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The *Idaho Archaeologist* publishes peer reviewed articles, reports, and book reviews. Though the journal's primary focus is the archeology of Idaho, technical and more theoretical papers having relevance to issues in Idaho and surrounding areas will be considered. The *Idaho Archaeologist* is published semi-annually in cooperation with the College of Arts and Sciences, Boise State University as the journal of the Idaho Archaeological Society.

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Weston Wardle

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ARTICLE

Assessment and Recordation of the Rock Art at Map Rock and Map Rock Access, Southwestern Idaho

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Abstract

This paper reports on assessment of rock art at the Map Rock and Map Rock Access locations in southwest Idaho. Frequency distribution of elements are presented as is a comparison of the rock art of Map Rock with rock locations in southwest Idaho.

KEYWORDS: Rock Art, Map Rock, Great Basin

Introduction

Map Rock is located 9 miles south of Melba, Idaho on Map Rock Road along the western portion of the Snake River Canyon, just across the geothermal hot springs known as Given's Hot Spring (Figure 1). Located approximately $\frac{3}{4}$ of a mile east of Map Rock is Map Rock Access (MRA), a property managed by the Idaho Fish and Game Department. The petroglyphs of MRA are positioned 29 meters from Map Rock Road as compared to Map Rock, which is four meters from the road.

Canyon County Parks, Recreation, and Waterways purchased Map Rock in 2014. Faculty and students of the College of Western Idaho assessed and documented the rock art boulders during March 2015, and October 2015. A total of 27 panels were documented and mapped.

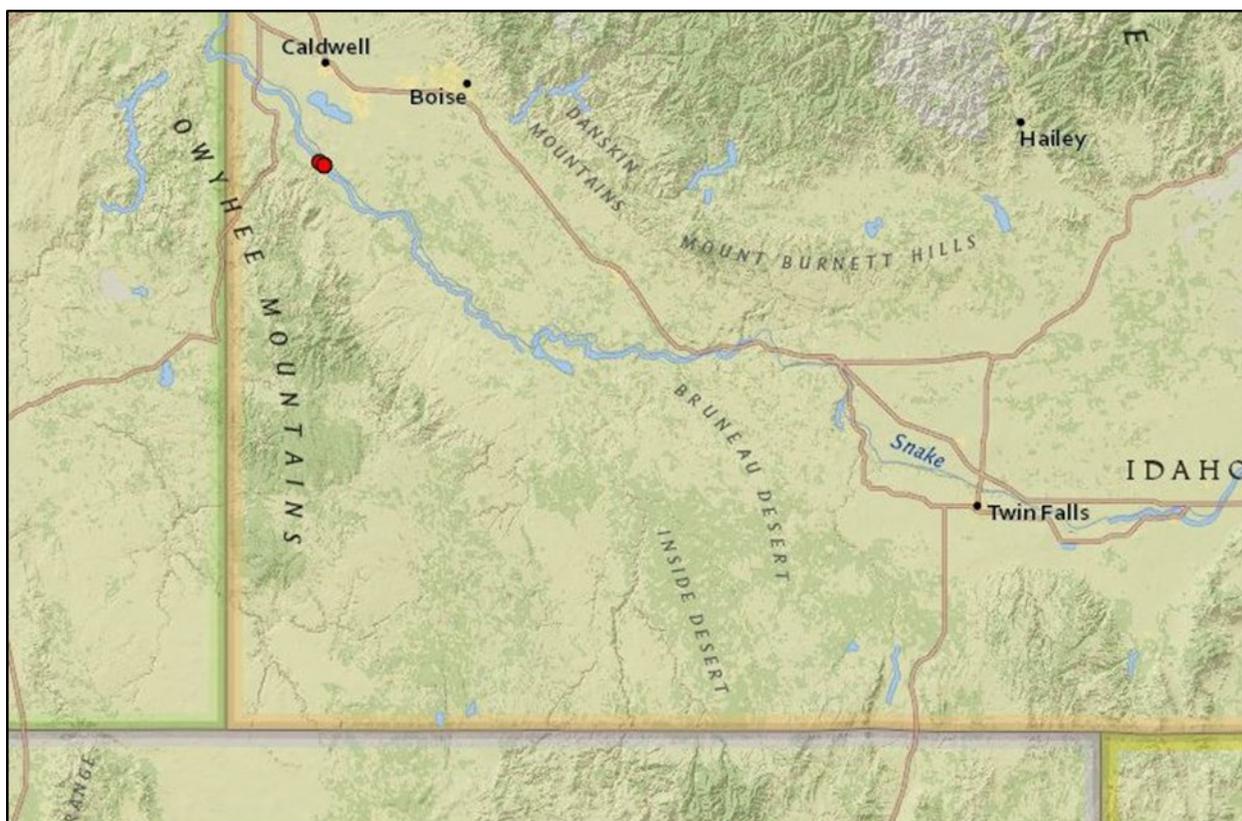


Figure 1. Map Rock and Map Rock Access in Southwestern Idaho.

Geology of the Snake River Canyon

The Snake River Canyon and adjacent areas were shaped by shield volcanoes and field basalts (Greeley 1982). Exposed columnar basalts reveal a multitude of volcanic flows that occurred over an extended period of time. Intermixed in some instances are lacustrine sediments from Tertiary and Quaternary time periods (Maley 1987). More recently, melon gravels or rounded boulders and cobbles of local basalts were deposited by the outflow of Pleistocene Lake Bonneville approximately 14,500 years ago (Malde 1965). Sediments suggest a succession of fluvial and aeolian events characterized by silts and sands intermixed with small gravels that are underlain by larger and more extensive gravel deposits. The geology of the project area is associated with these events and includes such landforms as low stream terraces, floodplains, sand dunes, alluvial fans, and islands. Shallow aeolian deposits cover much of the area including those areas above the canyon rimrocks. Colluvial deposits are found along talus slopes while alluvial fans have formed at the mouths of side canyons (Malde 1968). The Snake River flows through a deep canyon that was shaped by the Bonneville Flood (Curry and Oviatt 1985). The estimated 1,140 cubic miles of water discharged during this geologically brief event abraded large chunks of the basalt walls and deposited the rounded boulders on flood terraces (Jarret and Malde 1987).

Map Rock Access is located on a flood terrace and covered with boulders ranging in size from two to three meters in diameter. Exposed basalt columns frame the park's northern border while the Snake River forms its southern border.



Figure 2. Rock art-bearing boulder with gridding. Behind is the boulder field and columnar basalts. Camera direction is northwest.

Ethnography of Southwestern Idaho

The historic inhabitants of southern Idaho included the Northern Shoshone and Northern Paiute, which are distinguished primarily on the basis of language (Murphy and Murphy 1986:284). Economic lifeways and socio-political organization were similar for the Shoshone and the Northern Paiute, who both occupied southwestern Idaho at the time of historic contact (Murphy and Murphy 1960, 1986; Steward 1938). Generally, the socio-cultural pattern was a rather loose organization in which individuals occasionally were chosen to coordinate specific tasks, such as being “fishing directors” (Steward 1938:168-169). The dominant settlement pattern of the Middle Snake River was highly dispersed with small winter residences (Murphy and Murphy 1960:322). The area was occupied during the winter because of a perceived good supply of both wood and shelter. The major subsistence pursuits of Middle Snake River groups were fishing and camas collecting. Three major anadromous fish runs during the spring, summer, and fall provided an important food source; two of these were Chinook salmon (*Oncorhynchus tshawytscha*) runs, while one was comprised of steelhead trout (*Salmo gairdnerii*).

Camas was of economic importance, and each summer groups from the Snake River traveled north of the river to Camas Prairie so they could harvest the economically important root (Murphy and Murphy 1960:322; Steward 1938:166-167). At this time camas was prepared for storage, and social interactions occurred among many different groups. In addition, deer were taken throughout the year. Deer, elk, and mountain sheep were taken in the fall in the mountains north of Hailey. Steward (1938:167) also reports that deer were taken south of the river. Other

plants and berries were incorporated in the diet (Steward 1938:167-168). This traditional anthropological view of Middle Snake River ethnographic groups presents a picture of a mixed-mode foraging strategy marked by a subsistence emphasis on anadromous fish and camas with groups establishing residential bases along the river (Gould and Plew 2001, Plew and Guinn 2016).

Historic Context

Map Rock's discovery is attributed to an unnamed newspaper solicitor searching for diamonds in 1877 (Free Press, 27 August 1957). Perhaps the most iconic documenter of the boulder is Robert Limbert. Born in 1885 in Omaha, Nebraska, Limbert worked as a field naturalist for the Smithsonian. Limbert moved to Boise in 1911 to work as a taxidermist, and by 1923, left his successful business to answer the "call of the wild" (Casner 1988). Circa the early 1920's, Limbert explored the Bruneau Canyon and the Snake River. In a pamphlet created to promote tourism by railroad, Limbert extolls the "Indian hieroglyphics", the most significant boulder bearing extensive pecked images he coined Map Rock (Limbert 1927). He interprets the carvings as a detailed depiction of the land across which the Snake River flows, with "every geographical feature of any consequence, such as rivers, lakes and mountain ranges have been carved into the smooth surface of the boulder with surprising accuracy." (Limbert 1927:41). Limbert mentions the local native Indians had no knowledge of the meaning of the petroglyphs.

Rock Art of Southwest Idaho

The Snake River Cupule Stone was recently curated and moved from its location near Hwy 45 on Map Rock Road, 4 ½ miles from MRA, to its current location in Celebration Park, Melba, Idaho. The Stone contains 358 cupules of various depths, width, and height (Plew 2016:29). Also present are petroglyphs of "Pit and Groove" style (Plew 2016:2). Celebration Park is located twelve miles east of MRA. In 2014 and 2015, survey and documentation of the petroglyphs in the park was conducted by faculty and students from the College of Western Idaho. The description of the rock art from that survey are reflective of the Great Basin Pecked Style described by Heizer and Baumhoff (Wilber 2016). Upstream from Celebration Park are the Wees Bar petroglyphs, noted by Erwin (1930) and described in detail by Nelle Tobias (1981). Tobias illustrated much of the unique rock art found along that portion of the Snake River and provided a detailed description on the frequency of elements. (Tobias 1981:6).

In the Bruneau-Jarbridge area of Southwestern Idaho, Kelley Murphey (1994) reports on 25 different rock art sites. Elements are estimated to span the Middle Archaic into Historic times (Murphey 1994:20) and include dots, circles, undulating lines, Katchina figures, shield warriors, and anthropomorphs, and are found on boulders, caves, and canyon walls. Also documented are the presence of "pits" on boulders at the Upper Salmon Falls site (Murphey 1997:29). The pits are shallow and exhibit a light re-patination by which Murphey (1997:29) indicates their manufacture during a time frame approaching the Historic Period, but not after. In the South Central Owyhee Uplands, Plew (1996) describes rock art from Pole Creek, Camas Creek, and Big Spring Creek, three tributaries to the Owyhee River northeast of the Duck Valley Indian Reservation. Plew (1996:7) notes that rock art frequencies increase where associated with habitation sites. The range of elements at Camas Creek is a larger amount than appears at Pole and Big Spring Creek, and also has higher visible evidence of habitation.

The elements of the Owyhee Uplands are consistent with the Great Basin Pecked Style, with both Abstract and Representational present (Plew 1996:6). Of the Abstract, rectilinear motifs are more abundant. This is notable as the Great Basin Abstract Curvilinear elements are more common in California and Nevada (Plew 1996:6). Zoomorphic and anthropomorphic elements are present in the Owyhee Upland sites (Plew 1996:8). Plew indicates a notable difference between the Owyhee Upland elements and those Murphey surveyed in 1994 at the Bruneau-Jarbridge sites (Plew 1996:8); the Owyhee Upland rock art does not seem to have the same degree of Fremont influence. The petroglyphs are most likely Late Archaic to Historic (Plew 1996:8).

Northeast of the Snake River in the Bennett Hills, Merrell and Johnson (2011) describe a site location having extensive shield and bear claw figures (2011:8), motifs noted by Plew (1979) (1996) in Owyhee County. Merrell and Johnson (2011:11) argue that the rock art of the Bennett Hills appears to reflect the Great Plains Tradition with the Fremont element of the shield bearer. This style interprets the art as a narrative, a means to translate magico-religious ceremonies or biographical events. Similar motifs are found at the Danskin Rockshelter on the south fork of the Boise River (Erwin 1930) (Merrell 2004). The manner of pecking at the Bennett Hills is noticeably different from the Great Basin Style, as it is shallow and less accurate (Merrell 2011:9). Merrill states this technique is often times a signature for a more recent manufacture date, and using this observation, as well as the elemental motifs, estimates the petroglyphs date to the 1600-1700's.

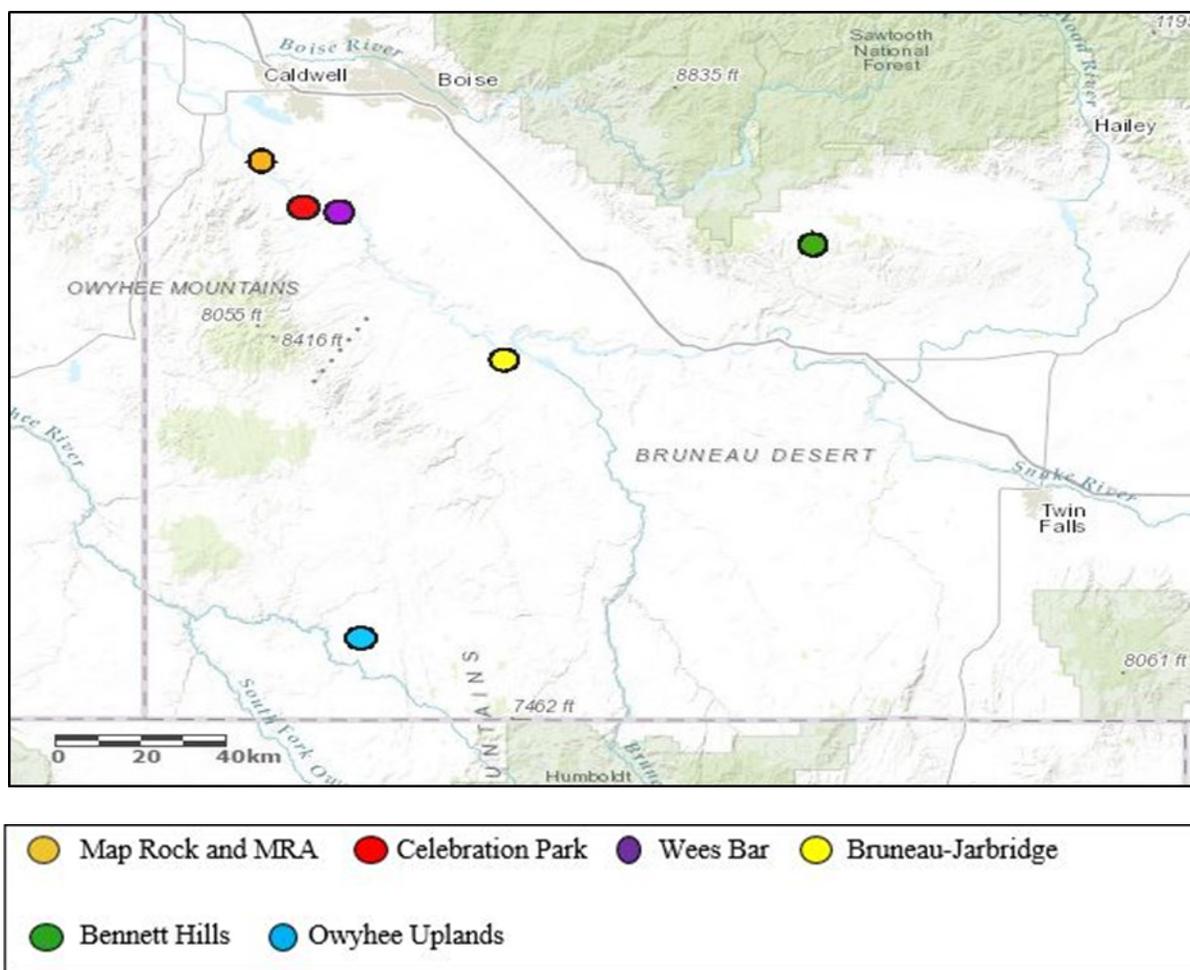


Figure 3. Location of rock art sites in southwestern Idaho.

Field Methods

During the spring and fall of 2015, the petroglyphs of MRA and Map Rock were surveyed and documented. Each rock art-bearing boulder was assigned an identification number that was consecutive. To document the extensive number of petroglyphs on Map Rock, the surface was divided into separate panels, and each panel was given a separate identification number.

Sketches/drawings were produced by superimposing a 10cm by 10cm grid over each panel. Field staff recorded the images in compliance with ARARA standards, disregarding vandalism unless it was atop the rock art, in which case it was labeled as graffiti. Photos were taken of the petroglyphs with and without the gridding. The Snake River served as the constant geographical feature, and a photo of the site's orientation to the Snake River was included.

A compass was used to measure the slope of the rock surface containing the petroglyph, and to record the direction the petroglyph faced. In addition, the girth and height of each boulder was documented, as was the height of the topmost petroglyph and bottommost petroglyph from the soil line. Heizer and Baumhoff's *The Prehistoric Rock Art of Nevada and Eastern California* (1962) was used as the basis for identifying rock art elements.



Figure 4. Boulder with Rectilinear and Curvilinear substyles.

Analysis

The rock art of Map Rock and MRA reflect Great Basin stylistic elements as described by Heizer and Baumhoff, that pertain to the Abstract and the Representational substyles (Heizer and Baumhoff 1962). Within the Representational substyle, elements include Katchina and human figures, hands, and quadrupeds (Heizer and Baumhoff 1962:199). The Abstract style is further delineated into Curvilinear and Rectilinear styles (Heizer 1962:198). The Curvilinear style is typified by circles, sun disks, stars, and snakes, whereas the Rectilinear elements include rectangular grids, intersecting lines, rakes, and dots (Heizer and Baumhoff 1962:200).

The Great Basin Abstract substyle is common at MRA, although the Rectilinear Abstract (n=70) is only slightly more common than Curvilinear (n=51). The Great Basin Representational (n=26) are not as common as the Abstract substyles.

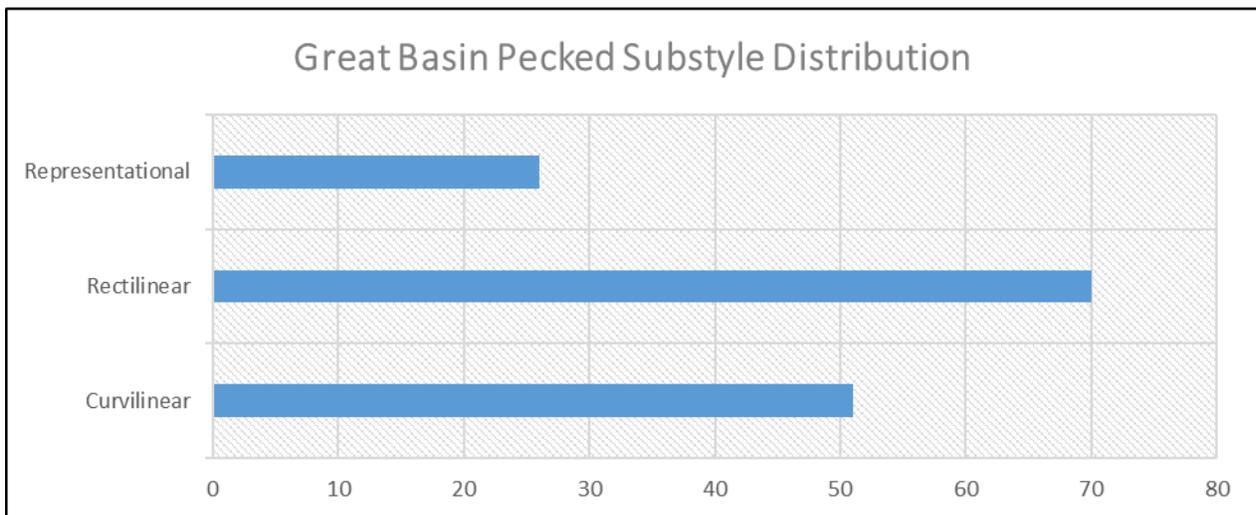


Figure 5. The Great Basin elements of Map Rock and MRA by substyle.

Interestingly, the appearance of all three substyles on a boulder is common across the length of MRA and includes Map Rock (Figure 7). There is one instance of a boulder bearing the Great Basin Representational elements only, and two boulders have exclusively the Great Basin Curvilinear substyle. A single boulder bearing only Great Basin Rectilinear Abstract is found on the Map Rock property, above and slightly to the left of Map Rock. The average distance to the Snake River within MRA is approximately 63 meters, whereas Map Rock is 21 meters to the River.



Figure 6. The location of all recorded petroglyphs of MRA and Map Rock.



Figure 7. On all three images, blue is used to signify the location of petroglyphs at MRA. Left: Red represents locations with all three substyles; Center: Yellow represents boulders bearing Curvilinear substyle only; Right: Purple represents the boulder bearing Representational substyle only.

Discussion

The rock art characteristics of Map Rock and MRA appear to show similar frequencies of Great Basin Pecked style with the locations of Celebration Park, and the Owyhee Uplands (Plew 1996). However, the MRA petroglyphs seem to differ from Celebration Park in respect to the more common appearance of the Great Basin Representational style at MRA, and the difference between the frequencies of Great Basin Rectilinear and Curvilinear Abstracts is not as great at MRA.

The Great Basin Rectilinear Abstract at Celebration Park has a common occurrence. Within Celebration Park, the Great Basin Rectilinear comprises 144 of the 223 elements, Great Basin Curvilinear and Great Basin Representational account for 64 and 15, respectively. Celebration Park's most common Great Basin Rectilinear is the dot or dot design (n=39), followed by straight lines (n=25), parallel straight lines (n=13) and rectilinear designs (n=13). At MRA, the common Great Basin Rectilinear is the rake (n=10), wavy lines (n=10), followed by dots or dot design (n=7). The Celebration Park Great Basin Curvilinear elements of common count are semi-circle (n=17), circle (n=12), tailed circle (n=10), and chain of circles (n=10). Similar to Celebration Park, the circle (n=7), tailed circle (n=7), and curvilinear meander (n=7) are the most common within MRA. In comparison to Celebration Park, the MRA Great Basin Representational contain more anthropomorphs (n=8) (CP n=1), generally shown with an atlatl (n=5) which do not appear at Celebration Park. Celebration Park has a higher occurrence of plant forms (n=4) sheep horns (n=3), and foot or paw (n=3) elements.

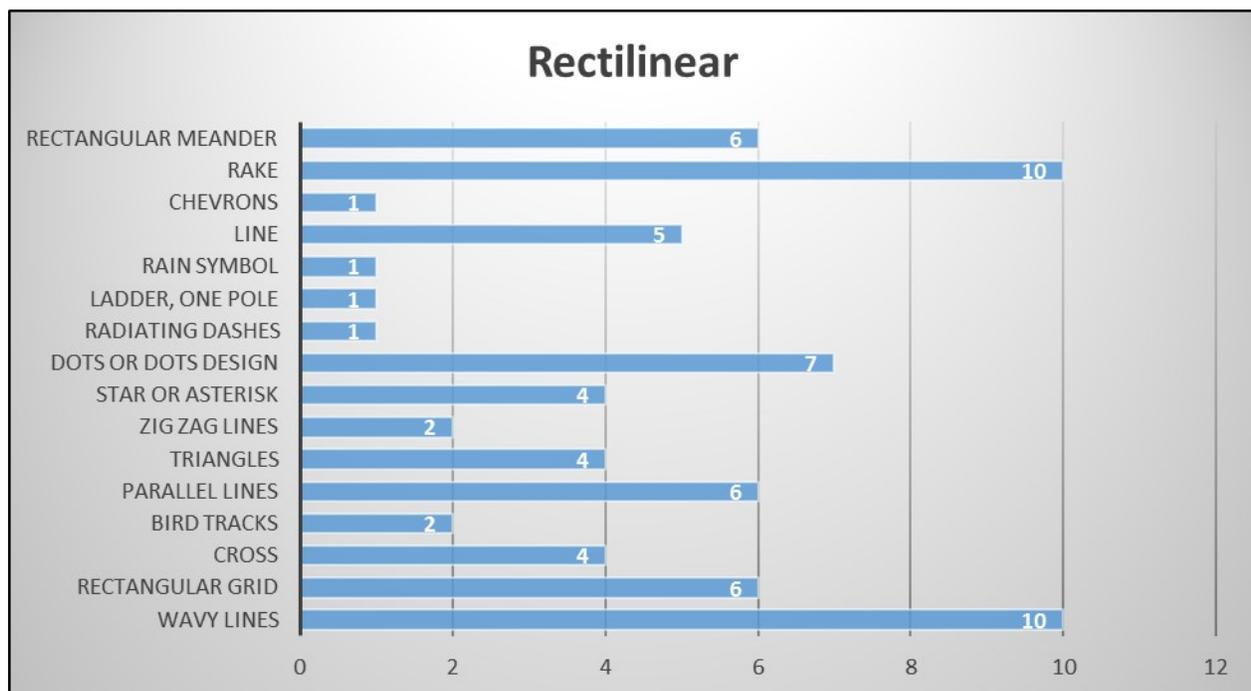


Figure 8. Rectilinear elements and their count for Map Rock and MRA.

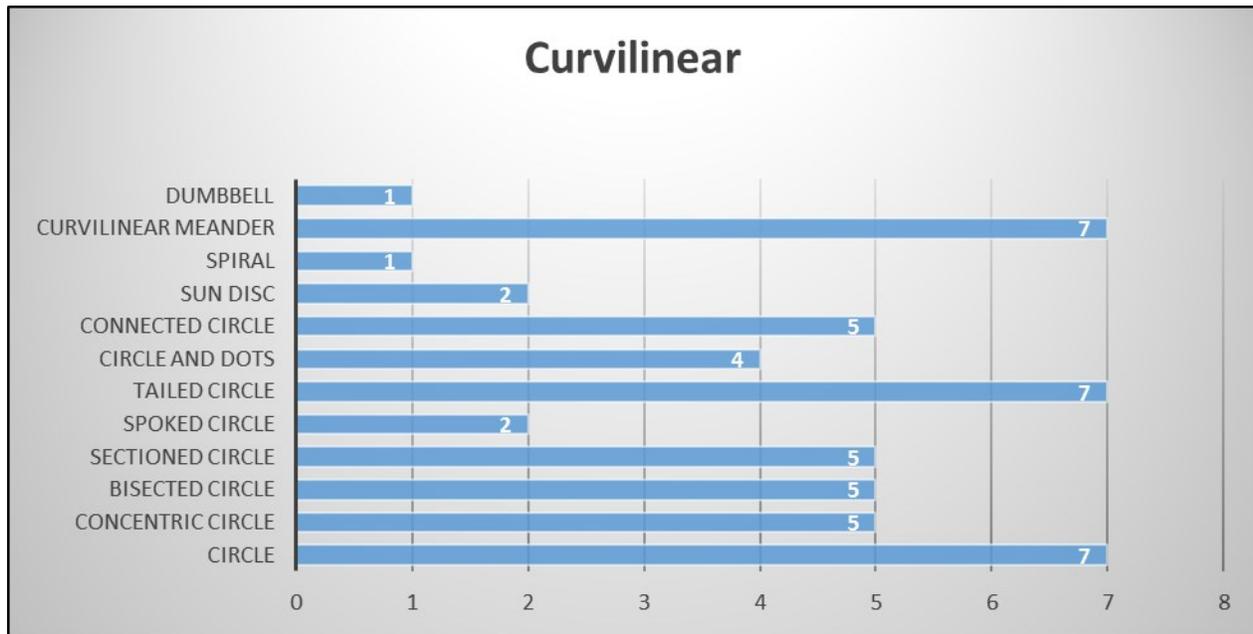


Figure 9. Curvilinear elements and their count for Map Rock and MRA.

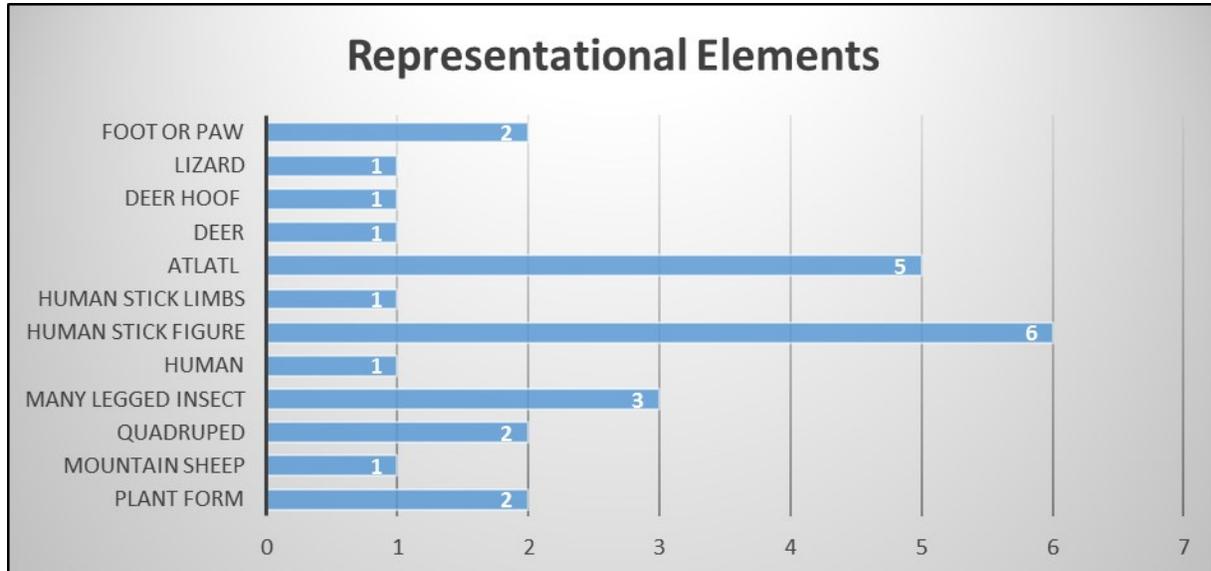


Figure 10. Representational elements and their count for Map Rock and MRA.

The Owyhee Uplands are characterized by the Great Basin Pecked style (Plew 1996). Within the Great Basin style, the Uplands are documented with a discernible higher occurrence of the Great Basin Rectilinear substyle (Plew 1996:6). Of the Owyhee Upland Rectilinear elements, the most common were dots (n=66), rectilinear designs (n=40), and straight lines (n=27) (Plew 1996:6), differing from MRA's element count where the rake (n=10) and wavy lines (n=10) are the most common. The frequent elements within the Curvilinear substyle of the Owyhee Uplands are the Curvilinear meander (n=91) and circles (n=46) (Plew 1996:6). This is somewhat comparable to MRA's most commonly found curvilinear meander (n=7), circle (n=7), and tailed circle (n=7). Of comparable interest is the presence of anthropomorphs on 26 features in the Owyhee Uplands (Plew 1996:7). The higher frequency of Great Basin Representational elements is more congruous with what is found at MRA than the frequency found at Celebration Park.

The rock art of Bennett Hills is considered to be characteristic of the Great Plains tradition by Merrell (2011:11). Prominent elements of the Bennett Hills location are shield figures and bear claws (Merrell 2011), whereas within MRA, shield figures are absent and only two paws were documented. The extensive documentation of the Bruneau-Jarbridge and Middle Snake River Petroglyphs by Murphey (1994) are described as having Fremont influence. Murphey (1994:25) describes a variety of figures not found within MRA, such as Katchina figures, and shield figures, but also includes the presence of anthropomorphs which are found at MRA.

Upstream from MRA, and on the south side of the Snake River, the Wees Bar petroglyphs are relatively distinctive compared to MRA. Although there are a few general similarities between the two sites, such as the presence of dots, rakes, circles, and chained circles (Tobias 1981:13), there are several elements present at the Wees Bar site that are absent from MRA. Arrows, incised triangles, "M" and "W" variants, and hollow figures are a few of the elements described by Tobias (1981) that are not found within the documented rock art of MRA. However, it is notable to mention the presences of 22 anthropomorphs at the Wees Bar Site, anthropomorphs being a prominent presence at MRA.

Acknowledgments

The Anthropology Club of the College of Western Idaho conducted a survey and assessment of the petroglyphs of Map Rock and a location known as Map Rock Access in 2015. This project was facilitated by the generous assistance of many participants and agencies including a generous grant bequeathed by the Canyon County Historic Preservation Committee that enabled CWI students to put forth their best efforts in documenting the rock art of Southwestern Idaho. The project would not have been possible without Canyon County Parks, Cultural and Natural Resources former Director Tom Bicak, Co-Director Kathy Kershner, and Recreational Planner and current Director Nichole Schwend. Their assistance and institutional support contributed to the success of the project including use of the facilities and camp sites at Celebration Park. A range of tasks were conducted by faculty and students of the College of Western Idaho over the two recordation sessions. Nikki Gorrell served as the Project Director for the Petroglyph Recording Project. CWI Geography faculty Bryan Krouse assisted with the Geographic Informational Systems (GIS) aspect of the project. CWI staff Kathy Guthrie served as the Director's Assistant and Van Driver.

During the March 2015 field season, Laurel Hitchborn served as Project Manager with Audrey Chapman as Project Coordinator. The students included Linda Murray, Leah Acevez, Jessica Mylan (Western Oregon University), April Mantha, Dunia Rossi, Mia Mick, Ollie Shannon, Vicki Hall Stark

(Boise State University), Lantz Brown (BSU), Marie Fowler, Katt Mitchell, Shane Tabor (BSU), Joseph Rossi (CWI staff). Veronica Gutierrez, Shauna England, Thomas Beckman, Joshua Danes, Sue Roberts (BSU), Kelsey Wilber, Liz Nevills (community member), and Allie Goeckner.

The October 2015 field season had Laurel Hitchborn as Project Manager and Linda Murray as Project Coordinator. The students included Allie Goeckner, Leah Acevez, Kelsey Wilber, Veronica Gutierrez, Melissa Downs, Sue Roberts (BSU), Chris Vertrees, Maribel Carrillo, Mia Mick, Ollie Shannon, Dave Draper, Marie Fowler, Carol Metsker, Kaylene McArthur, Liz Nevills (community member), Shauna England, and Tanis Partee.

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ARTICLE

An Update on Analysis of the Protohistoric Component at the Bliss site (10-GG-1), Middle Snake River, Idaho

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Abstract

The Protohistoric component at the Bliss site (10-GG-1) dates to the middle of the 18th century. A summary of the excavations conducted at the site in 1991 and 1992 were reported in 2001. This paper reports on analyses not completed at the time of the publication of the original summary note. Sediment and geochemical analyses are reported as well as additional assessment of the chipped stone assemblage.

Introduction

Site 10-GG-1, the Bliss site, is situated on a large terrace below the city of Bliss, Idaho along the north side of the Snake River. Covering an area of ca. 3000 square meters, the terrace which has been grazed is presently covered by mustard and various exotics. Willows and Russian Olive trees are scattered along the river front and adjacent to a marsh on the north side of the terrace, which is cross-cut, by a road running east-west. Test excavations conducted in 1980 indicated the formation of dunes on the western periphery of the site. The dune deposits, which accrued to more than a meter in depth in some areas, have obliterated the evidences of material culture noted by Tuohy and Hulse in 1959. More recently, the terrace has been impacted by redirection of the river channel associated with massive earth slides north and east of the site area (see Figure 1).

The site was originally investigated as part of the cultural resources evaluation of the Wiley Hydroelectric Project. The investigation included the excavation of 39 1 x 1 and 1x 2 meter test units, six trenches and two horizontal block areas. Excavations produced evidence of four discreet activity areas dating between 1140 B.P. and 250 B.P. (Plew 1981:158). Though radiometric dates placed the components within the Late Archaic, projectile point types including Humboldt and Northern Side-Notched were present in limited numbers. This suggested that while Late Archaic peoples may have visited the locality on numerous occasions, that the earliest use of the area dated to the Early Archaic. It was not clear that the components were directly associated. The four components produced a

wide array of artifactual and ecofactual materials. Notable are an elaborate chipped stone assemblage and a faunal assemblage (N=60,000+) containing bison, deer and salmon. Also of interest was the absence of cultural features, including hearths. Of particular interest was component Area A1 dated to the middle of the 18th century, a period little known on the Middle Snake River.

During the summers of 1991 and 1992, Boise State University conducted its Archaeological Field School at the protohistoric component at 10-GG-1. We were interested in assessing variation in the technological organization of the assemblages as a basis for determining whether variations might reflect expedient manufacturing strategies in the context of Binford's (1980) collector/forager continuum and whether the assemblages would exhibit any variance from Late Archaic locations in the area. Additionally, we were concerned with the nature and extent of fishing activity at the site. Was fishing a primary activity/focus? Were there multiple uses of the site and were these associated with the use of different resources at different seasons by groups of hunter-gatherers using different strategies?

A preliminary report on the 1991-1992 excavations was published in 2001 (Plew and Gould 2001). This paper makes some minor adjustments to the artifact typology, and reports on the sediments and geochemical analyses of materials from the site. It expands the discussion of lithic debris and assesses the assemblage using Kelly's (2001) chipped stone index.

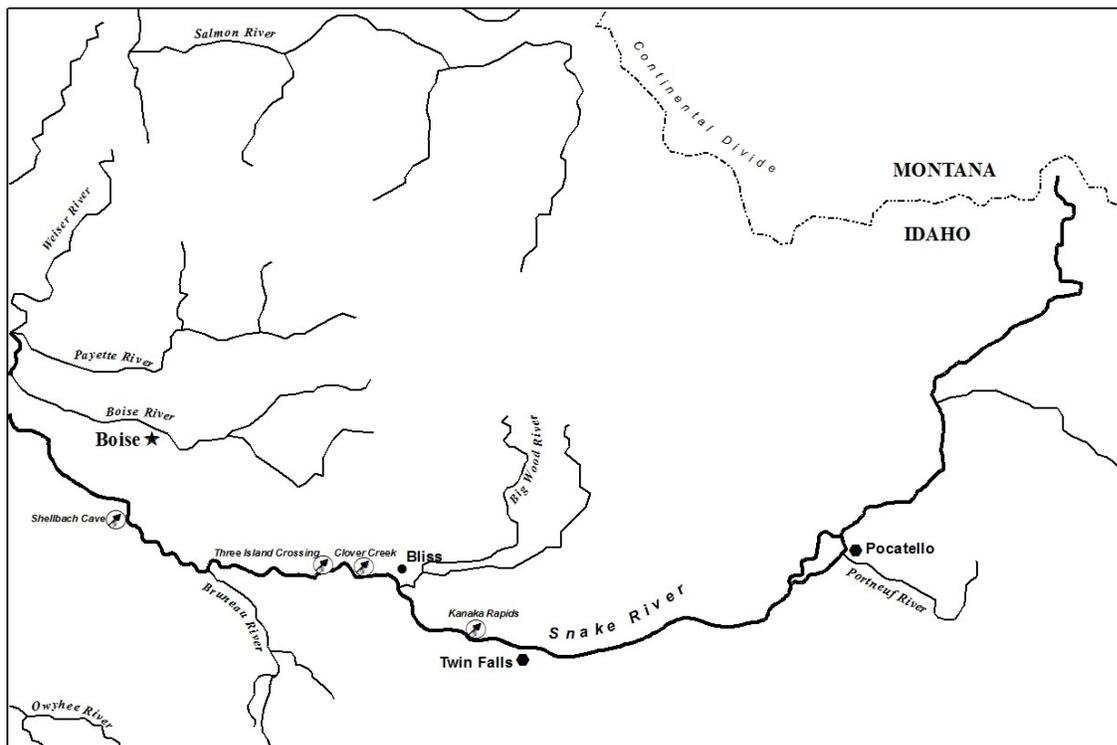


Figure 1. Map showing location of Bliss and other Late Archaic sites in Western Idaho

Western Snake River Research Problems

A number of research questions have relevance to investigations at the Bliss site. These include organizational variation in assemblages and features in relation to hunter-gatherer economic strategies, particularly as it relates to defining forager occupations (Gould and Plew 1996, 2001; Plew 1990, 2016; Plew and Guinn 2015); the role and importance of anadromous fish use on the Middle Snake River (Pavesic and Meatte 1980; Pavesic, Follett, and Statham 1987; Plew 1990); possible Fremont occupations of the Plain (Butler 1979, 1986a; Plew 1979, 2016) and trends in diet breadth (Plew 2009).

In southern Idaho, research directed toward defining variation in the archaeological record as a means of recognizing functional variation in settlement studies began in the mid-1970s. Although the need for such approaches has been championed by some (Ames 1982), such goals have been largely ignored in favor of traditional historical approaches (e.g., Pavesic and Meatte 1980; Meatte 1990). Plew's (1980, 1981) work in both the Owyhee Uplands and along the Middle Snake (Plew 1988, 1990; see also Gould and Plew 1996) represents a preliminary attempt to examine assemblage variation. A similar approach also was applied at Silver Bridge on the Payette River (Plew, Ames, and Fuhrman 1984), at two sites near Horseshoe Bend (Lewarch and Benson 1989), and by Green (1988) in his examination of variation in pit structures in southern Idaho. Gould (1990) used Bentley's (1983) Middle Snake survey data to test for singular economic land-use strategies, emphasizing the need for systematic statistical evaluations of models which postulate variable data states in the development of ecological explanations. Gould and Plew (1996, 2001) argue that highly generalized assemblages of the Middle Snake reflect the occupations of foragers. Documentation of this pattern has been provided by Eastman (2011), Willson and Plew (2010, 2013) and Roberts (2015) who use Kelly's chipped stone indices to assess levels of residential mobility. Their analyses suggest that many of the site assemblages along the Western Snake River suggest high residential mobility.

A second research problem regards the use of anadromous fish by Middle Snake River populations. Archaeological evidence is provided from a number of sites, including Bliss (10-GG-1 (Plew 1981, Plew and Gould 2001), Bernard Creek Rock shelter (Randolph and Dahlstrom 1977), Clover Creek (Gould and Plew 1990), Three Island Crossing (Gould and Plew 2001) and Schellbach Cave (Schellbach 1967; Pavesic, Follett, and Statham 1987). The number of sites producing fish remains is relatively limited, although this may be in part a problem of preservation and recovery (Plew 1981:173, 2016). The importance of anadromous fish to prehistoric Western Snake River populations is based primarily upon Steward's ethnographic accounts. The archaeological record does not support the traditional view of the importance of the resources which are temporally constrained (Plew 2009, 2016). Two primary arguments have been employed to discuss prehistoric anadromous fish use. The first is Pavesic and Meatte's (1980:21) argument that "within the Snake River Canyon, the mechanism forcing population shifts and determining village size were the anadromous fish runs, the highest yielding protein resource available." Such an approach implies a simple one-to-one correlation between the abundance of salmon and the intensity of occupation.

A second view (Plew 1983, 1990) adopts Schalk's (1977), a position which holds that duration of runs, available technology, and the nature and efficiency of preparation and storage are important variables in the degree to which salmon were used. Plew (1983) notes probable nutritional deficiencies of salmon which have migrated nearly 1,000 km upstream to southwestern Idaho and observes the need for a consideration of biological and environmental variables in examining the annual productivity of fish populations. Plew (1990) also argues that the intensive use of fish likely prohibits the use of other important resources, stressing the economic trade-offs of such a strategy.

Plew and Gould (Gould 1990; Plew 1990; Gould and Plew 1996) have argued independently that many groups were likely to have used salmon but that only a few were completely dependent upon it as a means of existing through the least productive season of the year (see Plew and Plager 1998 for discussion). Recent work has examined the impacts of natural events upon the western Idaho fishery (Plew and Guinn 2015) that suggest the likelihood of hiatuses in the anadromous runs.

A problem of cultural-historical importance has been the possible presence of Fremont groups on the Snake River Plain. Re-analysis of southern Idaho ceramics by Butler (1979) and Plew (1979a) led to recognition of greater variation in Shoshoni or Intermountain Ware ceramics. This problem was introduced by Plew's (1979a) definition of the type Southern Idaho Plain to characterize some of the ceramic artifacts appearing to be related to and possibly derived from Fremont groups in Northern Utah. Butler (1979) proposed a Fremont "frontier" on the Snake River Plain and reinterpreted Late Archaic phases, such as the Dietrich phase at Wilson Butte Cave (Gruhn 1961, 1999, 2006), as Fremont horizons (Butler 1981a, 1981b). Butler (1982, 1986b) describes the Clover Creek site, approximately 10 km upstream from Three Island Crossing, as a Fremont fishing site. The site was excavated but unreported by Mario Delisio in the late 1970s; Butler examined the materials and described a number of Great Salt Lake Gray sherds in apparent association with a "stratified house pit of uncertain size" (Butler 1986b:132). On the basis of projectile point morphology, he estimates the site was occupied between A.D. 500 and 1350. The presence of fish remains at the site caused Butler (1983) to consider the site a Fremont fishing station. Recent investigations (Plew and Gould 1990) documented no features and few fish remains. The site yielded five hydration dates which range between A.D. 1013 and 1187 (Plew and Gould 1990: Table I). Since no Fremont materials were recovered, some doubt exists regarding its status as a Fremont site (Plew and Gould 1990:11). Butler and Murphey (1982) describe what some wish to view as a "Fremont" house in the vicinity of Bancroft Springs. This site, 10-EL-216, was re-evaluated in 2010 (Plew and Willson 2010). The excavation strategy included the excavation of units around the perimeter of the depression with subsequent internal excavation to identify the position of units within the previous investigation. The only artifactual material recovered was a small sherd and a few small lithic flakes. Shovel probes conducted around the perimeter of the depression provided no evidence of activities conducted outside the depression.

Butler acknowledges in his report that the excavation conducted by Murphy revealed little confirmatory evidence that the depression was in fact a house. Murphy reports that he believed at the time of excavation that the depression was a cattle wallow and not a structure (Murphy, personal communication). He notes that Butler did not visit the site during excavation and reportedly ignored arguments that the depression was not a structure. He reports that there was but one depression—even though Butler reports several. As suspected, Murphy reports that the excavation simply followed the contour of the depression and that no attempt was made to cross-section the feature. He also notes that unauthorized excavation occurred after the 1982 investigation. Butler's (1982) report alludes to a series of structures that were assigned numbers, e.g., House Pit 6. None of the previous surveys or our survey identified other depressions or "house-pits." The 2010 excavations recovered burned vegetation on the easternmost floor of the depression. It returned a radiocarbon reading of 70+/-40 B.P. (Beta-264120)—confirming the historic age of the feature.

The Fremont question has generated an important reassessment of the Late Archaic. The discussion, while largely descriptive and historical, has helped to foster studies which both outline the technology as well as re-assess of the functional role of pottery in the prehistoric economy (e.g., Butler 1987, Plew and Bennick 1990). Plew (2016) demonstrates that few Fremont traits are found in Snake River Plain sites. Recently, Basso et al. (2016) have described Intermountain and Fremont-like pottery sherds collected at site 10-EL-1417 that have identical matrices. This discovery suggests that local Snake River peoples are either Fremonters who produce intermountain pottery or local hunter-gatherer pottery makers who replicated known Fremont forms or produce a range of forms that emulate Fremont types. The incredible variation in Intermountain ware speaks to the latter as a possibility (Plew and Bennick 1990). Arkush (2012) has recovered a distinct Fremont vessel from Trapper Creek

Rockshelter in southeastern Idaho. His most recent work in Curlew Valley area reports Fremont and Promontory types (Arkush 2016). He in fact, argues for a geographic range of Promontory pottery in eastern Idaho. That Fremont foragers ventured into southeastern Idaho is not surprising. The issue is one of whether we should still be drawing ethnic boundaries.

Analyses of Early Archaic diet breadths have become more common and suggest an early and continuing reliance upon deer, elk and bison with increasing use of rabbits and other small mammals beginning in the Middle Archaic (Plew 2009). The increasing numbers of small mammals may reflect the warming trends of the Middle Holocene (cf. Butler et al. 1971). Assemblages suggest considerable evenness over time and across the plain. The primary Late Archaic shift is in the ubiquity of fish and increasing artiodactyl encounter rates—a shift which may reflect the stabilization of terrace formations and emergence of modern conditions along the Snake River that are associated with increasing aridity. Notably, diet breadth both narrowed and broadened by local potentialities. Overall there is little evidence of intensification or resource depression (Gould and Plew 1996, Plew 2009, 2016).

Field Methods

A secondary site datum point was established from the permanent datum located on the north side of terrace along the perimeter of the marsh in 1980. Using the secondary datum, from which all measurements for the 1991 and 1992 excavations were taken, we were able to relocate Area A1 and the test pit excavated in 1980. Using a two-meter grid, a site map was produced prior to excavation (see Figure 2). Since no physical evidence was observed on the surface, no preliminary surface collections were made. Excavations employed standard methods of subsurface data recovery, including shovel shaving, hand-troweling and auguring. All sediments were passed through 1/8th inch hardware mesh, with artifacts and ecofacts bagged separately by unit and level. The recovery methods for flotation and sediments samples were standardized throughout the excavation. Over the course of two field seasons, 72 square meters were excavated to a relative depth of one meter below datum—the maximum extent of cultural deposits (see Figure 3).

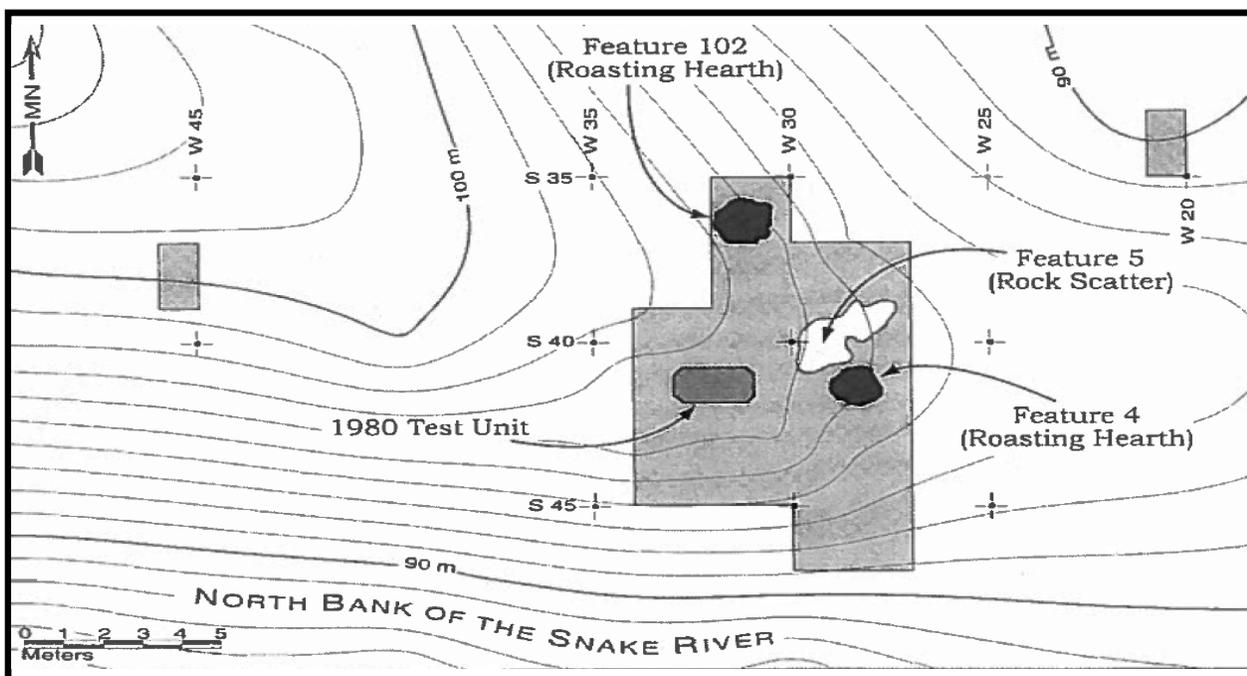


Figure 2. Plan map showing 1991-92 excavations showing location of Features 4,5 and 102 in re-

Stratigraphy, Features and Associated Radiocarbon Dates

Site 10-GG-1 is situated on the north bank of the Snake River, below the modern town of Bliss, Idaho, on a constructional terrace cutting off a meander scar of the ancestral Snake River (see Figure 1). Flood sediments of which the terrace is composed rest upon a bar of Melon Gravels from the Bonneville episode. Annual fluvial cycles of the Snake River have exposed the gravels along the river bank. Beyond the natural configuration of the terrace, agricultural and mining activity has altered the physiography of the area. Alterations include a berm constructed across the east end of the meander scar and animal disturbances that include accumulations of manure that have altered the soil chemistry.

Examination of vertical profiles indicate repeated overbank flooding of the Snake River that would have included a rise of 3.5 meters above the constructional terrace. Based on successive increments of sand, it appears that the terrace stands at the highest level of development in its geomorphic history. The evidence at 10-GG-1 of successive river deposits correlates with findings at the Clover Creek site where Bentley (1980) has recognized six major flood episodes. However, at 10-GG-1, strong winds responding to a ventura effect caused by the configuration of the canyon walls to the west has resulted in the movement and sorting of river alluvium. The end result is that the east-west trending terrace was formed by wind-deposited sand.

The deposits at Area A1, 10-GG-1, consist of extremely sandy sediments. The deposit contains some silt, but no clay and is relatively uniform throughout with sediment color ranging from light brown to grayish brown to dark brown. The upper 50 cm of the deposit exhibits evidence of some cross bedding and much disturbance (see Figure 3). The deeper portions of the deposit are less

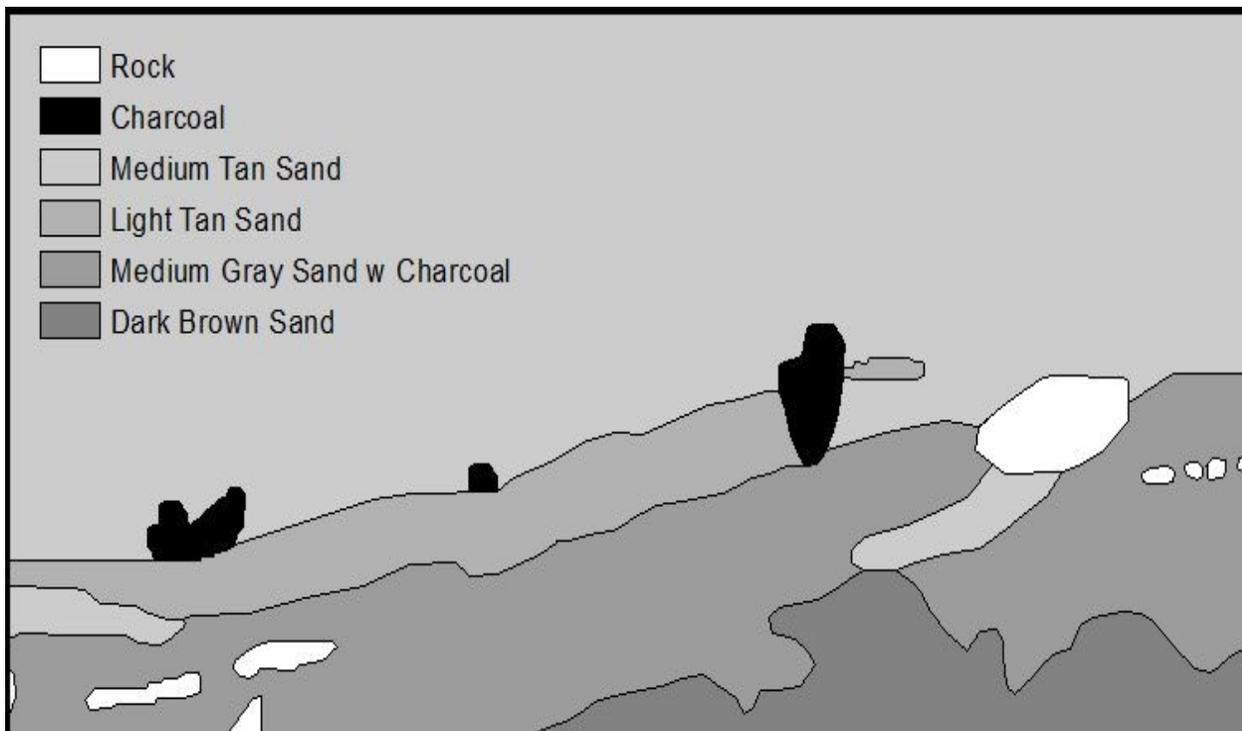


Figure 3. South wall profile of unit S42-43, W27-29.

disturbed and somewhat more compacted. Cultural materials are scattered throughout the deposit to a depth of approximately one meter below surface with material concentration being variable across the site area. A discernable charcoal stained cultural stratum is situated between 20 and 50 cm below the surface. Although disturbed by rodent activity, the stratum contains notable concentrations of cultural and ecofactual items.

As noted, the 1980 excavations at 10-GG-1 failed to document the presence of significant cultural features. While this may reflect sampling, the 1991 and 1992 field seasons did record cultural features of some magnitude. Some 10 clearly definable features were excavated. These included charcoal-stained areas and areas of material and ecofactual concentrations. The 1991 excavations encountered two important features designated features 4 and 5. Feature 4 is a large fire hearth appearing at approximately 90 cm below the surface in Unit S41-42, W 27-29, and extending 130 cm below the surface (see Figure 4).

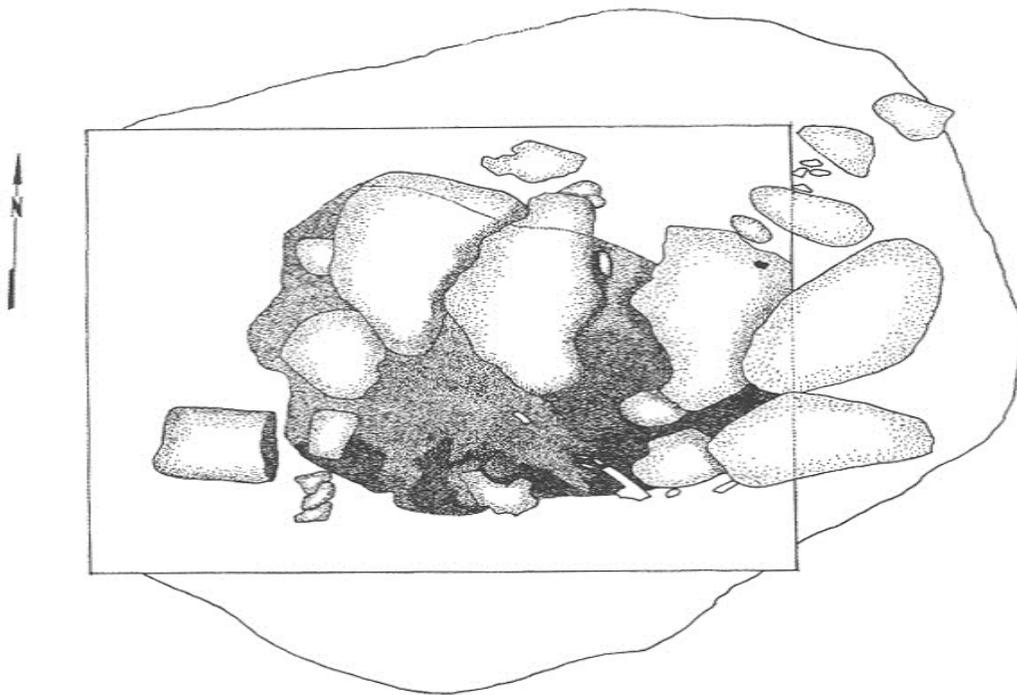


Figure 4. Feature 4 showing center of hearth area. Exterior line marks outer edge of charcoal stain.

The interior of the hearth contains large water-worn stones and artifactual materials including edge-battered cobbles and groundstone, bone awls and faunal remains (Figure 4). Around the exterior of the feature a number of large stones appear to have been removed from the hearth, which had been cleared of debris. Some two meters west of Feature 4, excavations during 1992 identified a large midden concentration reflective of the dense concentration of refuse items (N=22,000) encountered during the excavation of the 1980 test pit. It appears now that the refuse represents one or multiple clearings of the hearth contents. A radiocarbon date from Feature 4 establishes its age at 290 \pm 50 B.P., 300 \pm 50 corrected (TX7465).

A second feature, Feature 5, is a rock-lined fire hearth located approximately one meter west of Feature 4 (see Figure 5, 6). This feature consists of a circular configuration of some twenty river cobbles measuring 10-15 cm in length. Charcoal fragments are scattered about the hearth area with a number of larger rocks situated on the southeastern margin of the feature. These stones appear to have been removed from the adjacent Feature 4. The feature is relatively shallow, extending only a few centimeters below the stones. There is no evidence that a basin was excavated below the rock configuration. Surrounding the perimeter of the feature are a pestle, edge-battered cobble and faunal remains, including a fragment of a deer bone and some ten articulated salmon vertebrae. The feature was radiocarbon dated at 250+/-50 B.P., 270+/-50 corrected (TX 7464).

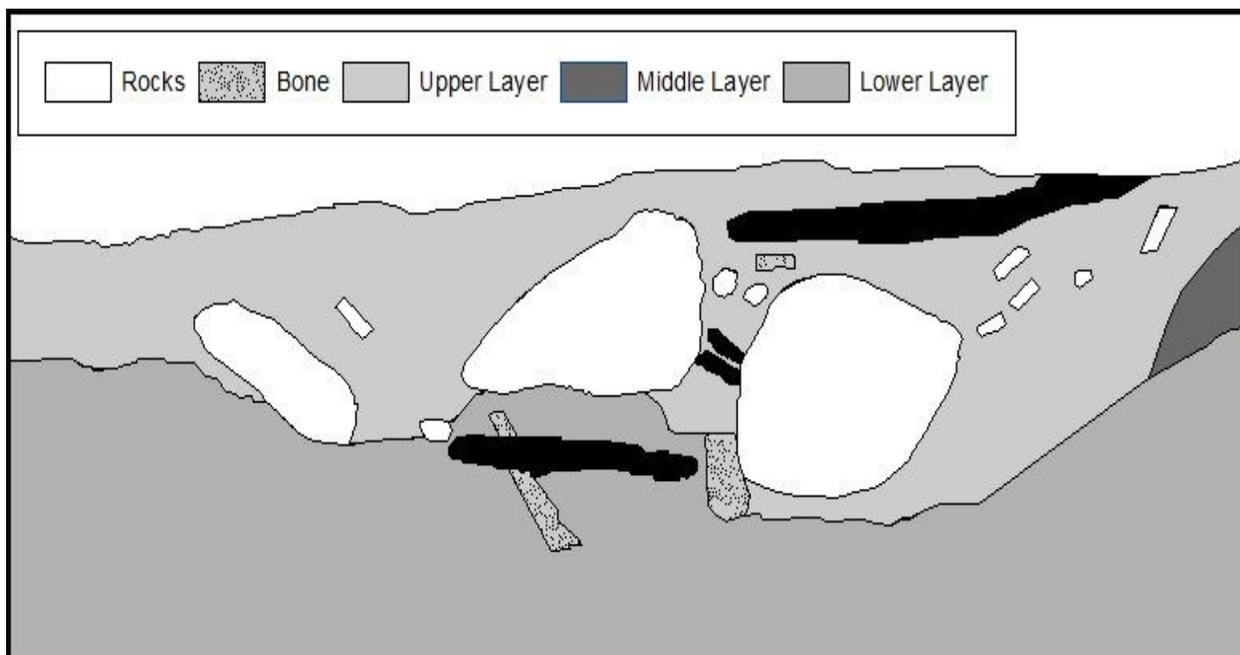


Figure 5. Cross-Section of Feature 5



Figure 6. Feature 5, rock-lined hearth, is located in right corner of photo.

Although not radiocarbon dated, Feature 102, recorded during the 1992 field season, was a fire hearth having relatively the same dimensions as Feature 4. The notable difference was the absence of rock lining. The feature, which was excavated to a depth of 30 cm, is a broad basin-shaped charcoal and debris-filled feature (see Figure 7).

The excavation of Features 4 and 5 and 102 is notable since such features are uncommon in southwestern Idaho. The size, depth and rock lining of Feature 4 are notable and suggest that the pit may have served as a roasting pit. The stone configuration which characterizes Feature 5 is unique in the area. It appears that Feature 4 was used repeatedly or for an extended period of time since hearth refuse is located adjacent to the feature. The radiocarbon dates reaffirm the 1980 assessment, which establishes a late and possible 17th or perhaps early 18th century date. Fragments of worked early 19th century bottle glass in the vicinity of the features seem to suggest that the site was occupied into the 19th century.

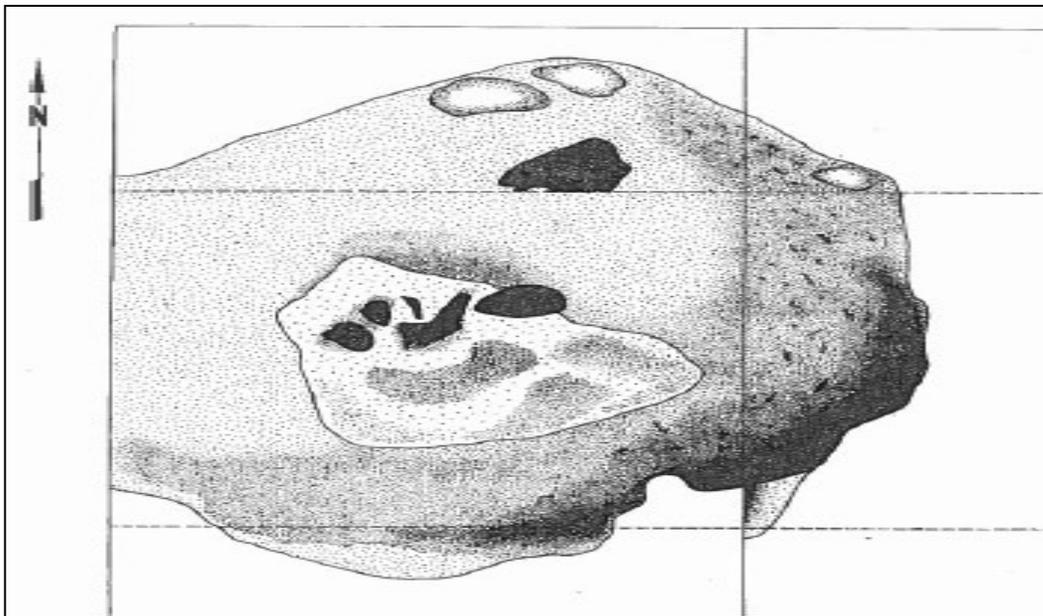


Figure 7. Feature 102 containing ash and charcoal concentrations.

Sediments Analysis

Particle Size

The grain sizes of the deposits are a function of the natural processes responsible for the transport and deposition of the sediment where particles are segregated according to their hydrodynamic behavior (Lewis 1994). For example, sediments composed primarily of small particles tend to be associated with low-energy bodies of water such as lakes or slow-moving rivers whereas larger

particles are associated with high-energy natural processes such as fast-moving rivers or streams. Hence particle size composition of a sample can facilitate the development of conclusions regarding past environmental conditions at the time the sediments were deposited. Sediments analysis was performed by Mary Robertson in cooperation with Dr. David Fortch in the Department of Geology Laboratory at Idaho State University. Particle size analysis was performed by massing the sediment samples to the nearest 0.01 grams, then placing individual samples within a nest of US Standard sieves in sizes 10, 20, 40, 60, 140, 200. The sizes of the sieves correspond (respectively) to the Wentworth size descriptions of Granule, Very Coarse Sand, Coarse Sand, Medium Sand, Fine Sand, and Very Fine Sand. Individual samples were sorted by placing within the nest of sieves. Samples were run for units S41-30W and unit 42S-30W, 0-100 cm below datum. Fine Sand was the most common particle size within the samples from 10-GG-1. The occurrence of fine sands are highly uniform regardless of depth.

Calcium Carbonate

Calcium carbonate content was assessed by applying 2-3 drops of a liquid solution of 10% hydrochloric acid and 90% de-ionized water to approximately 5 grams of sediment. Calcium carbonate reacts to this solution by effervescing, so upon the application of the hydrochloric acid solution, the samples were observed for any visual or auditory signs of reaction. In this instance, none of the samples from any of the test units exhibited any signs of effervescence.

Color

Analysis of sediment color was performed using a Munsell Soil Color Chart. Sediment from each sample was visually compared to the Munsell Soil Color Chart and recorded. Sediments were analyzed from units—Unit 41S-30W and Unit 42S-30W. All the samples from both sites fell within the 10YR color diagram. The variation within the colors defined as “10YR” ranged between 6/2 and 4/2 dry and 4/2-2/2 wet for Unit 41S-30W samples. Samples from unit 42S-30W ranged between 6/2 and 4/2 dry and 4/2 and 3/2 wet. All the samples from both units are characterized as “grayish brown” to “dark grayish brown.” Overall, both dry and wet sediments are quite uniform in color.

Discussion

Notably, no calcium carbonate or duricrust level has formed on the terrace. This is in marked contrast to sediments on the south side of the river where calcium carbonate levels are prominent. These differences suggest significantly different groundwater regimes. Based upon the sediments analysis, 85%-90% of the sediments at 10-GG-1 are composed of fine sands which drain rapidly but lack cohesion and are subject to slump. The occurrence of organic carbon most probably associated with human occupations is higher than might be expected. Phosphorous analysis indicated high levels near the surface interpreted as the result of manure accumulations. Samples taken at 50 cm bpd in Trenches No. 5 and 6 during initial excavation produced high levels of phosphorous that appear to be associated with human use of the area.

Artifacts recovered from testing of 10-GG-1 were catalogued by assigning a number to each specimen. In each instance the Smithsonian site number was placed on the artifact followed by the artifact's Field Catalog number (10-GG-1-254). Artifacts collected from the surface of the site were added to the end of our Field Catalog. The assemblage was catalogued using local typologies. Ceramics were examined in the Boise University Archaeology Laboratory using a 20X microscope to identify tempering agents. Stone tools were inspected for evidence of use wear with 10-40X magnification (see this report). A formal sediments analysis was completed, using facilities of the Boise State University Department of Geosciences. Given the uniformity of the deposit, in-house, laboratory analysis supports in-field observations that most sediment was fine sand. XRF analysis was performed by Craig Skinner of Northwest Research Obsidian Studies Laboratory

Material Culture

Material remains are typed and functionally classified. Categorically, weapons (projectile points), domestic tools (ceramics and bone needles), fabricating (cores), general utility tools (knives, bifaces, worked flakes, hammerstones, and pestles), and decorative items (beads) are present. Type descriptions include description of form and reporting of size ranges (given as length, width and thickness and material preferences).

Weapons

Projectile Points (see Figure 8 and 9)

A total of 395 projectile points and point fragments (N=93) were recovered. Four major projectile point types were recovered from 10-GG-1. The predominate forms include Desert Side-Notched (N=151, 38%) and Cottonwood (N=46, 12%), though Bliss (N=7), Rose Spring Corner-Notched (N=6) and Eastgate Expanding Stem (4). General sub-types are most common, though the Sierra sub-type is represented. The specimens range between 2.9-1.5L x 1.5-1.0W x 0.2-0.3T in size and are produced mainly from obsidian, followed in order of preference by cryptocrystalline materials. Flaking patterns are irregular.

Rose Spring Side-Notched (N=6) points having shallow side notches sloping into small stems fall with a range of 2.4-1.9L x 1.4 x 1.1 x 0.5W x 0.3T in size. Three points are made from obsidian and three from cryptocrystalline materials. Flaking patterns are irregular. All specimens are incomplete.

Cottonwood Triangular points constitute the second highest frequency of projectiles (N=46). Of these the majority are made from obsidian, whereas only a few were made from cryptocrystalline. The size range for Cottonwood series projectiles is 2.4L (complete specimen) x 2.0-1.0W x 0.5-0.2T. Generally, the Cottonwood series points recovered from the 1991 investigation at Area A1 contrast with those found in 1980, being somewhat shorter and broader at the base. The flaking patterns are highly irregular with the majority of the specimens being incomplete.



Figure 8. Frequency of projectile points.

Bliss points (N=7) fall within a size range of 2.9-1.2L x 0.8-0.7W x 0.5-0.4T though a single item is nearly a third longer than the other artifacts. The bi-pointed Bliss points are typical of the range in form and size of Bliss points previously described, though widths are slightly smaller (see Plew and Woods 1985). Most artifacts are made of cryptocrystalline (see Figures 8, 9).

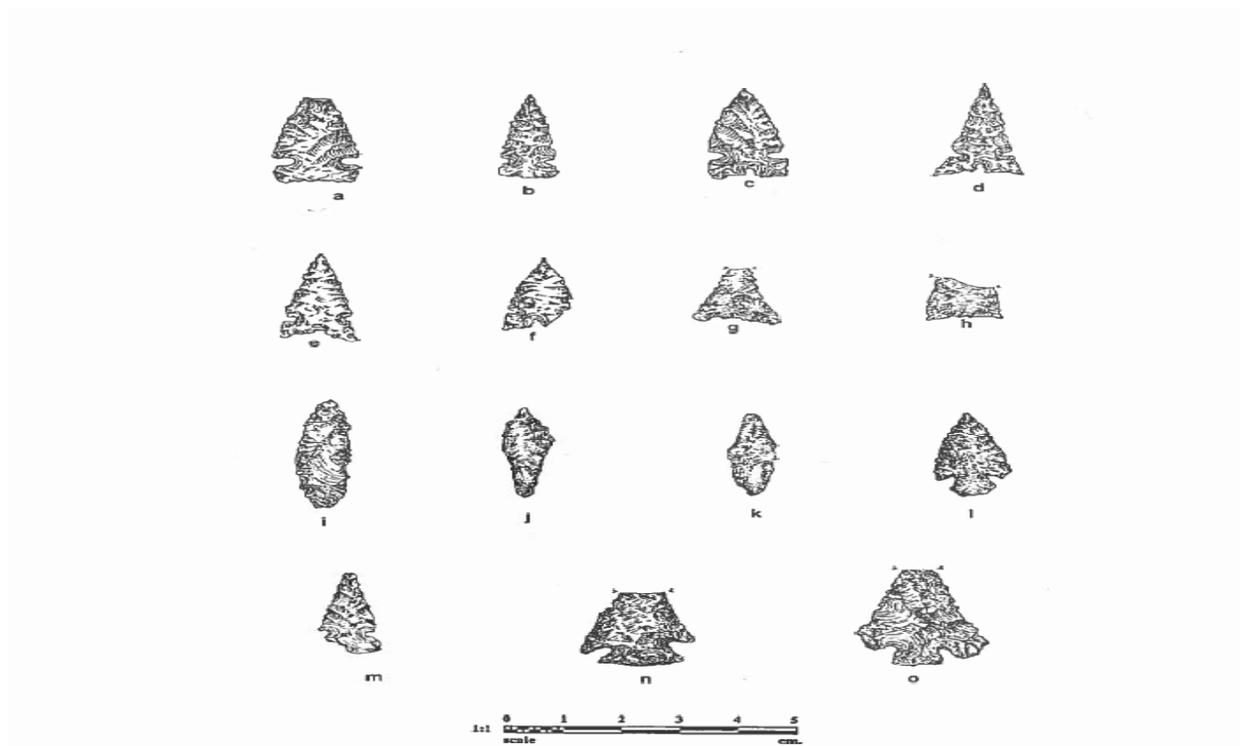


Figure 9. a-f, Desert Side-Notched, g-h, Cottonwood Triangular, i-k, Bliss, l, Rose Spring Corner-Notched, m, Rose Spring Site-Notched, n-o, Eastgate Corner-Notched

Domestic Items (see Figure 10)

Pestles

Five pestle fragments and a single complete basalt pestle were recovered from Area A1. The complete artifact is bell-shaped, measures 17L x 9.9W x 5.7T, and exhibits distal/proximal modification. The incomplete specimens include three midsections and a proximal end. In cross-section, one is rectangular, two are triangular, and the single specimen is elliptical (see Pavesic and Meatte 1980: 70; Plew 1981: 122). On the largest of the specimens the distal end measures 9.1L x 6.2W x 5.1T (cm) and is stained with red ochre. Three items are made of a microcrystalline material, and a fourth is basalt. The microcrystalline specimens are highly polished.

Basin Mortars

Specimens are manufactured from both irregular and oval-shaped stones (N=9). The average size range is 30L x 25W x 22T. Basin diameters average 1-12 centimeters (see Pavesic and Meatte 1980: 70-71; Plew 1981:122). A single specimen has a very shallow basin.

Pottery

Pottery (N=786) constitutes the single largest artifact category. Sherds are typically thick and variable in both quality of construction and surface treatment. Most sherds represent Intermountain or Shoshoni splay-walled "flower-pot" forms. Rim form is typically flaring to straight or vertical with horizontally flattened or rounded lips. A few specimens are slightly incurving. Construction appears to be coiling and scraping with sand tempering most common. Core and surface color are highly variable, ranging from black to reddish brown and light brown. Surface finish is dull to slightly polished, with a single small sherd having decoration. That consists of three small, incised lines running parallel to the rim of a small sherd measuring 5 cm in diameter. Wall thicknesses range between 0.4 and cm. Three bases and one large vessel wall section measuring approximately 15 cm in length contrast with the majority of sherds, which measure no more than 2-5 centimeters in diameter. In general, the pottery conforms to the variability described by Plew and Bennick (1990) for southwestern Idaho.

An Update on Analysis of the Protohistoric Component at the Bliss site (10-GG-1), Middle Snake River, Idaho

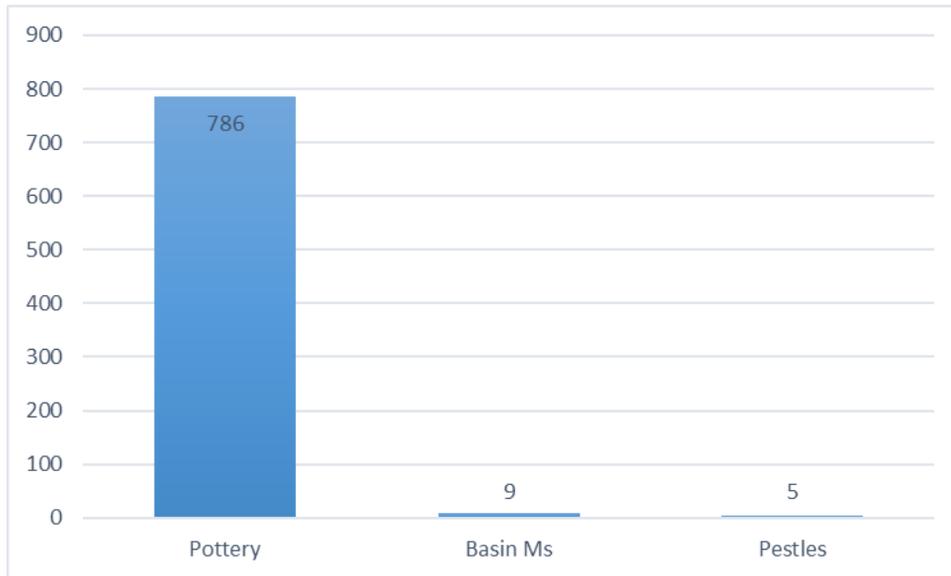


Figure 10. Frequency of Domestic Items

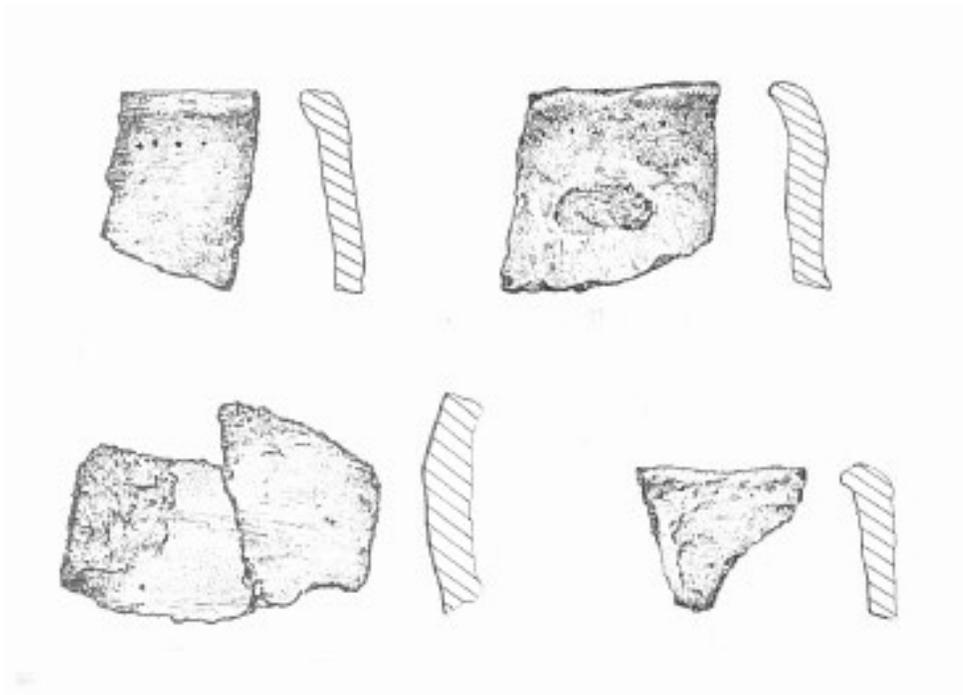


Figure 11. Pottery Sherds. Upper row are straight rim sherds.

General Utility Tools (see Figure 12 and 13)

Knives

A total of fourteen (N=14) bifacial knives were recovered. All but two specimens are incomplete. All but two items are triangular to leaf-shaped bifaces, which are biconvex in cross-section. The size range for complete specimens is 6.3-4.8L x 2.4-2.0W-x 0.8-0.6T cm. Specimens have slightly constricting stems, one with a straight base (541) and another with a rounded base (727). Two specimens have simple rounded bases (203, 351). Three additional specimens are too fragmentary to determine basal form. The non-triangular blade forms include a large core reduction flake modified bifacially along both lateral margins (788) and a "seam" knife bifacially modified into a crescent form (661). Seven knives are made from cryptocrystalline materials, while one each is manufactured from obsidian and basalt.

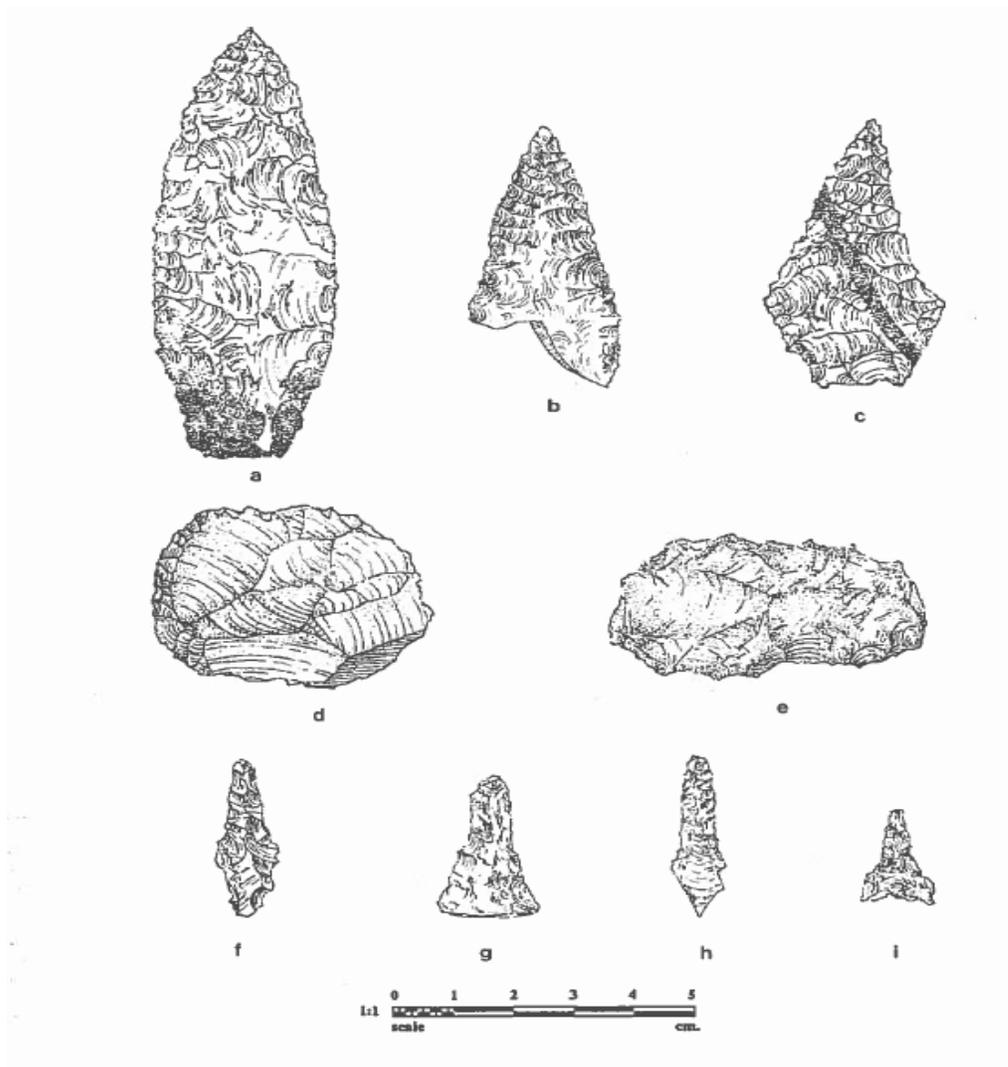


Figure 12. a-c, Knives, d-e, Scrapers, f-i, Drill/Perforator fragments

Scrapers

Scrapers consist of end (N=12), side scrapers (N=23) and end and side scrapers (N=5). One end scraper (542) might be considered a steep end scraper (edge angle=45). Eight scraper fragments cannot be classified. The end scrapers are manufactured from relatively irregular flakes, the majority (N=8) of which are large reduction flakes and the remainder thinning flakes. All are plano-convex. The size range is 4.3-1.4L x 4.3-1.4W-x 1.7-0.4T cm. The majority of scrapers are made from cryptocrystalline (see Figure d-e).

Spokeshaves

Seven spokeshaves were produced from exhausted cores. Items have a crescent-shaped notch along one margin. All items are obsidian with a size range of 3.0L X 2.5W cm.

Bifaces/ Fragments

A total of forty-two (N=42) bifaces and biface fragments were recovered. All are biconvex and represent a range in the stages of production. Material type includes obsidian and cryptocrystalline. (see Figure 13)

Modified Flakes

Flakes and shatter fragments exhibit minor unofficial modification (N=2).

Hammerstones

Forty-three (N=43) hammerstones range in size between 13.5-5.2L x 7.1-3.0W x 3.6-1.9T. Specimen forms are irregular to elongate, most exhibiting distal modification. Four hammerstones exhibit proximal/distal modification.

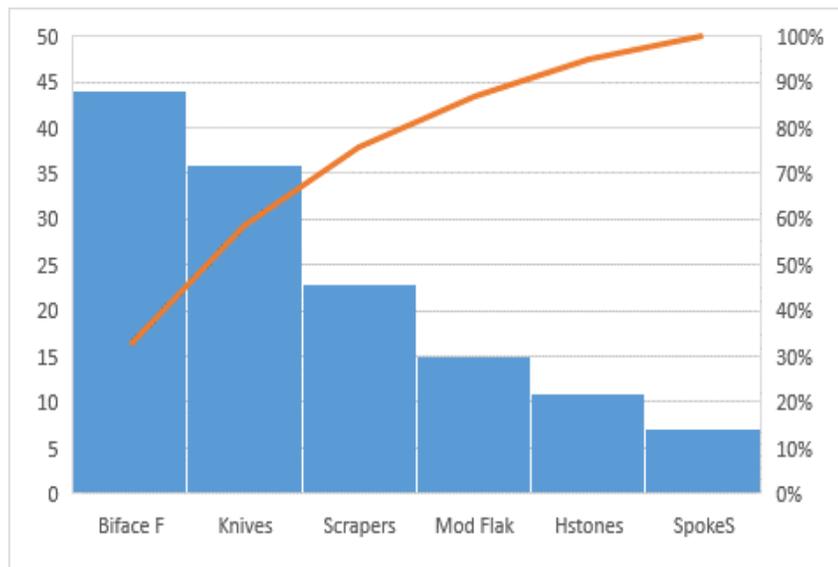


Figure 13. Frequency Distribution of General Utility Tools

Large Hammerstones

Three large hammerstone types include seven irregularly shaped cobbles which exhibit distal/proximal wear. These artifacts may have been used as multipurpose tools. The size range of 17-13L x 10.5-7.2w-x 8.4-4.5T cm suggests that some items would have been useful for lithic reduction only in early core reduction stages. These artifacts may well have been used to process bone and ochre.

Choppers

Three large modified choppers were recovered. One specimen is a round and bifacial cobble chopper made of quartzite and measuring 9.8L x 8.8W x 5.0T. Two additional specimens are made from flat objects; one is basalt and the other a microcrystalline material. The latter items are unifacial and range in size between 13-11L x 6.2-4.4W x 3.4-1.6T.

Modified Pebbles

Two small round and relatively thin quartzite pebbles exhibit minor edge modification in the form of grinding. The size range is 5.6-5.3L x 4.2-3.9W-x 1.1-0.7T cm. One pebble has a small flake removed from one end. This item resembles the "net sinkers" found on the Plateau.

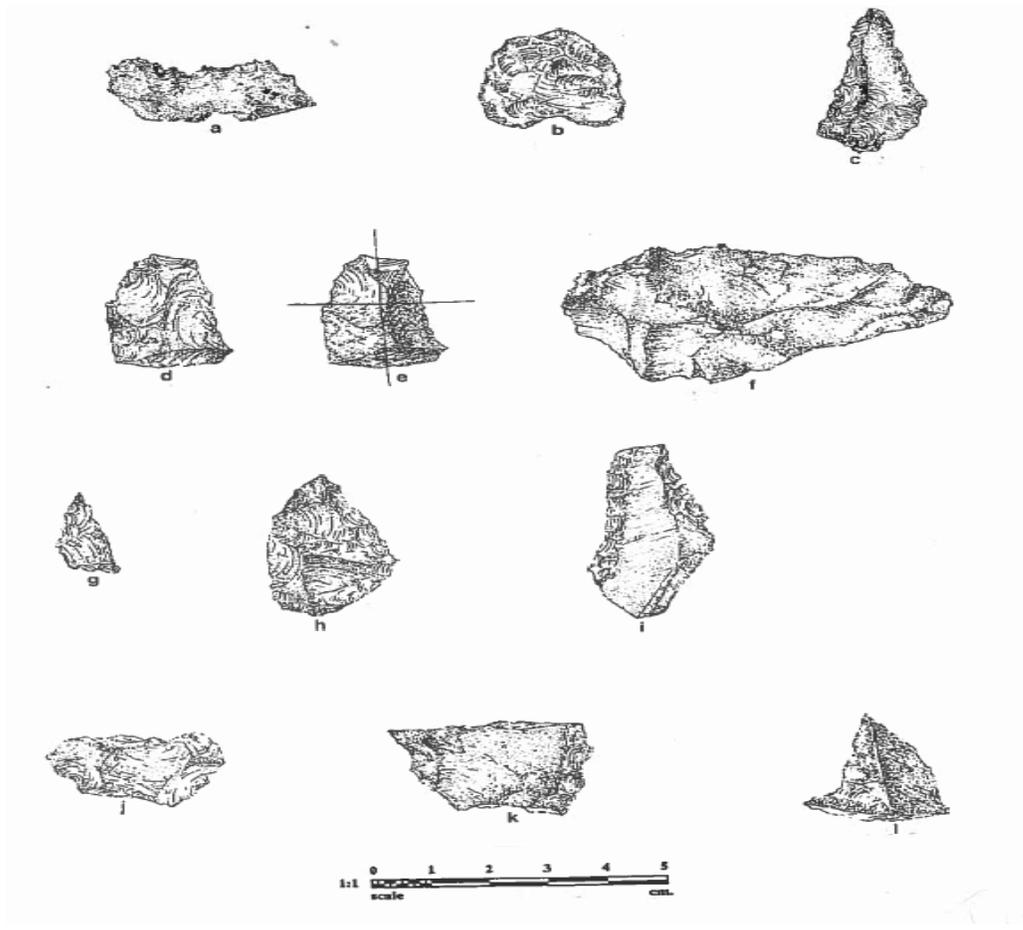


Figure 14. a-l, Modified Flakes

Fabrication and Processing Tools (see Figure 15 and 16)

Perforators/Drills

Two distinct drill forms are characterized. The first form consists of drills with relatively large, rounded bases. Two are cryptocrystalline, a third obsidian. All are made from large biface reduction flakes. The drill tip on one specimen (905) is extremely thin and biconvex in cross-section. The other specimens (795, 370) have plano-convex tips. The size range is 5.0-2.8 x 3.5-1.5W x 1.2-0.4T. A second type consists of a single basalt drill with a slightly expanding, parallel-sided straight base and bi-convex base (381). The item is 2.9L x 1.0W x 0.4T. and appears to be reworked from a larger form. Six drill tips were recovered. Six are biconvex while a single specimen is plano-convex. Five are made from cryptocrystalline (see Plew 1981:112)

Cores

Thirty-one (N=31) irregular cores exhibiting minimal cortex were recovered. Most are nearly exhausted. One large basalt cobble exhibits extensive cortex. The latter specimen measures 9.5L x 8.4W x 7.8T. The range of the additional specimens is 6.8-2.5L x 3.9-1.9W-x 3.4-1.2T cm.

Bone Awls

The bone awls consist of two types, those relatively large, thick and rounded specimens and those having been worked to very fine points (N=10). The larger specimens range to 0.8 cm in diameter near the tips, which are blunt. All but two exhibit evidence of fire hardening. The tips of the thin, fine pointed specimens are approximately 0.2 cm in diameter. None of the specimens are complete (see Plew 1981:127; Plew, Pavesic and Davis 1987:68-69; see Figure 15, a-f)

Abraders

Abraders consist of two types. Two specimens of coarse pumice-like material have broad open grooves--in one instance measuring 1.4 cm in diameter. One specimen has grooves on dorsal and ventral surfaces (684). The items measure 6.0L x 6.1-4.9W x 3.2-1.9 T. A second type consists of a single specimen made from a microcrystalline material having two small grooves running parallel across its surface. The grooves measure 0.2 cm in diameter.

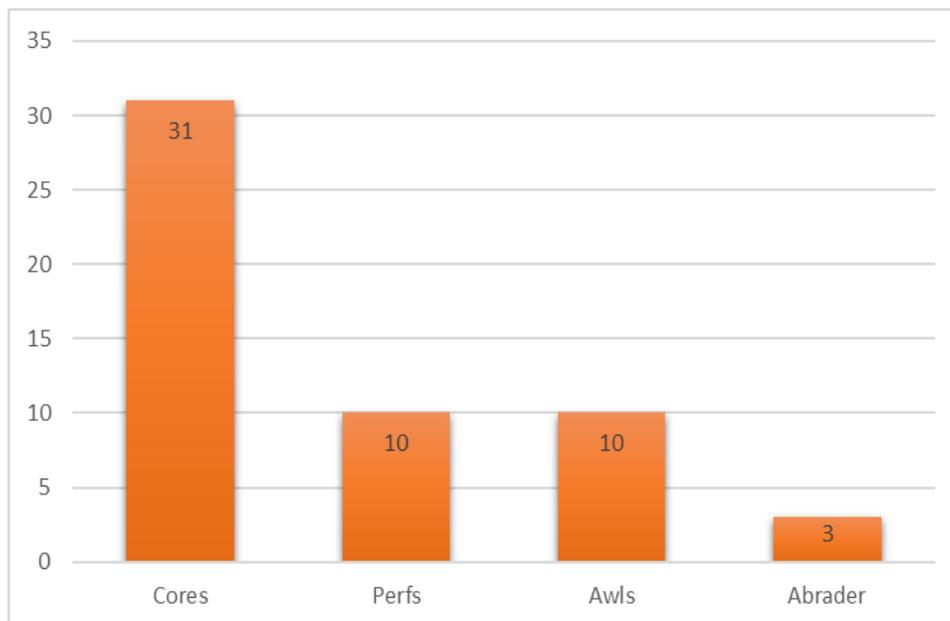


Figure 15. Frequency Distribution of Processing Tools

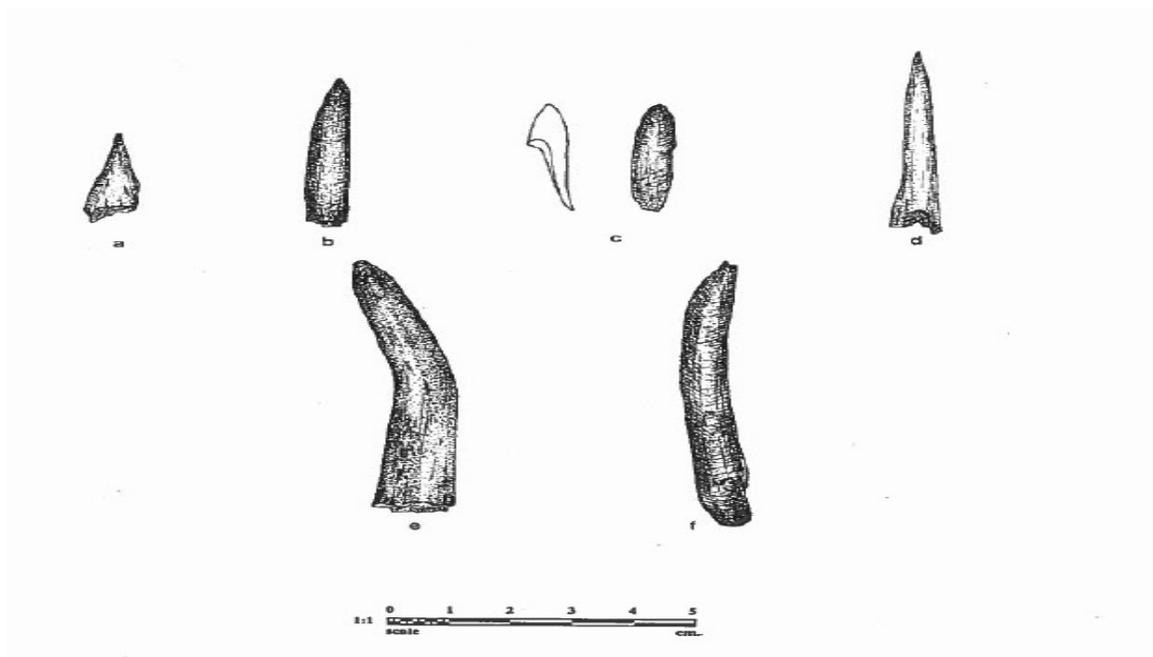


Figure 16. a-f, Bone Awls

Ornamental Items (see Figures 17 and 18)

Cut Bone (Figure 19)

These specimens have been cut or prepared for cutting in bone bead production. These include 54 small mammal ulna and tibia specimens (largely rabbit), cut just above the articulating surfaces (see Plew 1981:132, Fig. 31). Additional specimens are 13 small mammal long bones which have been cut into sections. One specimen measuring 0.7 cm in length has two grooves cut around the diaphysis.

Bone Beads (Figure 18)

Cylindrical beads were cut from small mammal or bird bones (N=25). Beads range in size between 1.0-0.7 in length and 0.7-0.4 in diameter. All specimens exhibit high polish. Five specimens appear to have been fire-hardened prior to polishing.

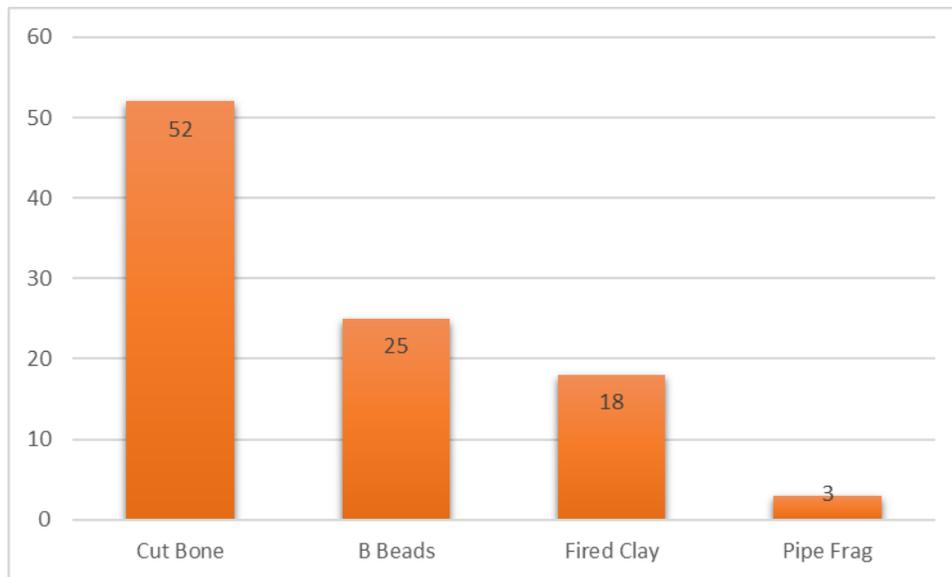


Figure 17. Frequency of Decorative Items

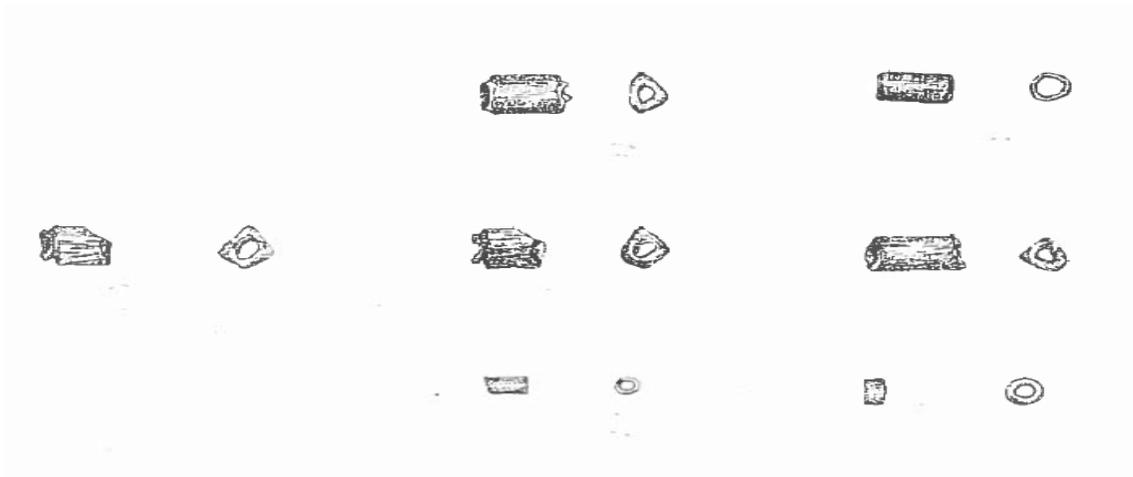


Figure 18. Bone Beads

Pipe Fragments

Six pipe fragments were recovered. A small red sandstone pipe bowl fragment measures 1.3 L x 1.1W x 0.5 T. and has a 2 mm lip.

Fired Clay Objects

Two fired clay "cigar-shaped" objects (496, 938) (see Gruhn 1961 for similar items) are approximately 1.5 cm in diameter. The longest is 4.0 cm. Both have a dark gray core and surface color and are sand tempered. Two additional objects have been purposely formed. One is a light tan, three-pronged object (568). One of the pointed projections, with the ends slightly curving, has been

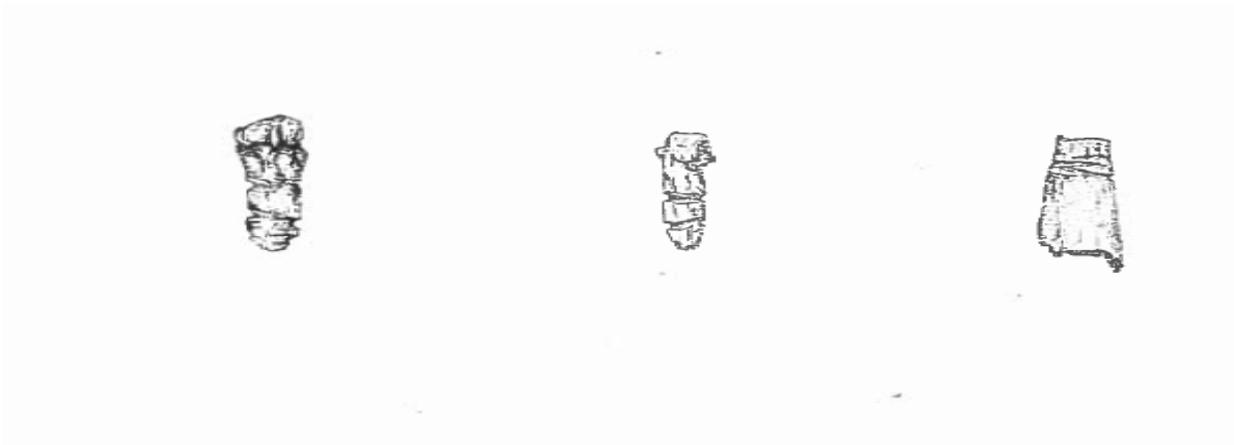


Figure 19. Cut Bone.

snapped off. The item measures 4.4L x 1.9W x 0.9 cm. The other object is dark gray and has the surface appearance of the "cigar-shaped" object except that one end has been flattened and bent to form a right angle. Object measures 2.1L x 1.8W x 1.1 (346) (see Plew and Woods 1985).

Unformed Fired Clay Fragments

Sixteen (N=16) fired clay fragments having grass impressions were recovered. The largest of the specimens is 4.0L x 3.1W x 1.0T. (see Plew and Woods 1985).

Red Ochre

A number of small specimens of red ochre (N=90) were recovered in the excavations. As noted in the description of groundstone, red ochre staining was evident on one pestle and mortar.

Bifacially Flaked Historic Glass Fragments

Six bifacially worked 19th century historic bottle glass fragments were recovered. The fragments include one scraper (see Figure 17).

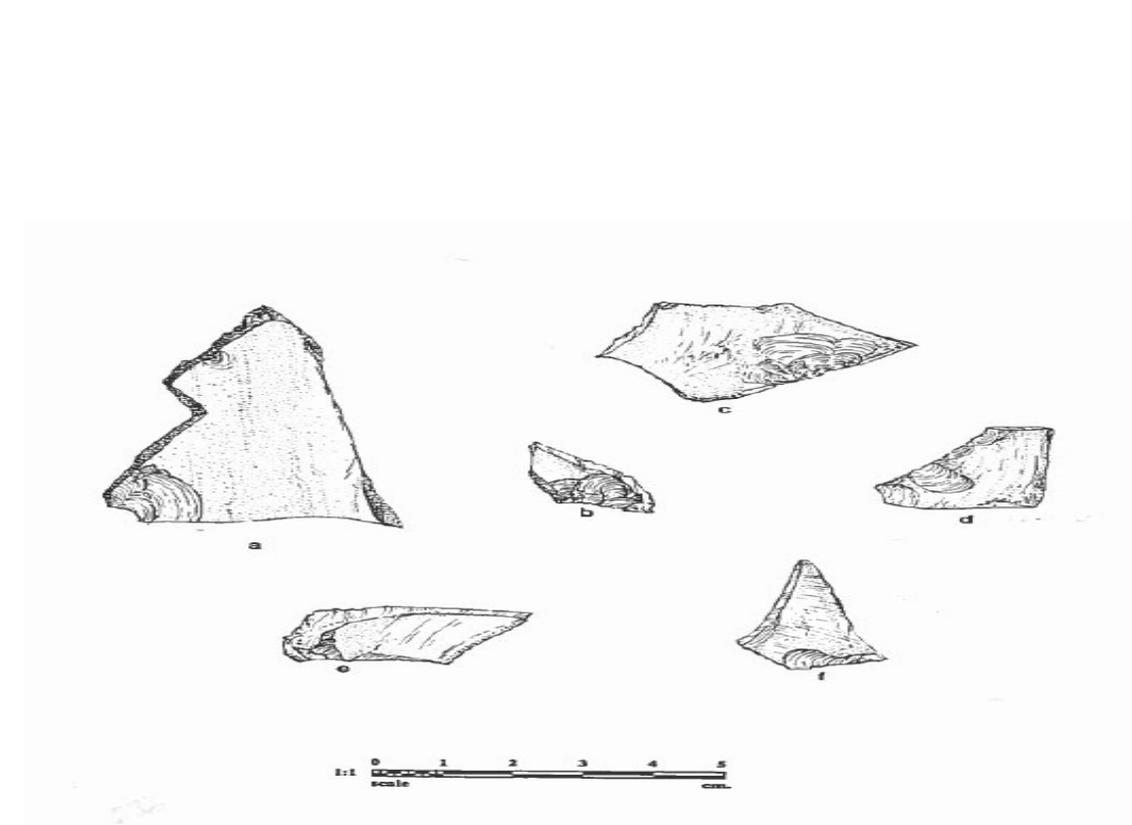


Figure 20. Bifacially worked glass fragments.

Assemblage Analysis Summary

Analysis of the Bliss assemblage suggests considerable richness in artifact types but a degree of unevenness in the distribution of certain artifact types and categories. Although twenty-five artifact types are represented in the assemblage, the total number of artifacts (N=1482) consists largely of projectile points (N=488) and pottery sherds (N=786)—weighting the assemblage heavily toward functional categories of Domestic Tools (53%) and Weapons (33%). General Utility Tools ((12%) suggest that extensive processing activities occurred (see Figure 21). The predominance of ceramics—constituting nearly one-half of the 10-GG-1 assemblage—appears to be a factor of breakage. The presence of pottery, however, even if representing only four or five ceramic vessels— may be more significant in determining site utilization than the presence of a large number of projectiles.

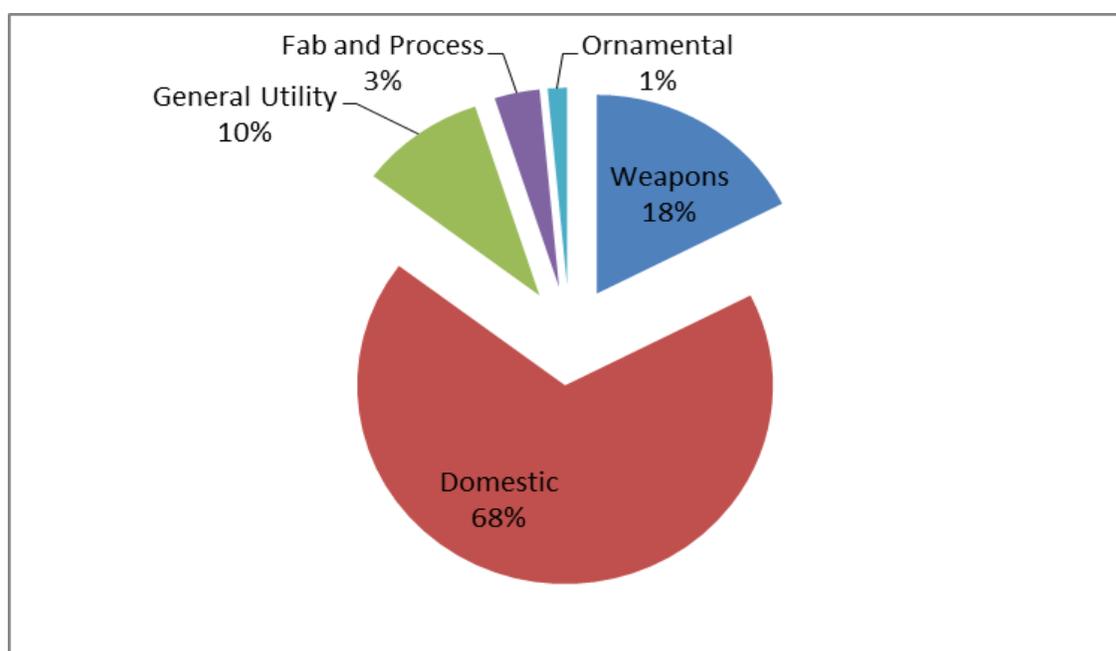


Figure 21. Frequency of Items within Functional Categories

It appears on the basis of extensive carbon accumulations on the interior walls of some sherds, that there were differing uses of ceramic vessels for boiling and parching. The presence of groundstone pestles (N=5) and mortars (N=9) suggests considerable processing. Although plant processing may be assumed and associated with preparation for storage as is indicated by ceramics, ground stone artifacts could have been used to process bone. One of the pestle exhibits evidence of red ochre. The extensive presence of cut bone indicates the manufacture of bone artifacts---particularly beads. A large number of battered cobbles may be associated with the disarticulation and shattering of bone. The manufacture of fired clay artifacts is of interest since they occur infrequently in southern Idaho sites. One of the most interesting discoveries was the recovery of worked 19th century bottle glass. In general, the assemblage from includes with exceptions a common variety of artifact types and suggests the range of activities present at a number of Late Archaic, Middle Snake River sites (see Gould and Plew 1996).

Lithic Debitage Analysis

A total of 25,268 flakes were recovered by the excavations. Using Magne's (1985) method of classifying debris, it appears that some manufacturing activity occurred at the site. Debitage was examined and observations made regarding the number of flake and dorsal scars and percentage of cortex on each flake (see Table 1, Figures 22,23). Platform scars indicate some early stage reduction though the number of second and third platform scars reflect middle and late stage reduction. Dorsal scars reflect middle and late stage reduction. The evidence of early stage reduction explains in part the high frequency of shatter. The late stage debitage, which consists largely of local materials, may reflect, as noted, expedient tool production, particularly from basalt and CCS. The size of late stage debitage may reflect use of small nodules and cores in producing expedient tools (cf. Andrevsky 2006). Tools produced from obsidian represent transport to the locality. Variance in debitage types can of course be accounted for by differences in flint working styles and techniques, shape variance, and mixing of debitage from more than a single reduction episode (Andrevsky 2006).

Table 1. Lithic Debris Attributes and Raw Material Totals

	Basalt	CCS	Obsidian
Dorsal Scars 1	68	335	637
Dorsal Scars 2	114	518	1118
Dorsal Scars 3	264	970	2859
Platform Scars 1	299	1190	3267
Platform Scars 2	68	310	641
Platform Scars 3	61	316	669
Cortex 0%	396	1698	4359
Cortex 1-25%	33	103	168
Cortex 26-50%	11	16	41
Cortex 51-75%	4	6	20
Cortex 76-99%	3	7	17
Cortex 100%	3	3	12
Shatter	1687	7235	16346

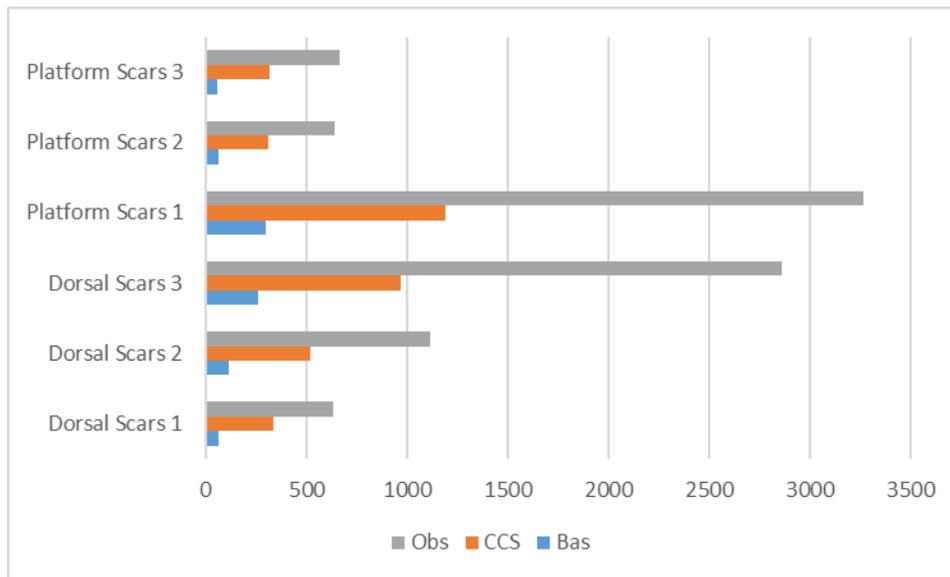


Figure 22. Platform and Dorsal Scars by material type

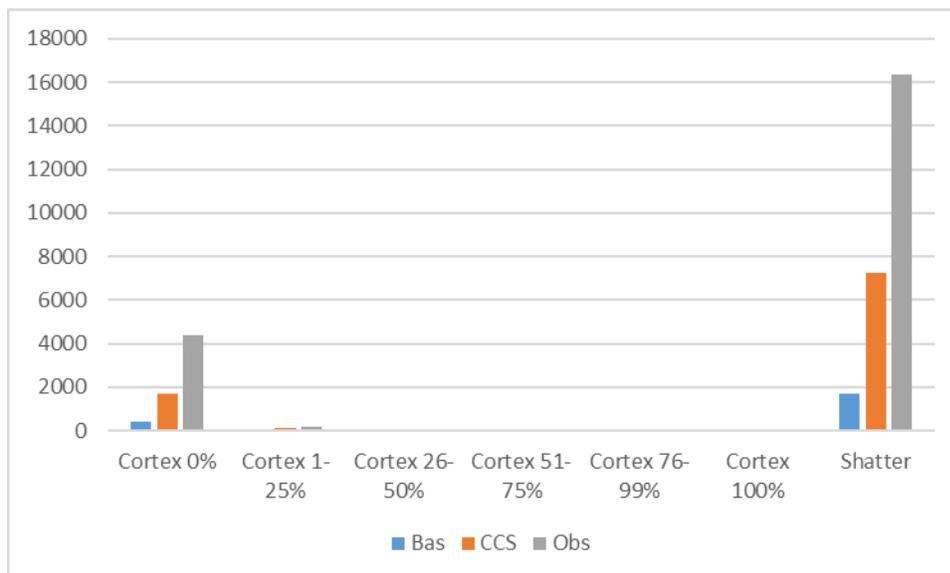


Figure 23. Distribution of Percentages of Cortex and Shatter by Material Type

Dorsal and platform scars were most frequently identified in obsidian debitage, less common in CCS and most notably in basalt. The percent of cortex flakes is noticeably low though the percentages of shatter are quite high. The high frequency of shatter is as noted associated with early stage reduction. Obsidian is the preferred raw material. Kelly (2001) has developed an index designed to use chipped stone materials as a basis for identifying differing levels of high and low mobility (See Table 2 and 3).

TABLE 2. Kelly's (2001) Index of High and Low Residential Mobility			
	High Residential Mobility	Low Residential Mobility	10-GG-1*
Lithic Raw Material	CCS/Volcanic Glass	Siltstone, Tuff, Rhyolite	
Bifaces as Cores	Common	Rare	Common
Bifaces as Bi-Products	Rare	Common	Rare
Bipolar Knapping/Scavenging	Rare	Medium to Common	?
Flake Tools	Rare to Medium	Common	Common
Fire-Cracked Rock	Rare	Common	Rare
Site Size/Density	Small/Low	Large/High	Large/High
Tool/Debitage Ratio	High	Low	Low
Biface/Flake Tool Ratio	High	Low	Low
Complete Flakes	Rare	Common	Rare
Proximal Flake Fragments	Common	Rare	Common
Distal Flake Fragments	Common	Rare	Common
Angular Debris	Rare	Common	Common
Assemblage Size/Diversity	Low Slope	High Slope	Low Slope

An examination of assemblages from area site assemblages in which Kelly's index has been used shows sites that have low and very high material densities. The King Hill Creek site (Willson and Plew 2007) and site 10-EL-216 (Plew and Willson 2010) have low densities whereas Knox (Plew, Huter and Benedict 2002), Bliss, Area A1 (10-GG-1, 1981), (Plew and Gould 2001), Clover Creek (Plew and Gould 1990), and Three Island Crossing (Gould and Plew 2001) are characterized by high densities. Clover Creek and Knox are medium-sized assemblages while Bliss A1 and Three Island Crossing have artifact counts two times the size of any of the other sites. The degree of mobility is also reflected in an absence of formal features and storage. The absence of storage is of particular interest as we typically interpret storage features as being associated with low residential mobility. Notably, few Snake River Plain sites contain evidence of storage, which may be taken to reflect a highly mobile lifeway. Roberts (2015) has re-examined the use of Kelly's index by adding consideration of the proportional presence of pottery, groundstone and features that include hearths. Her analysis determined that the presence/absence of these traits did little to alter the interpretation of site assemblages on the basis of Kelly's chipped stone analysis.

TABLE 3. Summary of Index Correlations for Swenson (10-EL-1417), King Hill Creek (10-EL-110), 10-EL-216, 10-CN-6, and Knox (10-EL-1577) Sites

Site	Correlation of Criteria	High/Low Mobility
Swenson	10/4	High
(King Hill Creek)	12/2	High
Knox	12/2	Low
10-EL-216	13/1	High
10-CN-6	12/2	High
10-EL-215	10/4	High
10-EL-438	13/1	High
10-OE-3686	9/14	High

Geochemical Analysis

Seven obsidian specimens were sent to the Northwest Research Obsidian Laboratory. Three (n=3) of the items are from the American Falls source, two are Cannonball Mountain (n=2) and one (n=1) from Timber Butte. An additional specimen could not be sourced. The item from Timber Butte is perhaps not expected. The distribution of materials from American Falls and Cannonball Mountain fit the pattern described by Plager (2001).

Table 4. Geochemical Sources Identified

Field Specimen No.	NROSL Lab No.	Specimen Type	Geochemical Source
1	1	Flake	Timber Butte
2	2	Flake	American Falls
3	3	Flake	Cannonball Mountain
4	4	Flake	American Falls
5	5	Flake	American Falls
6	6	Flake-	Unknown
7	7	Flake	Cannonball Mountain

Use-Wear Analysis

General utility tools were examined for evidences of use-wear. Artifacts were macroscopically examined and then inspected using 20 and 40X lenses. Lateral margins, tips and bases were examined as appropriate. Specimens included bifaces and bifacial fragments, knives, scrapers, utilized or modified flakes. Odell's (1979) polar coordinate grid system and Ahler's (1979) descriptions of use-wear location and terminology (edge, face, arris, and cross-section) were used to record and discuss observed use-wear related damage. Initial inspection of each specimen was performed using a Bausch and Lomb handheld magnifying glass with a 2x power. Each artifact was examined along the lateral margins, along the arrises, and across the dorsal and ventral surfaces. Examination was intended to identify wear that might include striations, abrasions, fractures, and polishes as described by previous experimental studies (Semenov 1964, Keeley and Newcomer 1977, and Odell and Odell-Vereecken 1980). When possible evidence was observed on a specimen, it was placed within the polar coordinate grid system and recorded on a Lithic Examination Form. The form included fields describing use-wear damage (striations, polish, abrasion, and fractures), areas of location (edge, face, and arris) and cross-section appearance, the polar grid coordinates, artifact measurements (length, width, and thickness), and task descriptions (activity type, activity direction and proposed material worked).

Based on macroscopic (2x magnification) observations, specimens thought to exhibit use-wear were examined microscopically using a low-powered Wolfe microscope with magnification between 7x and 45x. Emphasis was placed on examining lateral margins. A total of 208 chipped stone artifacts were examined for evidence of use-wear. No obvious evidence of wear was found on any artifacts.

Faunal Remains

Faunal remains were analyzed by Steven Churchill using comparative collections at the University of New Mexico. In contrast to many Snake River sites, few invertebrate remains—primarily fragmented mussels (N=485)—were recovered. Mussel fragments were not directly associated with features and are thought to be largely naturally deposited. Vertebrate faunal remains are primarily of large to medium-sized mammals, particularly artiodactyl or deer-sized species. Species identified

Table 5. Distribution of Faunal Remains, 10-GG-1

Common Name	Latin Name	NISP	Percentage
Large mammal	Large mammal (antelope-bison size)	562	24.12%
Medium artiodactyl	Medium artiodactyl (deer size)	506	21.72%
Mammal, indeterminate size	Mammal (indeterminate size)	500	21.46%
Deer	<i>Odocoileus sp.</i>	351	15.06%
Medium mammal	Medium mammal (jackrabbit-wolf size)	122	5.24%
<i>Canis sp.</i>	<i>Canis sp.</i> (dog, coyote, wolf)	72	3.09%

An Update on Analysis of the Protohistoric Component at the Bliss site (10-GG-1), Middle Snake River, Idaho

Pronghorn	<i>Antilocapra americana</i>	55	2.36%
Gray wolf	<i>Canis lupus</i>	54	2.32%
Small mammal	Small mammal (mouse-prairie dog size)	21	0.90%
Jackrabbit	<i>Lepus sp.</i>	20	0.86%
Mule deer	<i>Odocoileus hemionus</i>	19	0.82%
Artiodactyl	Order Artiodactyla	12	0.52%
Elk	<i>Cervus canadensis</i>	10	0.43%
Cottontail rabbit	<i>Sylvilagus sp.</i>	3	0.13%
Cow/bison	<i>Bos/Bison (indeterminate)</i>	3	0.13%
Small artiodactyl	Small artiodactyl (antelope-sheep size)	3	0.13%
Canid	Family Canidae (dog, coyote, fox, wolf)	2	0.09%
Coyote	<i>Canis latrans</i>	2	0.09%
Large artiodactyl	Large artiodactyl (elk or bison size)	2	0.09%
Medium bird	Medium bird	2	0.09%
Amphibian	Amphibian	1	0.04%
Black bear	<i>Ursus americanus</i>	1	0.04%
Carnivore	Order Carnivora	1	0.04%
Cervid	Family Cervidae	1	0.04%
Large bird	Large bird	1	0.04%
Large carnivore	Large carnivore (canid-bear size)	1	0.04%
Rabbit	Family Leporidae	1	0.04%
Sheep/goat	<i>Ovis/Capra (indeterminate)</i>	1	0.04%
Shell	Shell	1	0.04%
Total		2330	

include deer, antelope, pronghorn, elk, rabbit, coyote, gray wolf, black bear and a range of small to medium sized birds and amphibians and fish (see Table 5). A total of 16, 767 vertebrate faunal remains were recovered. Of these only 4, 439 were identifiable. Vertebrate remains exhibit variable degrees of post-breakage burning (see Table 3). Of 2,307 NISP examined, only about 1% of the assemblage exhibit oblique, transverse and longitudinal cutmarks. A total of 2,826 fish remains were recovered. Of these, 72% were “green” or lightly burned (N=2046) and 28% charred (N=780, see Figure 24)—suggesting their disposal in hearths. Calculating the minimum number of individuals (MNIs) based on caudal vertebrae suggests upwards of 235 individuals.

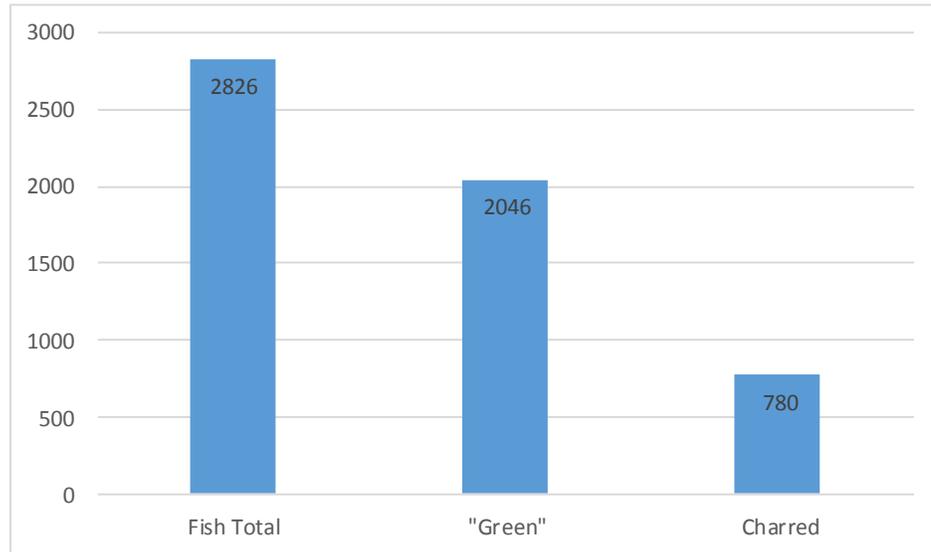


Figure 24. Fish remains from 1991-1992 Excavations

Table 6. Assessment of Burning Timing

	Burning Timing	NISP	Percentage
	Postbreakage	937	40.21%
None	Not applicable	923	39.61%
Heavy (black)	Postbreakage	233	10.00%
Graded, light to heavy	Postbreakage	134	5.75%
Light (tan-brown)	Indeterminate	68	2.92%
Calcined	Postbreakage	15	0.64%
Heavy (black)	Indeterminate	7	0.30%
Graded, heavy to calcined	Postbreakage	6	0.26%
Graded, light to heavy	Indeterminate	6	0.26%
Light (tan-brown)	Prebreakage	1	0.04%
Total		2330	

Preservation and sampling aside, *p* calculations of MNI suggest that fish were important in the diet though probably secondary to large mammals. It is not possible to demonstrate that all fish remains have cultural associations. Of additional interest are a significant number of large canid remains which fall beyond the size range of coyotes. This tentatively suggests the presence of dogs though gray wolf is present in the assemblage. Analysis of butchering techniques indicates the battering of metapodials (see Table 5).

Table 7. Description of Cutmarks

Cutmark Description	NISP	Percentage
None	2307	99.01%
Oblique cuts, not further specified	10	0.43%
Transverse cuts, not further specified	4	0.17%
Sawn, transverse	3	0.13%
Longitudinal cuts, not further specified	2	0.09%
Longitudinal cuts, distal end	1	0.04%
Oblique cuts, distal end	1	0.04%
Oblique cuts, proximal shaft	1	0.04%
Snap break, proximal end	1	0.04%
Total	2330	

Summary

Excavations conducted in 1991 and 1992 at Area A, 10-GG-1 affirm a Late Archaic/ Protohistoric age of occupations established by the 1980 excavations. Based upon additional radiocarbon assessments, the age of the site appears to date to the middle of the 17th century (A.D 1660-1650). The Late Archaic time frame is further documented by the presence of Desert Side-Notched Points and ceramics. Given variances in the samples, some occupations may have occurred as recently as the mid-18th century. This is important since the assemblages may provide insights to the nature of assemblage variability and site types for the period, and may provide a comparative basis for examining the transitions between Late Archaic, Protohistoric and Historic/Ethnographic periods. The recovery of bifacially worked 19th century bottle glass suggests that the area continued to be used by native peoples into the historic period.

Technological diversity in artifact classes suggests highly generalized activities. Although the assemblage is relatively rich in the range of materials, there is relative unevenness in individual tool types, classes and functional categories. The chipped stone assemblage suggests multiple procurement and reduction strategies using generalized tools. Lithic debitage indicates both early and later stage reduction. Many of the formal tools were manufactured from obsidian. It is not clear as to whether all tools were produced on site or curated to the location. The production of expedient tools from basalt and CCS is reflected in the number of small exhausted basalt and CCS cores and a proportionally large collection of shatter—all acquired locally. XRF analysis identifies materials acquired from American Falls, Cannonball Mountain and Timber Butte. In general, assemblage variation at Bliss is similar to that of other sites in the area (Gould and Plew 1996, Plew and Willson

(2013). Excavations at Bliss failed to recover any materials that might be considered Fremont or of Fremont origin. The pottery recovered (n=768 sherds) is Intermountain or “Shoshone” ware. This is of note whereas earlier excavations at Bliss recovered some Southern Idaho Plain Ware (Plew 1979a) now often considered Fremont-like if not Great Salt Lake Grey. The quality of construction would suggest that it reflects manufacture by mobile foragers (Simms et al. 1997). Given that the sherds are tempered with crushed basalt and sand the ceramics do not fit the expectations that foragers are highly selective of more highly valued tempers (Dean and Horting 2000).

Faunal remains suggest a pattern emphasizing larger and medium-sized mammals including deer and elk (63%)— a pattern common throughout the Archaic (Plew 2009). Twenty-four percent are of bison/pronghorn sized animals and an addition 21% are from deer-sized species. Of interest is the battering and smashing of deer and canid metapodials for apparent extraction of marrow. The majority of the fish remains are Chinook salmon that were historically available during late October to mid-November. Smaller salmonid individuals occurring in the assemblage are likely trout. Relatively extensive charring of approximately 30% of the fish remains suggests consumption and disposal of remains by burning. In this regard, it is notable that 56% of the mammalian remains are charred, suggesting use as fuel. As noted, an MNI assessment indicates a population of ca. 235 individual fish. The presence of Chinook remains suggests a late fall use of 10-GG-1. There are, however, few features save for the large hearths and no evidence of any structures—features that might be expected in a fall-early winter encampment. Although these may not have been encountered and exist, it may also reflect the pattern of Shoshonean winter mobility described by Steward (1938) in which camps were often moved and were often located outside the canyon areas. This pattern may reflect rapid depletion of fuel as suggested by Bishop and Plew (2016).

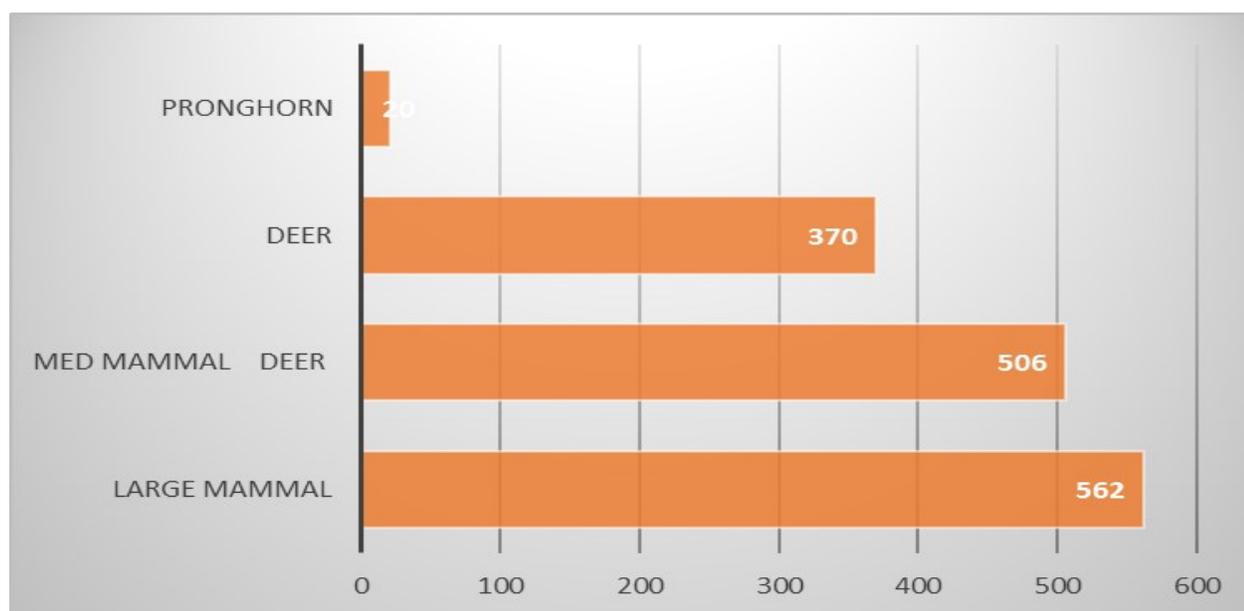


Figure 25. Chart Showing Frequency of Large Fauna (NISPs)

The resource use pattern does not appear to reflect the abundance implied by most accounts of Late Archaic use of the riverine setting in which resource intensification is seen to result in greater socio-economic development (i.e., Pavesic and Meatte 1980). The pattern most probably reflects seasonal variations in use, or presently unrecognized economic strategies of the very Late Archaic or Protohistoric period which may reflect alteration or devolution of the floral and faunal communities and may be associated with the introduction of the horse or greater utilization of the riverine context for a variety of yet unidentified reasons.

Excavations at Area A1, 10-GG-1, are informing as to the nature of assemblage variability on the Middle Snake River. The evidence from 10-GG-1 seems to conform to the isomorphic pattern described by Gould and Plew (1996) for sites between Glenns Ferry and Hagerman, Idaho, in which assemblage variability is reflected only in the differential frequencies of the same functional elements. Recently, this pattern has been described for a number of additional sites between Marsing and Grandview, Idaho (see Plew and Sayer 1995; Sayer, Plager and Plew 1996; Sayer, Plew and Plager 1997; Plew and Willson 2007, 2013). Understanding that variation is determined by prey selection and encounters, it appears that few specialized tools were produced to exploit specific resources (Gould and Plew 1996, 2001). Archaeologically, this suggests a pattern of *direct feeding* similar to that Binford (1980) and Stephens and Krebs (1986) associate with foragers and in this instance reflecting harvest and processing of fish and terrestrial mammals using the same items or tools.

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BOOK REVIEW

Report on Excavations at Danskin Rockshelter (10-EL-1), Southwest Idaho

Mark G. Plew and Susanna Osgood

Boise State University Monographs in Archaeology No. 6, Department of Anthropology, 2017, 207 pp, softcover, no price given.

Reviewed by WESTON WARDLE

In this report, Plew, Osgood, and various contributors have summarized their findings from over two decades of field and lab work on the archaeological assemblage excavated from Danskin Rockshelter. When analyzed within a research orientation that assumes the interconnectedness of mobility and subsistence, the material assemblage supports the view that groups associated with this site were on the forager end of the forager-collector continuum and had high residential mobility. Thus 10-EL-01 was likely a short-term hunting site utilized on a seasonal basis. The unique aspect of the assemblage is the high frequency of *Ovis canadensis* (bighorn sheep) compared to other regional sites, and limited evidence of rabbit, deer, and pronghorn. In fact, Danskin is the only site in southwest Idaho where bighorn sheep make up the majority of the identified species (MNI=57, 21% of MNI).

The importance of this faunal assemblage, and what makes Danskin so important within the broader context of Middle Snake River archaeology, is that it suggests temporary resource specialization at specific sites within the seasonal mobility pattern. In this case, it's the hunting of bighorn sheep at the expense of other small and medium prey. This evidence holds special significance because it highlights the variability and complexity of subsistence and mobility patterns within the region.

The site is geographically located between the Snake River Plain and Camas Prairie, on the edges of both the foothill and forest ecosystems, characterized by sagebrush, bunch grasses, Ponderosa pines, cottonwoods, and willows. The archaeological assemblage supports: 1) occupations from Early, Middle, and Late Archaic periods 2) high residential mobility within Kelly's residential mobility index 3) manufacture of expedient tools.

Of these conclusions, dating the occupations of the site proved to be the most difficult. Radiocarbon dates from six specimens suggest that the site was considerably disturbed. A charcoal sample from one unit with a date of 540 +/- 30 BP corresponded to a stratum in another unit that was 40 cm deeper than a charcoal sample that produced a date of 1320 +/- 30 BP. Projectile point types suggest occupations from Early, Middle, and Late Archaic periods, but inferences related to stratigraphic layers must take into account the likely post-depositional disturbance of the site.

The organization of the report reflects the unique nature of the faunal assemblage, with the last third of the report devoted entirely to faunal analysis, carbon and oxygen isotope analysis of bighorn sheep molars, and a discussion of residential mobility and diet breadth in relation to zooarchaeological remains. Within the framework of optimal foraging theory, it is expected that mobility strategies reflect available resources. The high frequency of bighorn sheep remains raises many questions: what time of year were hunts likely, whether more common prey were ignored in favor of bighorn sheep or were scarce at this location, and where and how processing of prey occurred? Lastly, how does this site fit into the regional subsistence and mobility continuum?

The most likely time of year for hunting of bighorn sheep in the surrounding area would have been early September to late October when nursery herds and rams aggregated. Skulls, horn cores, antlers, maxillae, vertebrae, and rib fragments are absent from the assemblage, suggesting off site processing at kill sites, with some remains chosen to be transported based on their caloric or fat content. The $d^{18}O$ molar values, -9% to -12.7%, are higher than modern values, suggesting drier conditions that bighorn sheep would have thrived under compared to other prey like deer or rabbit. The bighorn sheep remains represent both sexes and a range of ages, though most are from mature individuals.

The authors argue that the faunal assemblage likely reflects a long-term cultural focus on bighorn sheep hunting near the site, due to the temporary aggregation of bighorn during early fall. The MNI of deer (22), beaver (6), rabbit (3), and pronghorn (3) are conspicuously low compared to that of bighorn sheep (57). Fish remains are also a limited component of the faunal assemblage, with only a few vertebrae of small to medium size salmonids. This is notable, considering the proximity of the river.

The low number of alternative prey species probably reflects their low numbers throughout the surrounding landscape, though it is possible they were present in substantial numbers yet ignored in favor of temporarily aggregated bighorn sheep. Either way, this fits in with the larger picture of all Archaic period groups in the region as having highly mobile, transhumant seasonal rounds, characterized by expedient tool production and high residential mobility. This site, though, adds one more possible area of resource specialization where subsistence strategies temporarily map onto a particular patch where resources can be exploited.

This report makes a significant contribution to the efforts to infer subsistence strategies and the mobility patterns that map onto them. The goal of understanding the diversity of foraging activities depends upon understanding the equally diverse degrees of residential mobility which vary seasonally. This report offers a useful example of how groups continued to utilize a specific location for thousands of years as a fairly predictable central place from which to hunt bighorn sheep. This is the type of site that beckons the attention of archaeologists: one which sits on the fringes of broader regional patterns and is a reminder of the complexity and variability of the mobility and subsistence strategies of these groups. This does not mean that the hills were overflowing with sheep every fall. The population of bighorn sheep, and the elevation at which they roamed, would vary annually due to numerous independent variables (e.g., precipitation, temperature, range fires, etc.). The value of this report, though, is that it does pull together enough evidence to show that during some years, some groups foraged the surrounding area, returning with parts of bighorn sheep to a central location. That this likely happened is a significant addition to the portrait of the seasonal subsistence and mobility patterns of Middle Snake River region groups through all Archaic periods.

This monograph is an important contribution to the archaeology of southwest Idaho. A professional audience will find the discussion of the faunal assemblage of considerable interest and find useful the wealth of data presented in the appendices.

