

COMPARISON OF TWO SHASTA VILLAGES' OBSIDIAN SOURCE USE

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Two Shasta village sites, the Iron Gate site, excavated in 1960, and Coyote's Paw, excavated between 1994 and 1997, with similar ¹⁴C dates, also have similar obsidian source use. In each site, multi-floor houses were excavated, and the sourced artifacts came from similar contexts. All the sourced obsidian came from four locations within the Medicine Lake Highland, even though one site is located on the Oregon/California border and the other site is about 6 river mi. down the Klamath River, about 4 mi. north of Shasta Valley.

The presence of obsidian within coastal northwest California and southwest Oregon archaeological sites, 300 mi. from the nearest sources of obsidian, requires the obsidian to have been conveyed westward. The possible routes for this movement of obsidian have been a subject of speculation over the last 30 years or more (Cleland 1997; Hughes 1978, 1985, 1986, 1990; Krieger and Goheen 1984; Mack 2011, 2015; Musil and O'Neill 1997; Sundahl 1985a). They include conveyance along at least three routes from the Medicine Lake Highland and two routes from the Upper Klamath Lake Basin. Because obsidian doubtless moved from the Medicine Lake Highland and the other sources east of the Cascades of California and Oregon to the west throughout the thousands of years of the area's occupation, the most commonly used route likely changed several times, and the most commonly used sources may also have changed over time. This article focuses upon two Late Prehistoric sites along one of the routes from the Medicine Lake Highland: the Upper Klamath River. In addition, as part of the discussion of obsidian conveyance, suggested methods of conveyance have included trade in the form of down-the-line exchange, direct long-distance trade, and the possibility that people at various points along the several possible routes traveled directly to some of the sources (Hughes 1990; Krieger and Goheen 1984; Nilsson 1985; Olmstead and Stewart 1978).

Most of the obsidian used by coastal people originated in the Medicine Lake Highland, where there are seven different obsidian flows, each with a unique chemical fingerprint determined by x-ray fluorescence (XRF) analysis (Hughes 1982, 1986). The most commonly used was Grasshopper Flat/Lost Iron Wells/Red Switchback (GF/LIW), but obsidian from the other sources was also used throughout northern California (Basgall and Hildebrandt 1989; Baumhoff and Olmstead 1963; Cleland 1997; Hardesty and Fox 1974; Hildebrandt and Hayes 1983; Hughes 1978, 1982, 1985, 1986, 1990; Hughes and Mikkelsen 1985; Jensen and Farber 1982; Mack 1995, 1999, 2005, 2007, 2011; Nilsson 1985, 1988, Nilsson et al. 1989; Sampson 1985; Slettleland 1984; Sundahl 1985a, 1985b; Tiley et al. 2007; Tushingham 2013), with three exceptions: East Glass Mountain, Little Glass Mountain, and South Glass Mountain. Spodue from the Upper Klamath Lake Basin is also fairly common during some chronological periods at some coastal sites and is very common within archaeological sites all along the Rogue River drainage (Connolly et al. 1994; Gray 1993; Hughes 1990; LeLande 1990; O'Neill and Treskov 2008; Pettigrew and Lebow 1987; Tushingham 2013). Data from two sites, Coyote's Paw (CA-SIS-1198) and the Iron Gate site (SIS-326), both located on the Upper Klamath River and dating to the last 400 years of the Late Prehistoric period, provide a snapshot of obsidian source use and thus provide evidence for obsidian being conveyed from the east down the Upper Klamath River canyon during at least this time period.

Table 1. Frequency of obsidian sources used.

SOURCE	COYOTE'S PAW (CA-SIS-1198)		IRON GATE SITE (CA-SIS-326)	
	COUNT	PERCENT	COUNT	PERCENT
Grasshopper Flat / Lost Iron Wells / Red Switchback	17	59	25	70
Callahan	11	38	7	20
Glass Mountain	1	3	2	5
East Medicine Lake	0	0	2	5
Total	29		36	

COMPARISONS OF OBSIDIAN USE

Descriptions of Sites

Each site has had at least one house pit completely excavated, revealing a great deal of obsidian used for tools, both formed and expedient, along with cores and debitage. XRF analysis has been completed on a small sample from each site, allowing for a comparison between these two sites located approximately 22 river mi. apart: Coyote's Paw, deep within the Upper Klamath River canyon just south of the California/Oregon border, and the Iron Gate site, very close to Bogus Creek and the northern edge of Shasta Valley. This article compares the obsidian sources at the two sites to determine if any patterns of use during the end of the Late Prehistoric period are revealed. The next step in this research will be to do similar analyses of the obsidian assemblages from other excavated sites along the Upper Klamath River canyon and from sites on other potential routes of obsidian conveyance from the Medicine Lake Highland.

The Iron Gate site was test excavated in 1960 by the Archaeological Survey of the University of Oregon for the California Oregon Power Company (COPCO) as mitigation for a planned dam and reservoir at Iron Gate, which ultimately resulted in the flooding of the Iron Gate site by the Iron Gate Reservoir. A final report on the site was written as a Master's thesis for the Department of Anthropology at the University of Oregon and published (Leonhardy 1961, 1967). Coyote's Paw was test excavated between 1993 and 1997 for the Upper Klamath River Project. The results were reported in two Bureau of Land Management interim reports (Mack 1995, 1999). Richard Hughes analyzed the samples from both sites between 1995 and 2015. The collections from both sites are currently undergoing further research and analysis, the current results of which are included in this article. (The collection from the Iron Gate site is curated at the Museum of Natural History, University of Oregon in Eugene. The collection from Coyote's Paw is curated at the University of Notre Dame in northern Indiana.)

Results and Discussion

There are nine obsidian sources in the Medicine Lake Highland, six of which have been used by people within the Upper Klamath River drainage system: Grasshopper Flat/Lost Iron Wells/Red Switchback (GF/LIW), Callahan, East Medicine Lake, Cougar Butte, Glass Mountain, and Railroad Grade. There are seven other obsidian sources outside the Medicine Lake Highland (Spodue, three Warner Mountain source localities, Silver Lake/Sycan Marsh, Blue Mountain, Drews Creek/Butcher Flat, Tuscan, and Massacre Lake) that were also sometimes used by people along the Upper Klamath River drainage, all at very low percentages (Mack 2011). However, only four Medicine Lake Highland sources appear to have been used at Coyote's Paw and the Iron Gate site: GF/LIW, Callahan, Glass Mountain, and East Medicine Lake (Table 1). If we consider the approximate distance from each of these sources to the two sites, Callahan and the northern part of GF/LIW (the Red Switchback locale) are about equal distant: 55 km to the southeast from Coyote's Paw and an additional 35 km from the Iron Gate site. East Medicine Lake and Glass Mountain are 71 km and 75 km respectively from Coyote's Paw and an

additional 35 km from the Iron Gate site. The number of specimens from each source at each site tends to reflect these differences in distance. Two Medicine Lake Highland sources are both closer but were not used: Cougar Butte is 69 km from Coyote's Paw, and Railroad Grade is 58 km, but the quality of these two sources is not the same. Railroad Grade is not a quality toolstone source, so it is understandable that it was rarely used anywhere. However, the quality of Cougar Butte is higher, which causes us to ask why a source closer than two of the used source was not used. Cougar Butte is almost due east, while all the used sources are to the southeast of these two sites. One explanation may be that the traditional boundaries of the Klamath, Modoc, and Shasta might have been a barrier to the use of Cougar Butte, or that the terrain to be traversed from the Upper Klamath River canyon may have discourage use of the Cougar Butte source by those living at Coyote's Paw and the Iron Gate site.

The other interesting pattern to notice is that none of the non-Medicine Lake Highland sources seem to have been used at these two sites. This is especially interesting when the nonuse of Spodue Mountain is considered. Though it does show up in very low percentages within the Upper Klamath drainage system, it is not at these two sites, even though it is actually equally as close to the Upper Klamath River canyon as GF/LIW. However, quality may be a possible explanation, as Spodue's southernmost reach consists of nodules washed down into the Williamson River from the flow at Spodue Mountain (Hughes and Mikkelson 1985). In addition, Spodue is completely within Klamath territory.

CONCLUSIONS AND FUTURE RESEARCH

Basically, the GF/LIW is the most commonly used source by a large margin, not just at Coyote's Paw and the Iron Gate site but also throughout the Upper Klamath River drainage, including those sites in Jackson and Klamath Counties in Oregon within the drainage area (Mack 2011, 2015). An important related question is how the obsidian source material was brought to these two sites during the Late Prehistoric period. The Iron Gate site's dates fall between A.D. 1400 and 1600, and Coyote's Paw's floor dates fall between approximately A.D. 1500 and 1800. There is a cache of obsidian cores in one of the house floors of the Iron Gate site, which indicates the possibility that obsidian was acquired through direct travel to the sources. In order to determine how obsidian moved into the canyon during the end of the Late Prehistoric period, analysis must be made of the cores, debitage, and expedient tools from house floors at both sites. The obsidian cores at both sites should be sourced using XRF and should undergo lithic analysis. Samples of both formed and expedient tools and debitage from the Iron Gate site's assemblage also must be sourced.

At the current stage of research, only obsidian projectile points have been sourced at the Iron Gate site. At Coyote's Paw, a slightly wider range of classes has been analyzed, but the sample is extremely small ($n = 29$, or slightly over 1 percent of the obsidian assemblage), so the totals, for each class from each source, are undoubtedly currently skewed. For example, of the 11 analyzed samples from the Callahan source at Coyote's Paw, four are debitage, three are worked flakes, two are projectile points, one is a scraper, and one is an edge-modified flake. Of course all seven at the Iron Gate site are projectile points. The single Glass Mountain sourced artifact at Coyote's Paw is a core fragment, while again at Iron Gate the two sourced artifacts are projectile points, both Tulawat series. At Coyote's Paw, all classes of artifacts are sourced to GF/LIW: projectile points, knives, scrapers, drills, gravers, worked flakes, and debitage. Each site also has a tinkler or bangle of obsidian, which has not yet been sourced. (Tinklers are long, narrow pieces of obsidian which were attached to Shasta women's dance skirts.) As tinklers are not commonly found, both will undergo XRF analysis. In the near future, both of these sites will undergo further XRF analysis and lithic analysis of their obsidian assemblages. In addition, artifacts from a village site at the southwest edge of Shasta Valley will be sourced to determine what source was most common during the Late Prehistoric period in that portion of the Upper Klamath River drainage farthest from obsidian sources. The analysis so far completed strongly indicates that one route of conveyance for Medicine Lake Highland's obsidian was down the Upper Klamath River canyon, at least during the Late Prehistoric period. It is expected that further investigation in the future will document the use of other routes and other sources from the Medicine Lake Highland.

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