VARIABLES OF ARCHAEOLOGICAL VOLCANIC GLASS DISTRIBUTION IN THE CENTRAL ABSAROKA RANGE, WYOMING

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Abstract
Three years of research, 2002-2004, have been conducted by students and faculty from Colorado State University on a variety of human impacts on the Greybull River drainage system in the Absaroka Range of Northern Wyoming. As part of the GRSLE Project (Greybull River Sustainable Landscape Ecology), archaeological surveys have been primarily concentrated in the Washakie Wilderness area of the Shoshone National Forest. Pleistocene glacial erosion and subsequent erosion has exposed an underlying volcanic substrate throughout the study area. However, the current use of archaeological volcanic glass is unknown within the study area. Research focused on the distribution of obsidian within and between over 150 sites has revealed a variety of patterns. The in-field, non-collection documentation techniques of this site survey consist of several archeological attributes including raw material type, colors, and length. Obsidian comprises approximately 10% of the raw material in the "average" flaked stone assemblages. Diversities from this norm and the flaked stone assemblages are multi-scale, exhibiting variability both spatially, between watersheds, and temporally, based on chronologically dated sites. The maximum use of obsidian artifacts is, on average, smaller than others of locally derived cherts suggesting pedagogical caution prior to discard. Source characteristics of the obsidian are necessary to further examine the significance of pedagogical land-use and stability patterns in a region context.

The GRSLE (Greybull River Sustainable Landscape Ecology) project study area falls largely within the Greater Yellowstone Ecosystem and thus many similar management challenges (Figure 1). The project is working within the Shoshone National Forest and Washakie Wilderness Area to identify the extent of archaeological resources. Archaeological surveys were conducted through the Greybull River watershed during the past three summers. We emphasize the importance of adaptive responses for preservation and assessment of all cultural resources, of which archeology is only one component. The survey teams, primarily field school students and researchers from Colorado State University, document the surface record using non-destructive and non-invasive techniques.

Previous analysis of the data have revealed a substantial reduction of archaeological volcanics throughout the study area. Earlier reports in the south portion of the study area, along the Wind River, suggested that some of the obsidian in the study area may have been derived from the Absaroka volcanics (Becklenberger 1974). To date, no widely known volcanics have been recorded in the immediate vicinity. Thus, the obsidian archaeology is considered distinct to the study area. The research team can at least attempt to characterize the obsidian in the Upper Greybull sub-watersheds. Nearly 22,000 flaked stone artifacts have been excavated and documented in the GRSLE project. Many of the sites were concentrated during non-systematic surveys of the landscape. These artifacts are often immolated by trampling or other impacts. The concentrated surveys and subsequent documentation record the archaeological landscape. Local river valley materials include basalt, chalcedony, Ireland Rock chert, Dolore Mountain depletions, and quartzitic silicified wood. For this study, these materials are qualified as Local Material. Silicified winter perennial travois may be available in which products locally or may have been utilized over longer distances.

The six material types of the Obsidian form a common group in the study area. The highest Beak is the likely source for these quartzites. The diverse known sources of the Obsidian form a common group in the Highman Mountain range.

The finds for cherts and quartzites in the Dolore Mountain depletions are not known. Some have been chalcedony in the distal Madison formation cherts, but the source with modest data for the purpose of this study. The obsidian in the sample is considered to have been derived in the past. The diversity of the assemblage is considered to have been derived in the past.

47.6% of the 147 prehistoric sites feature obsidian artifacts (Figure 2). The average unit is comprised of 10.0% flaked obsidian. Eleboration does not appear to be a factor in the archaeological variability of the obsidian assemblage.

21% of the non-debitage obsidian assemblage has been identified as gravel pebble types. Only one amorphous Obsidian core was recorded in the study area. The complete obsidian project has a fairly high degree of completeness.

-As with cortex value, differences can be expected between and exotic materials in the amount ofdebitage per modified stone assemblage.

-Over 50% of the obsidian documented within the GRSLE artifact set is flaked stone debris.

The obsidian project is an important component of the lithic landscape; Obsidian artifacts were being used differently than local, and often less expensive non-local, raw materials.

-Other non-local materials exhibit a different pattern of greater than 85% of the dataset are formed by flaked stone debitage.

-Debitage pressure is lowest in the largest material assemblage, compared with other raw materials.

Future Direction
Defining the baseline patterns of the obsidian assemblage from the GRSLE study area is only the first step. It is important to understand the larger basalt volcanic glass to the record as well as past lifeways. Important considerations for future studies include:

-Exotic materials are an important component of the lithic landscape;

-Obsidian artifacts were being used differently than local, and often less expensive non-local, raw materials.

-Understanding the distribution and variability of the obsidian assemblage within this region as well as past lifeways. Important considerations for future studies include:

-Exotic materials are an important component of the lithic landscape;

-Obsidian artifacts were being used differently than local, and often less expensive non-local, raw materials.

Sites associated with the Late Prehistoric time period (Burnett 2004) in this area have higher rates of obsidian per assemblage since sites of other periods and.

-To understand regional significance of the distribution, surveys must be treated for geochemical source attribution.

References Cited
Burnett, P. C. 2004

Becklenberger, K. 1974

Cannon, K. 1993