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2000: The Archaeological Site Inventory of Lower Gneiss and Campanula Creeks, Yellowstone National Park: 1999 Field Season Final Report. Museum of the Rockies (MOR), Montana State University, Bozeman, Montana 59717-2730

Introduction

The 1999 Archaeological Site Inventory of Lower Gneiss and Campanula Creeks was funded by the Branch of Cultural Resources in Yellowstone National Park as part of a research project aimed at identifying and assessing all Native American archaeological sites along the purported route of the Bannock Trail. The 1999 inventory focused on those portions of the landforms adjacent to Gneiss and Campanula Creeks thought to possibly exhibit evidence (e.g., trail scars) of the Bannock Trail. Unfortunately, no evidence of the trail per se was found. Several Native American archaeological sites consisting of lithic tools and debris were, however, recorded. Field activities also included the evaluation of each site's eligibility for the National Register of Historic Places and the assessment of the research and interpretive potential of those sites recorded.

Specific research questions identified in the "Archeological Treatment Plan for Yellowstone Grand Loop Road Federal Highway Projects; Prehistoric Sites" (National Park Service 1993:52-60) were used as general guidelines for determining site significance and research potential. Issues related to Yellowstone National Park's poorly understood culture history, human settlement and subsistence patterns, season(s) of occupation, the procurement of faunal, floral, and lithic resources, and paleoenvironmental reconstruction can be addressed through archaeological research such as initiated by the current project. This study is thus a significant aspect in the development of future archaeological data recovery plans.

1999 Field Program

The 1999 archaeological site inventory of lower Gneiss and Campanula Creeks was carried out over a 4-day period (August 30 to September 2, 1999) under the direction of Mack W. Shortt (Project Archaeologist). Assisting full-time crew members were Tom Besom, Doug Mitchell, and Kevin Thorson. John Reynolds volunteered for the duration of the project. Dr. Ann Johnson and Elaine Hale, Branch of Cultural Resources, accompanied the field crew for, respectively, one and three days. The MOR crew was also joined by a group of students from the Oregon Museum of Science and Industry. Their cooperative involvement in the field program was designed to introduce high-school age students to the science of archaeology, particularly field methodologies. John Cronise, Devon Wade, Kelli Neumann, Greta Mills, Aria Rady, Anna Kavan, Laura Fuchs, Willi Hyde, and Elizabeth Dooley formed the student group under the supervision of Joseph Jones.

The current study area is located on the western edge of Yellowstone National Park, north of the Madison River. It is situated on the north rim of the Madison Valley, a large generally flat, treed landscape drained by Cougar, Richards, Gneiss, and Campanula Creeks. In the southern and western portions of the Madison Valley, the river of the same name drains northwesterly into Hebgen Lake west of Yellowstone National Park.

Field methods included the close inspection of all landforms potentially containing archaeological resources. Crew members formed a "skirmish line" and, depending on the amount of dead-fall/burned trees, either proceeded in a sinuous pattern, avoiding obstacles, or in straight, parallel transects averaging 15 m apart. All ground surfaces and natural exposures such as eroded river or creek terraces, tree-throws, rodent backdirt piles, game trails, visitor areas, and other areas devoid of vegetation or ground cover were inspected for cultural materials. In total, 65 acres were surveyed by the 1999 MOR crew and accompanying crew members.

All archaeological sites in this report are referred to by the prefix "24YE" or "48YE" (e.g., 24YE108 or 48YE964). Site 24YE115/48YE963 is referenced by both prefixes because of its location on the Montana-Wyoming border. The isolated find in this report is also referenced by the prefix "24YE" (e.g., 24YE109).

Results- Precontact Native American Sites and Isolated Finds

A total of nine Precontact Native American archaeological occurrences were recorded during field studies. Of this total, one is an isolated find (24YE109).

Native American Culture History

One projectile point assignable to a particular archaeological phase or complex was recovered during the 1999 field season. Although other artifacts such as bifaces or endscraper types are recognized as temporally diagnostic, only established projectile point types are referred to in this discussion.

Lamar Valley Subphase (Pelican Lake Phase) (ca. 3,000 to 1,600 years B.P.) One Lamar Valley Subphase projectile point was collected by the 1999 MOR crew from site 24YE108, located northeast of the confluence of Gneiss and Campanula Creeks. In overall form, this specimen is morphologically similar to projectile points recovered during archaeological inventory studies farther to the south along the Madison River.

Site Density and Settlement Patterns

The 1999 archaeological inventory of the north bank of lower Gneiss Creek and portions of Campanula Creek demonstrated that the area had been utilized by Precontact Native Americans since at least 3,000 years B.P. The survey also established that the project area contains a high density of Precontact archaeological sites, including extremely large, spatially complex lithic scatters/campsites, relatively small lithic scatters, and a single isolated find.

That these sites are related to those Native groups who used the Bannock Trail in the 19th century is speculative and certainly open to debate. Suffice it to say, however, that the 1999 inventory did not recover any artifacts suggestive of a mid- to late 19th century use of the valley. Artifacts such as, for example, metal projectile points, gunflints, or items of Euroamerican origin are thus far absent from the archaeological record in the project area. This is not to deny that 19th century Native groups used lithic materials for tools; there is simply nothing to indicate that

the sites recorded by the 1999 MOR crew date to the last century. As previously mentioned, the only temporally diagnostic artifact collected during the survey was a Lamar Valley Subphase projectile point dated elsewhere to 3,000 to 1,600 years B.P. No trail scars were observed during field studies.

In terms of the Precontact Period, it is likely that the sites recorded on the north side of Gneiss Creek represent campsites occupied by people moving through the area, likely on the route utilized at a later time by the Bannocks and other Native peoples. Although the Madison River valley has been discussed as a travel route into the heart of Yellowstone National Park (Shortt 2000; Shortt and Johnson 1999), it would have been as easy or easier for Precontact peoples traveling the Obsidian Creek valley to move up to the headwaters of Gneiss or Maple Creeks, then cross the southern end of the Gallatin Range around Mount Holmes. This route would have precluded a journey through or around the Gibbon Canyon. It should be noted that Precontact travel to the Hayden Valley and Yellowstone Lake from the west would have been easier via the Madison River valley, Firehole River, and Nez Perce Creek.

Lithic Resource Procurement and Utilization Patterns

The sites identified in the project area are largely comprised of obsidian debitage with low frequencies of obsidian tools. Non-obsidian debitage and tools, while present, generally constitute a low proportion of any lithic assemblage. This lithic material utilization pattern is similar to that for other sites along the Madison River, south of the current study area. Sites along Gneiss and Campanula Creeks that yielded relatively higher, slightly anomalous frequencies of non-obsidian debitage include 24YE111 (N=5), 24YE113 (N=12), and 24YE115/48YE963 (N=10). Various grades and colors of cherts, quartzite, and basalt are represented. These increased frequencies/proportions may be indicative of different Precontact utilization patterns in the Madison River and Gneiss Creek valleys. Specifically, slightly increased frequencies of cherts derived from sources in Montana and Wyoming may reflect Precontact travel or migration to and from these sources via the Gneiss Creek valley. That the reliance on non-obsidian materials typifies sites along the Yellowstone River may suggest that the sites identified in the 1999 inventory are related in part to a larger northern Yellowstone National Park land-use pattern. Conversely, lower relative proportions of non-obsidian debitage in the Madison River valley could reflect travel through that corridor to and from areas that do not include the Yellowstone River corridor. Additional archaeological research in both areas would enable testing of this hypothesis.

The preponderance of Precontact obsidian artifacts in the sites on Lower Gneiss and Campanula Creeks allowed the 1999 MOR crew to collect tools and a sample of debitage for sourcing analyses. While it is recognized that collecting artifacts is destructive, the information that can be gleaned from sourcing studies far offsets the adverse effects of surface artifact removal.

The use of obsidian in the Precontact Period is a significant avenue of study in light of the fact that there is at least one locally available obsidian source, the Cougar Creek flow, located approximately 3 km north of the big bend in the Madison River (13.5 km southeast of the project

area). Questions related to the use of Cougar Creek obsidian versus the Obsidian Cliff Plateau, Bear Gulch, and other sources can be addressed. These questions are of considerable importance given the pattern of near total domination of Obsidian Cliff Plateau materials at sites farther to the east in the Northern Range of Yellowstone National Park.

A total of 23 obsidian artifacts were submitted from sites recorded during the archaeological inventory of lower Gneiss and Campanula Creeks. This sample included all observed lithic tools and a random grab-sample of debitage. Artifact types include one projectile point, four bifaces, three retouched flakes, one secondary decortication flake, 12 tertiary flakes, and two pieces of tertiary shatter (Table 3). Sites from which the obsidian samples were drawn included 24YE108, 24YE111, 24YE112, 24YE113, and 24YE115/48YE963. Specimens from the Obsidian Cliff Plateau constitute eight of 23 or 34.7 percent of the entire assemblage submitted for analysis. Specimens identified as Bear Gulch and Cougar Creek obsidian are, however, nearly as abundant with, respectively, seven artifacts or 30.4 percent and six or 26.1 percent of the assemblage. The remaining obsidian specimens collected in the project area (N=2) derive from the Packsaddle Creek source located in eastern Idaho.

These data suggest that, while the Obsidian Cliff Plateau was exploited in the study area, Bear Gulch and Cougar Creek obsidians were also used as primary lithic sources. Cougar Creek obsidian is often characterized by the presence of large phenocrysts, a trait that renders it of lesser flaking quality than other obsidian types. As such, the presence of obsidian sourced to the Cougar Creek flow is likely a reflection of the proximity of Gneiss Creek to the flow itself. This has also been noted at sites along the Madison River to the south. Similarly, the relative abundance of materials from the Obsidian Cliff Plateau and Bear Gulch sources, despite being farther removed from the project area, indicate that use of these sources were not totally replaced by Cougar Creek obsidian.

When the obsidian sourcing data from the archaeological inventory of Gneiss and Campanula Creeks are added to the data derived from two previous surveys along the Madison River, an overall picture of Precontact Period obsidian utilization emerges. Of a total of 86 archaeological specimens submitted for x-ray fluorescence analysis, 32 or 37.2 percent provided trace element compositional data consistent with the Obsidian Cliff Plateau. Cougar Creek obsidian, represented by 26 or 30.2 percent of the specimens, is also well-represented. Bear Gulch obsidian constitutes a significant, albeit lesser, percentage of the sample (19 specimens or 22%). The relative abundances of these obsidian types are attributable to the proximity of the Cougar Creek flow to the Madison Valley and to the aforementioned differences in quality. In other words, despite the presence of the Cougar Creek flow in the Madison Valley, the material did not fully replace better quality obsidian from the Bear Gulch source or the Obsidian Cliff Plateau. This pattern is in direct contrast to the frequencies of obsidian types farther to the east in Yellowstone National Park where Obsidian Cliff Plateau volcanic glass dominates archaeological obsidian assemblages. It should be noted that the obsidian sourcing data in this report, and subsequent interpretations based upon them, cannot account for temporal changes in obsidian utilization patterns in the Precontact Period.

Conclusions

The 1999 Archaeological Site Inventory of Lower Gneiss and Campanula Creeks was funded by the Branch of Cultural Resources in Yellowstone National Park as part of a research project aimed at identifying and assessing all Native American archaeological sites along the purported route of the Bannock Trail. All of the field research was conducted under the auspices of Dr. Ann Johnson, Archeologist in the Branch of Cultural Resources. In total, eight Precontact Native American archaeological sites and one isolated find were recorded by the 1999 MOR crew. Sections 2.1 through 2.9 of this report provide summaries of all archaeological sites recorded. Discussions of location, site content, and recommendations concerning the management and conservation of each site are provided.

The method by which the archaeological sites were discovered during the 1999 field program did not include subsurface-testing (e.g., shovel-prospecting or controlled trowel-excavation). Ground surface inspection was the sole method of site discovery. Thus, inventory studies relied upon the intense examination of natural features such as river/creek banks, rodent burrows, tree throws, blowouts, and game trails, as well as National Park Service trail surfaces and eroded backcountry campsites. Fortunately, ground surface exposure in all project areas was good to excellent. Limited vegetation related to ungulate grazing or forest fires, eroded river and creek terraces, and trail and campsite surfaces all provided excellent opportunities for observing cultural materials. As such, we feel that the MOR crew met the objectives of the 1999 inventory by successfully recording those Precontact Native American archaeological sites that occur within the project area.

Finally, the outcomes of the1999 archaeological inventory of Lower Gneiss and Campanula Creeks are useful. Not only do the results contribute significantly to

understanding the Precontact Period in Yellowstone National Park, but they also facilitate site management and conservation. Indeed, continued archaeological research conducted by the Branch of Cultural Resources will not only prevent the destruction of non-renewable archaeological sites, but will also enrich the understanding of Native American history and enlighten Yellowstone's staff and visiting public.