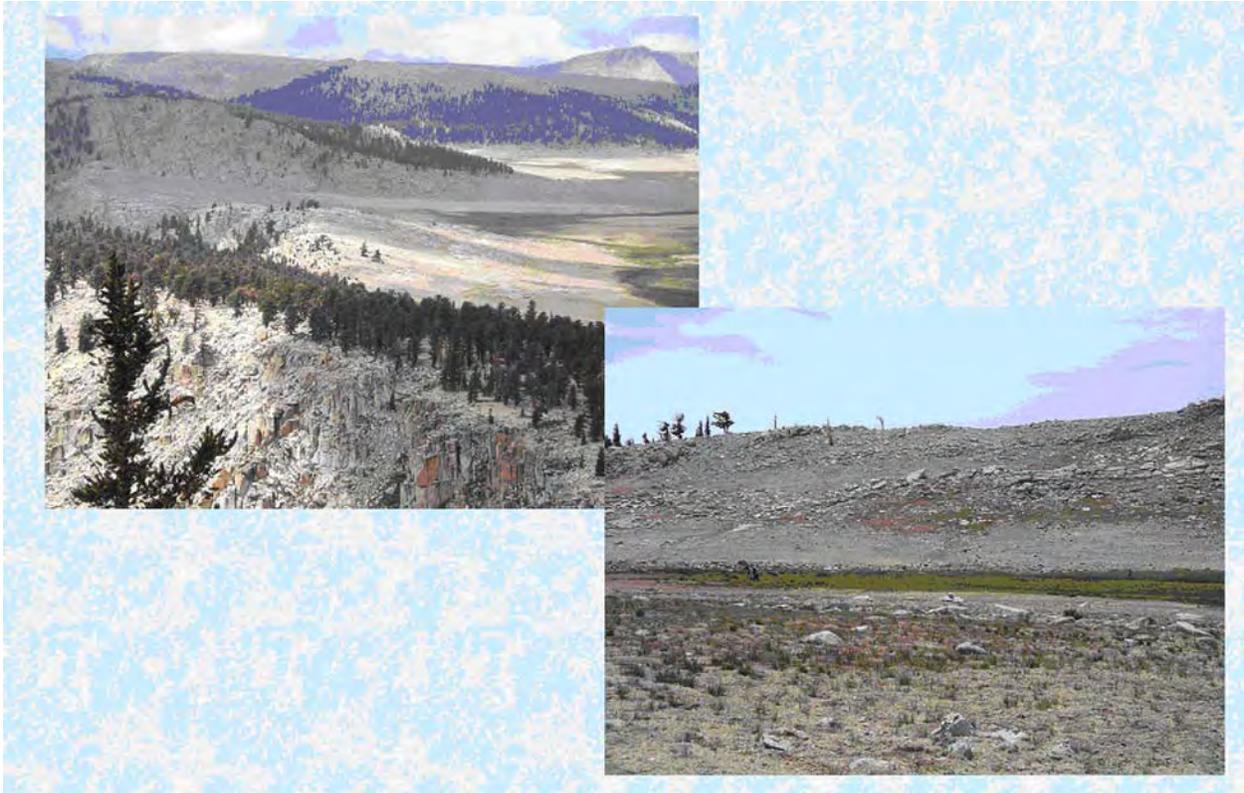


Figure 3. Overview and close-up of rocky southern margin of Siberian Outpost.

Valley Brownware pottery. Two Hudson's Bay trade beads (blue, hexagonal), ca. 1840, were also recovered; other historic era artifacts were noted at a number of sites, including bullets, shell casings, bottle glass, wire, tin cans, and small, nondescript fragments of metal. In general, the site types are interpreted to include temporary campsites with limited flaked stone rejuvenation, larger loci with moderate to extensive secondary and tertiary reduction and perhaps biface production or rejuvenation, possible hunting blinds, and longer-term campsites with evidence of structures and food preparation, the latter in the form of ground stone items and broken, bifacially and unifacially flaked stone artifacts. Seasonal occupation of these high-elevation areas by hunting and gathering groups is clearly seen in the archaeological record. The large, more artifactually complex campsites suggest longer-term occupation, likely including both men and women and likely involving some trans-Sierran trade.

The vast majority of the observed flaked stone artifacts and debitage were made of obsidian. Throughout the eight seasons of survey, fewer than three dozen non-obsidian lithic items were observed, these latter specimens being made of basalt, quartzite, or chert and other cryptocrystalline silicates (CCS). The relative paucity of non-obsidian lithics in the higher elevations mirrored the predominance of obsidian artifacts elsewhere throughout the two parks. The non-obsidian items included one Rose Spring projectile point of grey-green chert (possibly of Hanging Rock or Last Chance chert; recovered from Siberian Outpost.), one Elko Corner-notched projectile point of white CCS (Siberian Outpost), one Rose Spring projectile point of light grey chert (Kearsarge), and one large bifacial thinning flake of light brown banded chert (Dusy Basin).

Sixty-eight obsidian specimens (points, point fragments, and flakes) were submitted for chemical sourcing and/or hydration dating. Moving north-to-south between the five surveyed areas, the most dominant materials, per area, were: Dusy Basin, with Casa Diablo (6 of 12 specimens); Taboose Pass, with Fish Springs (13 of 23); Rae Lakes, with Fish Springs (1 of 1); Kearsarge, with Casa Diablo (4 of

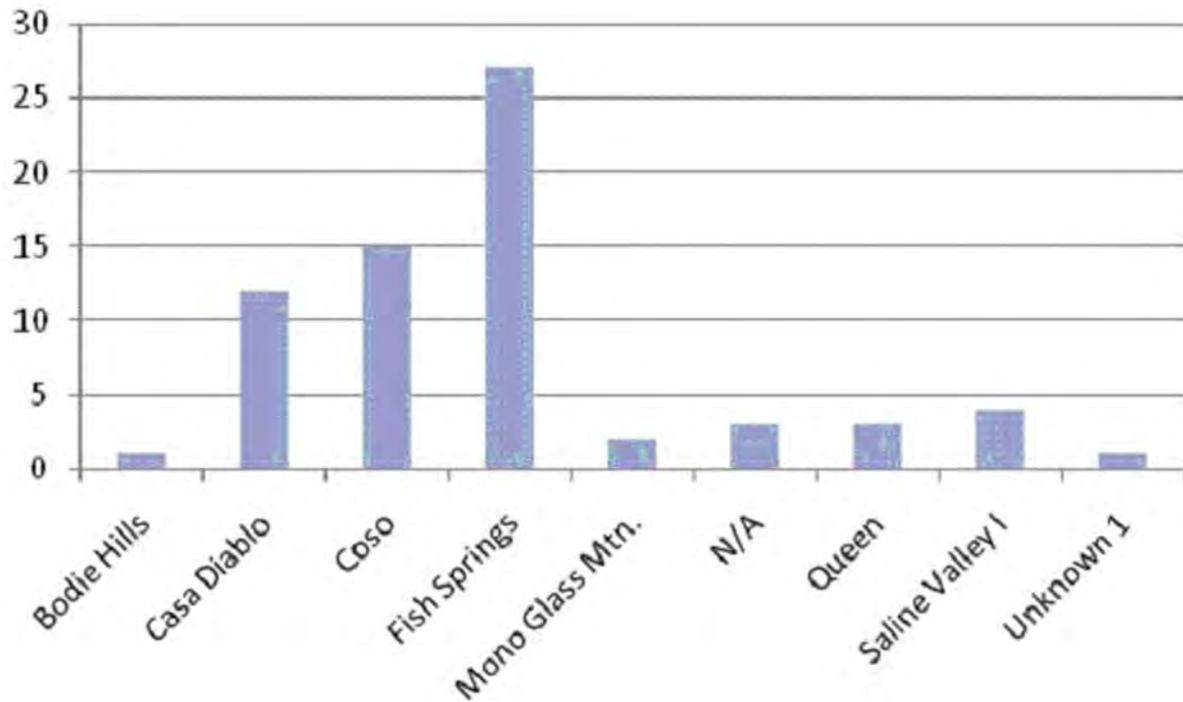


Figure 4. Obsidian sources and number of related artifacts identified from the surveys.

11); and Siberian Outpost, with Coso (12 of 21). Of all identified obsidian sources for all surveyed areas, the most common sources were Fish Springs (27 specimens), Coso (15), and Casa Diablo (12) (Figure 4). These results mirror the work of Roper Wickstrom (1992), who identified these three sources as being predominant within Sequoia and Kings Canyon National Parks. Of further interest, Roper Wickstrom discriminated the patterning to show the trend to be from Casa Diablo to Fish Springs to Coso as one moves from the north to the south across the two parks. In total, materials from 17 obsidian sources have been identified as occurring within Sequoia and Kings Canyon National Parks (Figure 5).

The results of the obsidian hydration analysis have produced dates that are estimated to range from 200 to 4,800 years before present. These results represent 24 dates that are associated with projectile points, including specimens of Desert Side-notched, Cottonwood, Rose Spring, Eastgate Corner-notched, Elko Corner-notched, and Concave Base points (Figure 6).

Additionally, 10 projectile points were submitted for protein residue analysis to the Laboratory of Archaeological Sciences at California State University, Bakersfield. Of the 10 artifacts, two produced positive results at the genus level of identification, namely *Ovis* and *Odocoileus*. The obvious assumption is that these results relate to the prehistoric dispatching of Sierra Nevada bighorn sheep (*Ovis canadensis californiana*) and mule deer (*Odocoileus hemionus*). Both animals can be encountered in the subalpine and/or alpine zones today, although sightings of the Sierra Nevada bighorn are rare, as it is listed currently as “endangered” under the provisions of the Endangered Species Act.

Five conclusions have been drawn from the surveys and analyses conducted so far:

- 1) The patterning of the identified obsidian types mirrors the work of Roper Wickstrom (1992), namely, the predominance of Casa Diablo, Fish Springs, and Coso (north-to-south).
- 2) The broad application of hydration equations for Casa Diablo, Fish Springs, and Coso obsidian seems to hold true for point types from the parks’ high elevation sites.

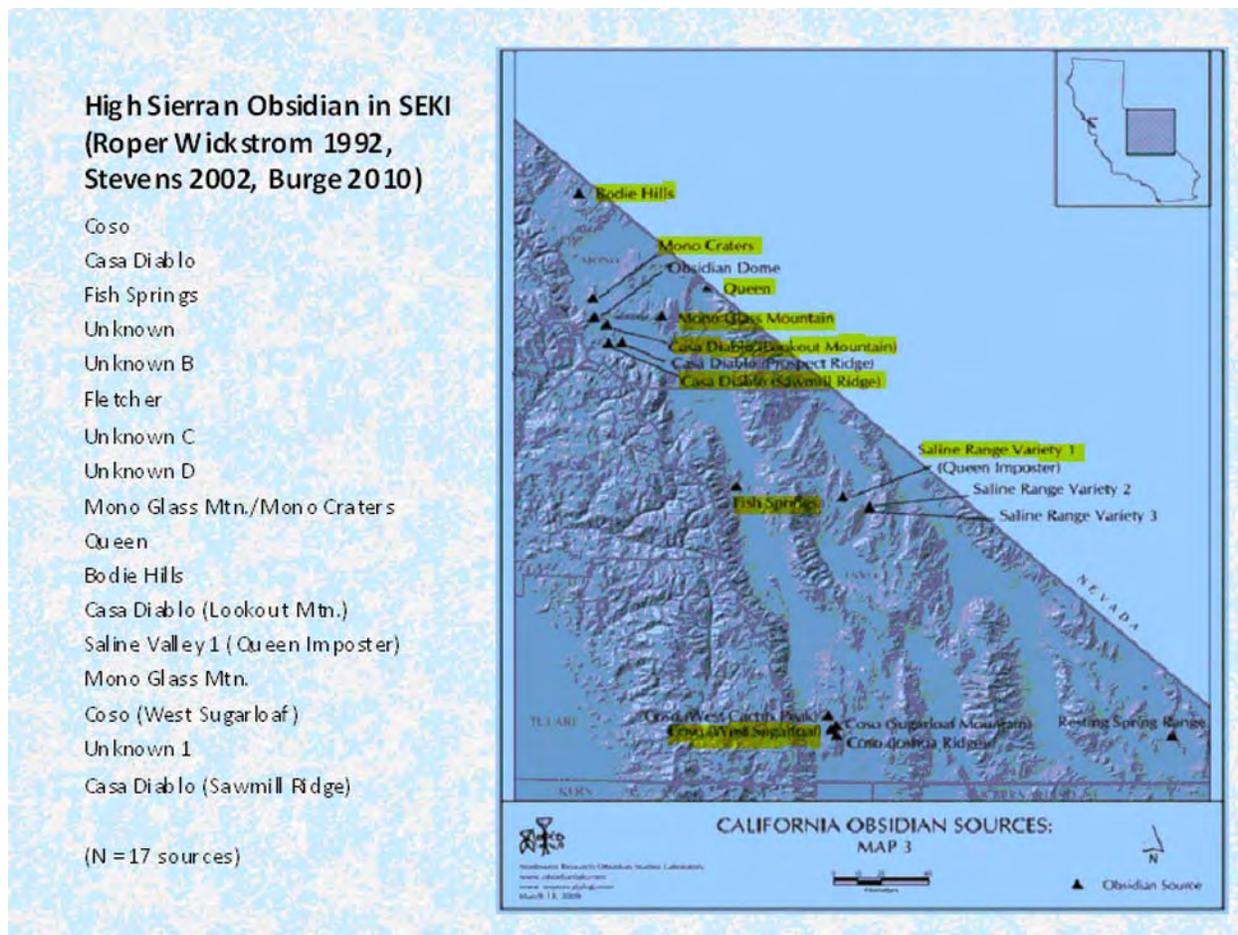


Figure 5. Identified sources of obsidian recovered from Sequoia and Kings Canyon NPs (after Northwest Research Obsidian Studies Laboratory).

3) The Late Prehistoric use of the parks' high country seems to predominate, though some older use is clearly present (see Stevens 2002, 2005).

4) The oldest use of the parks' high country is seen in the presence of a few large stemmed and side-notched points that date, stylistically, to ca. 8000 B.P.

5) The prehistoric use of sheep (*Ovis* sp.) and deer (*Odocoileus* sp.) is confirmed. These results are most likely related specifically to Sierra Nevada bighorn sheep and mule deer.

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