



County:	Deschutes
Legal location:	
USGS quad:	
Survey area:	40 acres
Findings:	3 lithic isolates

October 20, 2004

TO: Pat O'Grady
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FR: Tom Connolly

RE: **Archaeological Survey of the Grassy Butte Quarry, Deschutes County**

An archaeological survey of a 40-acre quarry parcel, located in eastern Deschutes County, was conducted on September 9, 2004. This is an Oregon Department of Transportation lease parcel on land administered by the Bureau of Land Management. Three artifact isolates were found, all in the western quarter of the lease property.

Project Setting

The 40-acre lease parcel is the N¼ of the SE¼ of section □, T□S R□E, Willamette Meridian (Figure 1). The project area is within the High Lava Plains physiographic province, an area characterized by a multitude of volcanic cones, buttes, and lava flows of relatively recent geologic age. Volcanic vents in this region are aligned on a zone of weakness in the earth's crust known as the Brothers fault zone, and which trends in a northwest-to-southeast course from Bend to Steens Mountain (Orr et al. 1992). The corridor of Highway 20 approximates this fault zone southeasterly from Bend to Glass Buttes. Grassy Butte is within this segment, and is one of many volcanic vents of the area that have formed by lavas exploiting this zone's fractures and fissures to reach the surface.

Grassy Butte is about 4960 feet (ca. 1512 m) in elevation, standing about 200-300 feet above the surrounding lava plateau. The lower elevations feature shallow basalt bedrock mantled by unconsolidated pumice sand and ash. Elevations on the plateau from which Grassy Butte rises range from ca. 4750 feet (1448 m) at the base of the butte to ca. 4600 feet (ca. 1402 m) on a playa basin about a mile to the west.

The topography of the surrounding plateau is generally level, but the dry topography exhibits relict channels and basins that reveal a history formed by water. Immediately north of Grassy Butte is the channel of Dry River, a Pleistocene-age overflow outlet from the Millican-Imperial Valley. The presence of salmon bones and shells of a species of snail found only in the Columbia River system have been reported from the Fort Rock Basin to the south, suggesting that the basin once overflowed to the Columbia before the outlet was blocked by younger lava flows. Dry River may have carved its canyon, draining a lake in the Millican-Imperial Valley Basin into the Columbia system (via the Crooked and Deschutes Rivers), during the period when Pleistocene Fort Rock Lake, to the south, overflowed (Brogan 1964; Baldwin 1981).

In the Fort Rock Basin to the south, human history is closely linked to hydrologic history. Between the extremes of the high Pleistocene lakes and the modern desert that now dominates the local landscape, Fort Rock Basin topography exhibits a complex of now-dry channels and lake beds that intermittently held water throughout the span of human presence in the region (at least the last ca. 15,000 years). When these features held water, relatively dense and sedentary human populations were also present (most notably in the Early and Middle Holocene); during periods of negative water budgets, human presence was more ephemeral, and populations were highly mobile (Aikens and Jenkins 1994). Although almost no systematic archaeological research has been done in the Millican-Imperial Valley, it is likely that here the broad patterns of hydrologic and cultural history documented in the Fort Rock Basin are matched.

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Figure 1. Location of the Grassy Butte Quarry, Deschutes County, from USGS □ and □ quads, 7.5' series.

Eruptions of the Mt. Mazama and Newberry volcanos, accompanied by a long period of relatively low precipitation, dramatically altered the central Oregon landscape. Ashy and pumiceous soils, probably derived largely from the ca. 7500 year old Mt. Mazama eruption, are found in the basins surrounding the Grassy Butte (Dester soil; Myhrum and Ferry 1999), and may be present along with residual lithisols on the butte itself.

The project area is within the shrub steppe vegetation zone that includes low sagebrush, rabbitbrush, and bitterbrush, along with some grasses. Ground surface visibility throughout the parcel was excellent.

Cultural Setting

At the time of Euroamerican contact, the project vicinity was used by several Northern Paiute bands, but may not have been central to any particular group's home territory. Fowler and Liljeblad (1986:437) identify documented population centers in the region, including the *Hunipuitōka* (or *Walpapi*) band in the upper Deschutes/lower Crooked River region to the west, and the *Wadatōka* in the Harney Basin to the east. Blyth (1938) maps the project area as "Unoccupied." Regardless of the cultural landscape during the contact period of the mid-nineteenth century, significant changes in climate and the hydrologic history of the area would have made the project area more or less attractive to resident groups at different times over the past 15,000 years.

Northern Paiute families maintained a seminomadic lifeway, but usually reunited into larger community clusters within a home district on a semiannual basis (Fowler and Liljeblad 1986). Because home districts often overlapped, and group composition could be fluid, Northern Paiute bands were typically identified for a predominant food in a particular home district (e.g., *Wadatōka*, or wada [seepweed] eaters). Because of this organization, identification of the project area with a specific band is probably of less value than in recognizing that, at least after Euroamerican contact, it was probably used by groups from multiple home territories.

Archaeological work in the Fort Rock Basin and on Newberry volcano (which forms the divide between the Fort Rock and Millican valleys) document occupations spanning the last 11,000+ years, including some of Oregon's most well known and significant cultural resources (Bedwell 1973; Cressman 1942; Connolly 1999; Aikens and Jenkins 1994). At times when central Oregon's internally-draining basins held water, the complex of lakes and marshes provided a rich source of food for significant numbers of people. Human occupation of the central Oregon region during the pre-Mazama (older than ca. 7500 years) era is especially well documented. Occupations of this age are also evident along the Highway 20 corridor, as artifacts diagnostic of Early Holocene tool kits (Western Stemmed and Cascade-style projectile points and crescents) have been reported from sites within the highway corridor (Fulton and Fulton 1999). Glass Buttes, a large rhyolitic dome that provided an important source of obsidian, is located ca. 30 miles (ca. 50 km) southeast of Grassy Butte.

Survey Procedures and Results

I conducted the archaeological survey of the Grassy Butte Quarry on September 9, 2004. The boundary of the 40-acre quarry lease parcel (the north quarter of the southeast quarter of section □, T□S R□E) was staked with lathe at the time of the survey, and the corners marked with a post. The northeast corner of the parcel is the east quarter corner of the section, and is marked by a datum pin set by the Deschutes County Surveyor's Office. All boundary markers were located during the survey. The survey was conducted using east-west parallel transects spaced at 20 meter intervals, with position and orientation maintained using a hand-held GPS unit. Transects followed UTM grid north lines, which are skewed slightly from the section boundaries (see Figure 2), and progressed from south to north west of the quarry, and from north to south east of the quarry. Ground surface visibility throughout the parcel was excellent, approaching 100%. All UTM coordinates reported here reference the NAD83 datum.

Three artifact isolates were located during the survey. All are located in the western quarter of the lease parcel, ca. 200 m west of the present quarry disturbances, and should be easily avoidable with continued operation of the quarry.



Figure 3. View north toward Grassy Butte Quarry from access road.



Figure 4. View to southwest across the quarry pit.



Figure 5. View east-northeast from near SE lease corner, across Isolate 1 area to Grassy Butte.



Figure 6. View west across the Isolate 2 area (at notebook), down the west slope of Grassy Butte.



Figure 7. Isolate 3, conjoinable fragments of a projectile point.

Isolate 1 is a single obsidian interior flake, measuring about one cm in maximum diameter. It is located on the pumiceous flats southwest of Grassy Butte, near the southwest corner of the lease parcel, at UTM coordinates □E, □N.

Isolate 2 includes seven obsidian flakes within a ca. 5 m diameter area, on the gentle west-facing slope of Grassy Butte at UTM coordinates □E, □N. This locality provides a panoramic view of the valley and playa to the west. All flakes were small biface-thinning flakes (the largest ca. 2 cm in maximum diameter). Although fewer than ten flakes were observed (the threshold to identify a “site”), this locality has a mantle of sandy pumiceous sediment that could contain a buried site.

Isolate 3 is two conjoinable fragments of an obsidian projectile point, found on the western slope of Grassy Butte at □E, □N. This is a foliate point is about 6.7 cm long, and has been formed with oblique pressure flaking. The base is nearly rectangular, and exhibits no evidence of grinding on the margins of the base. This point is stylistically consistent with types dating between ca. 9000 and 6000 years old.

Summary and Recommendations

Archaeological survey of the Grassy Butte Quarry, conducted on September 9, 2004, resulted in the recording of three cultural isolates. All three isolates are located in the western quarter of the quarry lease property, currently about 200 meters west of the current western edge of the quarry. Continued use of the quarry should have no direct impact on these localities.

Isolates 1 and 3 appear to be true isolates, as no associated evidence of cultural activity was noted. No further management of these finds is necessary.

Isolate 2 is a cluster of seven obsidian flakes in an area covered with pumiceous sandy soil; recorded here as an isolate, the evidence is sufficient to suggest the possible presence of a buried site at this locality. If it is anticipated that quarry-related activities could impact this area, testing of this locality should be considered to evaluate the subsurface potential for a cultural resource.

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- 1 – Ron Gregory, Deschutes Resource Area, Prineville District Bureau of Land Management
- 1 – Gerald Skelton, The Klamath Tribes
- 1 – Sally Bird, The Confederated Tribes of Warm Springs
- 1 – Charisse Snapp, The Burns Paiute Tribe

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