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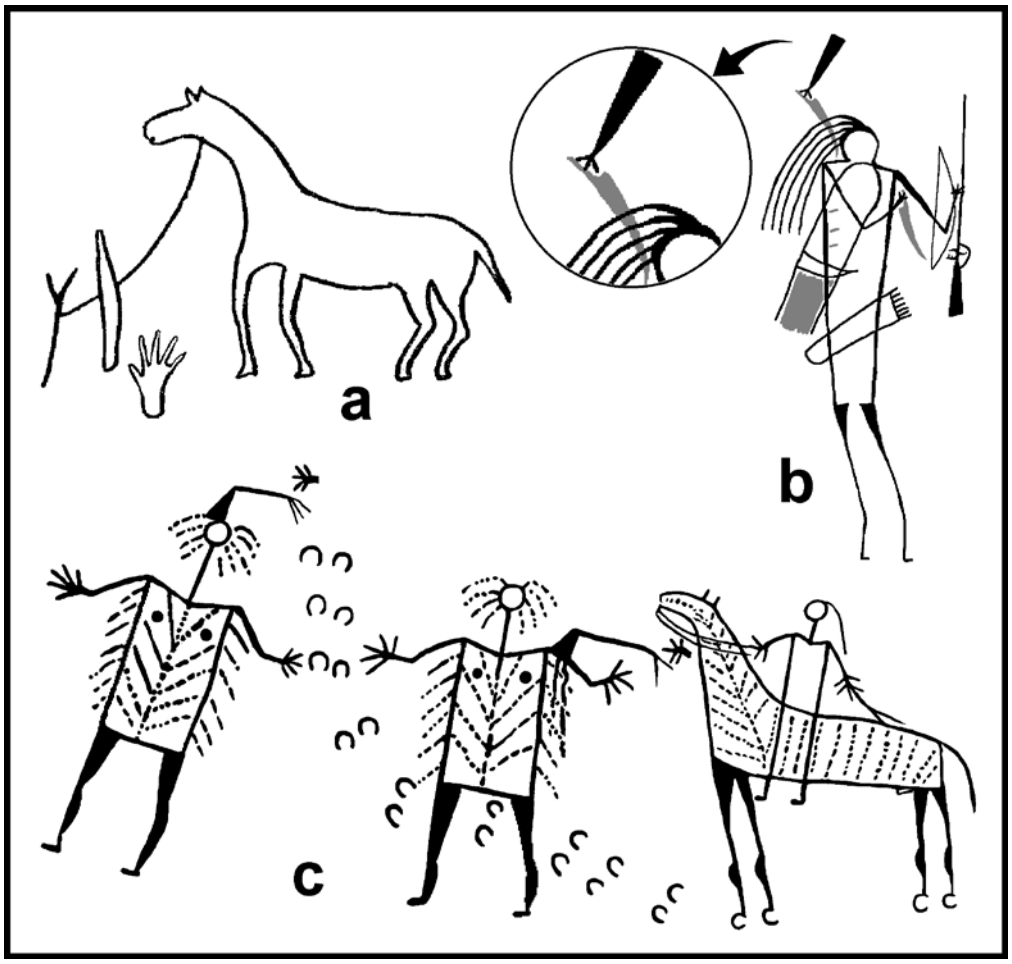

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On the Cover:

Rock art panel at Pathfinder Site. See article by James Keyser, this issue.

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SPOILS OF WAR: PETROGLYPHS OF CAPTURED WOMEN AT RED CANYON, 48FR2508

by
James D. Keyser

The capture hand is one of the most versatile signs in the Plains Biographic art lexicon. First recognized by Wissler (1911:38-41) and Vatter (1927:59, 64-65), but only described in its full symbolic sense in the last quarter century (Brownstone 2001:258-259; Keyser and Brady 1993:9-10; Keyser and Klassen 2001:267; Keyser et al. 2006:58-65; Maurer 1992:184; Taylor 1994:184-185), the symbol is variously used in robe art, rock art, and ledger art to indicate five distinct actions considered war honors in the Plains military system that determined a warrior's status. Most commonly, the capture hand is shown in robe art (and sometimes ledger drawings) to symbolize the taking of an enemy's weapon, scalp, or other possession as a war trophy (Figure 1a, b), but so far this has been found only once in rock art, where a capture hand at Bear Gulch (24FR2) takes a shield (Keyser 2006:66-68; Keyser et al. 2012:36, 269). Likewise, in robe art and a few ledger drawings the capture hand also frequently shows the touching of an enemy to count a direct coup (Figure 1c). So far this has been positively identified in rock art only at Wyoming's Little Boxelder Cave, but another image at Bear Gulch shows either the touching or actual capture of an enemy (Keyser et al. 2012:269).

The capture of an enemy's horse is also shown by the capture hand grabbing the rein or lead rope of a riderless horse (Figure 1d). This is relatively common in Blackfoot robe art (e.g., Barbeau 1960:Frontispiece; Bouma and Keyser 2004:10-11; Dempsey 2007:Plate 25; Keyser and Poetschat 2012:46) and has been documented on one Blackfoot petroglyph at site DgOw-32 at Verdigris Coulee, Alberta (Keyser and Poetschat 2012:40-41). Likewise, the capture hand can show the capture of a live enemy himself/herself (Figure 1e-h). Although some of these captured enemies were young boys who were then raised to become warriors in their captor's tribe, more commonly Biographic art shows such captives (e.g., Figure 1f-g) to be women who were then enslaved and sold (probably the best known example is Sacajawea) or who became "second wives" whose children replaced warriors lost in intertribal warfare. Such captured women are often graphically shown being grabbed by either a breast or the genitalia to represent the "capture" of her reproductive potential (Greer and Keyser 2008:98; Keyser et al. 2006:59). They have been previously recorded in rock art at Bear Gulch, at Montana's Davidson Microcave (24BH653), and at 39HN893 in the North Cave Hills of South Dakota (Greer and Keyser 2008; Keyser and Poetschat 2005; Keyser et al. 2006).

Finally, the capture hand is also sometimes used to "stand in" for the artist by showing his possession of a weapon that performs one of the several brave deeds ranking as a war honor in the Plains warfare system (Figure 2). Some such "capture" hands hold the knife that cuts

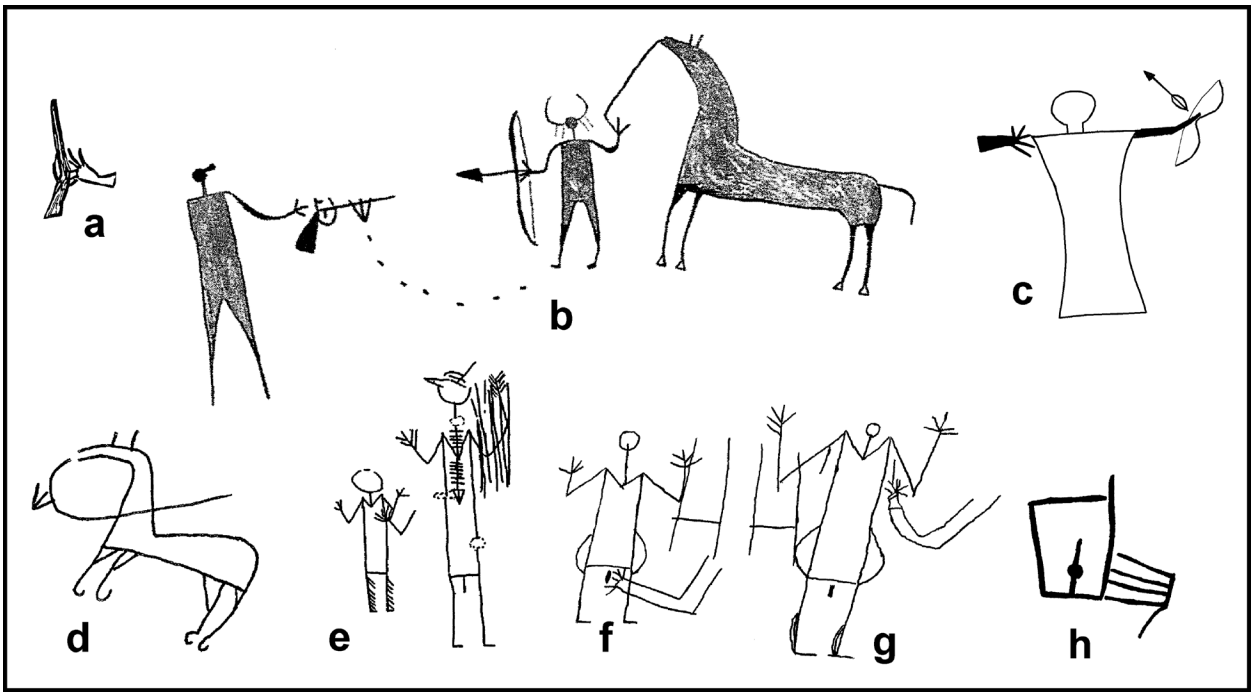

Figure 1: Capture hands are used to document a variety of coups in Plains Indian warfare. a, b, weapon capture, taking a gun; c, touching an enemy; d, capturing a horse; e-g, capturing enemies; h, indicating the "sexual" capture of a woman. a, name glyph, Takes-the-Gun, from Red Cloud's census (Mallery 1972:454); b, Deadmond bison robe, Blackfeet (Bouma and Keyser 2004); c, coup count tally on Mandan war shirt (Keyser et al. 2015); d, petroglyph, DgOw-32 (Keyser and Poetschat 2012); e-g, petroglyphs, 24FR2, Bear Gulch (Keyser et al. 2012); h, petroglyph, 39HN893 (Keyser et al. 2006).

the picket rope during the stealing of a horse, while others hold any number of weapons as they touch, or kill enemy opponents in coup count tallies on numerous robes and war shirts (Brownstone 2001; Horse Capture et al. 1993; Vatter 1927). Although these "stand-in" capture hands are most common in Blackfoot robe art, I recently recognized an example on the Schoch war shirt, which is attributed to Sioux artists (Keyser 2014:98-99; Keyser and Brady 1993:8). At present, no example of this sort of capture hand has been recorded in rock art (Table 1).

Although the capture hand has only recently been recognized in rock art (Greer and Keyser 2008; Keyser and Poetschat 2005:7, 2012, 2014:250-251; Keyser et al. 2006, 2012:77-78, 269) it is quite widespread, and has been found from Writing-On-Stone through Montana and into Wyoming (Table 1). Until now, however, the only Wyoming example was a pictograph at Little Boxelder Cave in the Laramie Mountains south of Casper, which shows a hand poised just above an enemy's severed head in exactly the same position as a floating bow painted just above a similar head immediately to the right (Figure 3). In July of 2014, I supervised a small field crew conducting some small-scale recording work at the Red Canyon site (48FR2508) in central Wyoming and during the research we recorded a single scene showing two women each juxtaposed with a capture hand.

THE RED CANYON SITE

Red Canyon (48FR2508), located in the deeply dissected canyon country just south of Lander, Wyoming, is one of the state's most extensive rock art sites, but it has never been recorded in detail and is thus known only from a

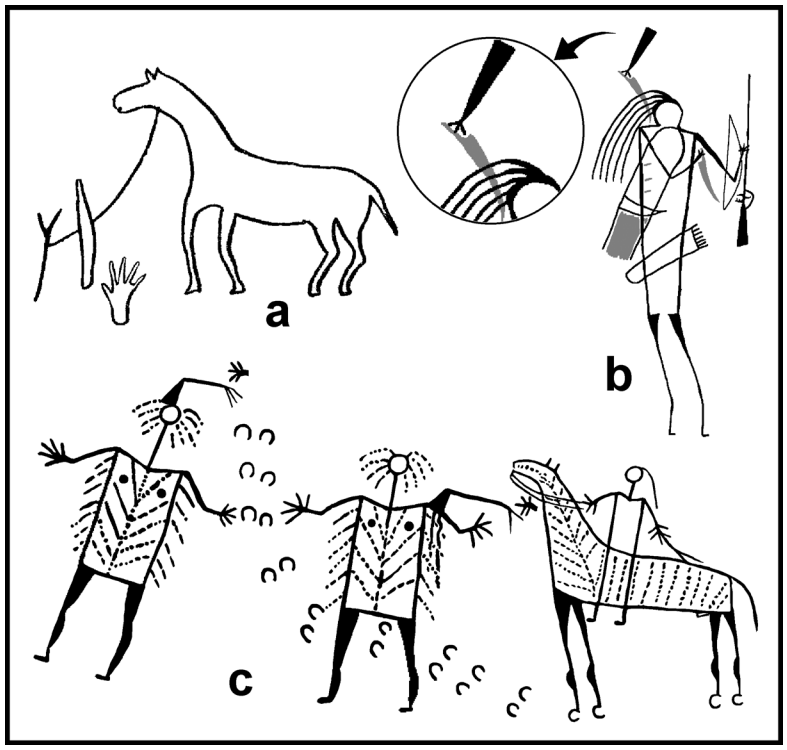

Figure 2: The capture hand can also substitute for the actor in a biographic composition by indicating his holding a weapon as it performs some deed worthy of a war honor. a, knife cutting a picketed horse, Bear Chief's tipi, Blackfoot (Wissler 1911); b, knife stabbing defeated enemy (inset circle shows enlargement of weapon and capture hand), Schoch war shirt, Sioux (Keyser and Brady 1993); c, Tomahawks striking two enemy women, Blackfoot bison robe (Horse Capture et al. 1993). Grey in b indicates red color.

limited number of images published by various authors pursuing somewhat divergent research goals (e.g., Francis and Loendorf 2002:149, 173, 176, 182; Keyser and Klassen 2001:196, 204-205, 225, 286; Keyser and Poetschat 2014:43-53, 258-271; Loendorf and Mark 2010:6, Figure 2). Probably the most intensive efforts to document the overall site have been undertaken by Jim Stewart, who has made an extensive photographic record of the imagery and sketched hundreds of the motifs there since about 1980; and Mike Bies, who has more recently taken hundreds of digital photographs at the site. Unfortunately, neither of these efforts has been published, but both researchers have shared most of their extensive records with me and have filed much of their information with the State Historic Preservation Office.

In general, the site consists of hundreds of petroglyphs scattered at dozens of locations along a massive east-west trending sandstone cliff in the Madison Creek drainage, a minor headwaters tributary of the Little Popo Agie River south of Lander, Wyoming. The cliff is a small part of the striking Red Canyon sandstone formation stretching from south to north for nearly ten miles (16 km) and which can be seen in a large-scale overview from Highway 28 about 15 miles (25 km) south of Lander. The site itself is located (at least in greater part) on land owned by the National Outdoor Leadership School Wilderness Medicine Institute. The several hundred motifs at Red Canyon include more than 60 Seedskadee style shield bearing warriors, at least 100 ungulate hoofprints (many arranged in long lines of tracks sometimes

Table 1: Capture Hands documented in Plains rock art

TYPE OF CAPTURE HAND	ROCK ART SITE	STATE/PROVINCE
Captures a weapon/war trophy	Bear Gulch (shield)	Montana
Counts a bare-handed coup	Little Box Elder Cave	Wyoming
Captures a woman	Bear Gulch	Montana
Captures reproductive potential	39HN893	South Dakota
	Davidson Microcave	Montana
	Bear Gulch	Montana
Indeterminate*	Bear Gulch	Montana
Captures a horse	DgOv32	Alberta
Holds a weapon	----	
Cuts a rope	----	

* Capture hand touching person in this scene could record a bare-handed coup or the actual physical capture of the person.

stretching for more than 50 meters from locus to locus), a few animals (primarily bear, bison, and mountain sheep), other human figures, weapons, crosses, tally marks, and other geometric elements; and a large Historic period Biographic combat scene with more than a dozen warriors and their horses, weapons, and accoutrements. All images so far recorded at the site are petroglyphs, most formed by deep incising, but a few made by pecking and scratching.

THE CAPTURED WOMEN

One of the most prominent petroglyph panels at the Red Canyon site shows two large, well-known figures; one illustrating a large shield bearing warrior who wields an elaborate weapon and the other a large, highly complex anthropomorph portrayed with facial features and interior skeletal elements (cf. Francis and Loendorf 2002:173). However, between these figures and located slightly higher on the cliff face, we noted two relatively large human figures. Both of these are identifiable as women based on their body morphology and illustrated primary sexual characteristics, and both are juxtaposed with an obvious disembodied human hand. These two women figures are between 25 and 28 cm tall and spaced about 40 cm apart on the cliff (Figure 4).

Woman "a" to the left appears more carefully and precisely carved. She is about 26 cm tall with an open, circular head with four short lines of hair standing upright on the top, two large, closely set eyes, and crudely rectangular "earrings" positioned on the lower edge on each side of her long neck. A single line just above the right[1] ear may represent another hair or a headdress of some sort. Her incised, single-line neck is unrealistically long but otherwise her pecked body is roughly rectangular and relatively realistically proportioned with emphatically rounded hips. Arms and legs are incised. Arms, extending out and slightly down from the shoulders, are bent at the elbows, with forearms slightly upraised and ending in hands each represented by five fingers. Legs are slightly curved to the left and end in short, plantigrade feet pointing right. Both legs are fringed with short oblique lines extending slightly downward to the right, probably representing some sort of fringed leggings. Primary sexual characteristics include breasts indicated by short oblique lines incised just below the armpits and a deep vertical line incised between the legs and extending up into the pecked body to represent the vulva. Just to the left of the outstretched left hand is a long vertical line that seems likely to represent a weapon or tool. The absence of a point, fletching, or any other elaboration (such as a "flag" or attached feathers or streamers of some sort) typically identifying spears or lances in this type

[1] Left and right in the description are from the perspective of the viewer.

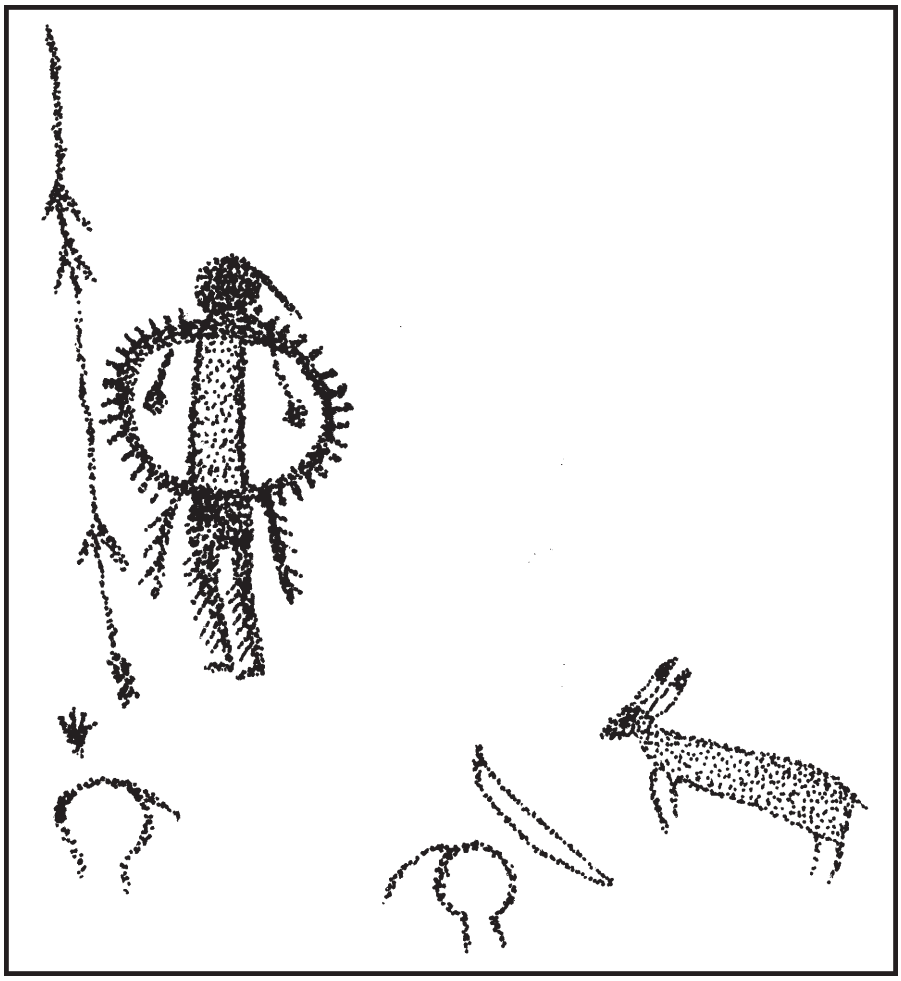

Figure 3: Capture hand above decapitated head at Little Boxelder Cave, 48CO287, Wyoming (Keyser and Poetschat 2014).

of art suggests it is something else. Since this is obviously a woman, a logical possibility would be a digging stick—a common woman's tool with few distinctly identifying characteristics.

Just to the lower right of this woman is a stylistically simple disembodied human arm and hand shown as a comparatively long, straight forearm ending in a pentagonal palm with five long fingers. All of the lines forming the hand are deeply and carefully incised, and the hand appears to be reaching up from somewhat below the woman and reaching toward—but not touching—her lower body. The capture hand is clearly outsized when compared to the woman herself, but the way it is positioned permits no mistake as to the symbolism of its role in capturing her, and its position stretching up toward her lower body with the emphasized vulva is suggestive of "sexual" capture, even though it does not directly touch her genitalia.

To the right is woman "b," slightly taller than the first figure at just more than 28 cm tall, but much sketchier. This second woman is a much simpler stick figure human with a crudely circular head entirely ground out in intaglio form. Short spikey hair covering the entire top of the head is its only feature. From the head to the rounded hips, the body is a single, straight, deeply incised line, but at the waist it widens to form rounded hips also ground out as an intaglio. Arms and legs are incised. Arms extend out and curve sharply downward. The left one ends in a crude, three-fingered hand, but no hand is evident on the right. Legs are irregularly curved

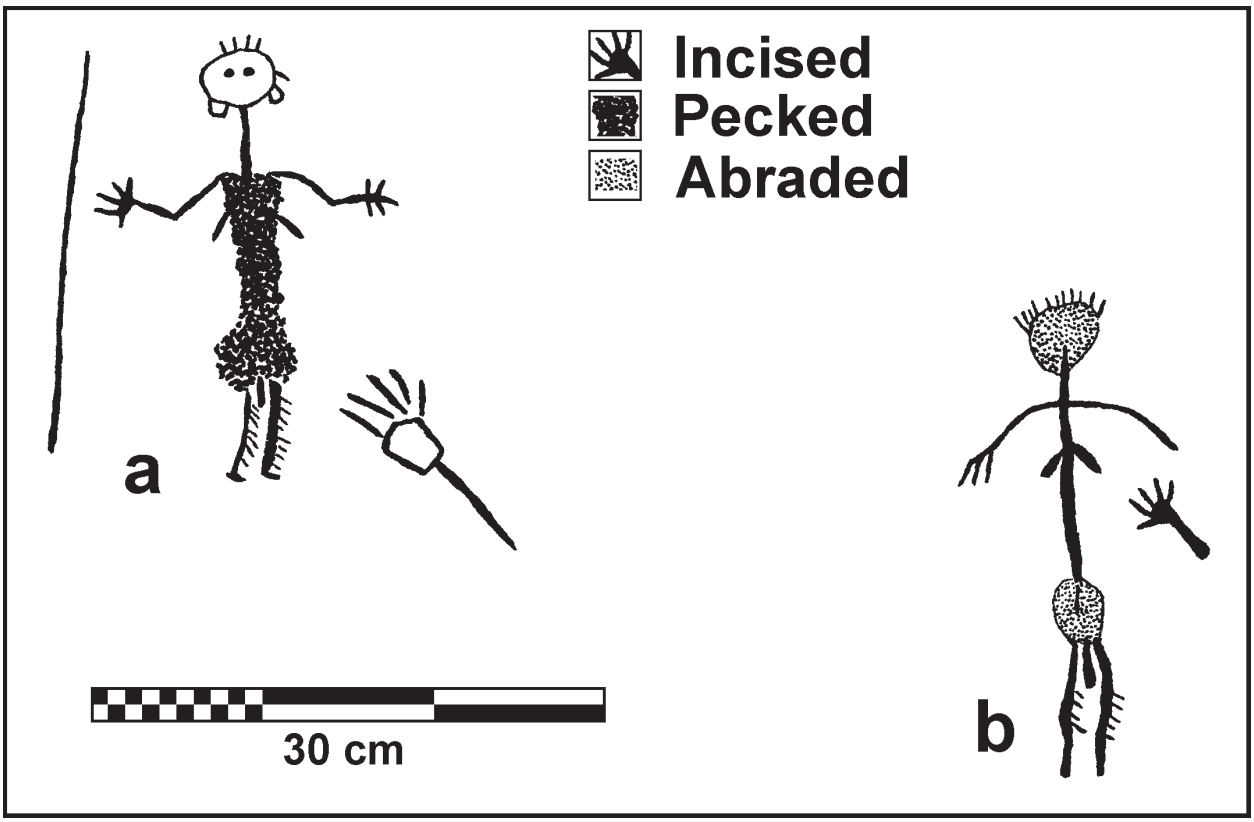

Figure 4: Two captured women at 48FR2508.

and lack feet, but both have a few oblique fringe lines pointing slightly downward to the right suggesting she wears fringed leggings. Primary sexual characteristics include breasts indicated by short obliquely oriented ovoids incised just below her armpits and a deep vertical-line vulva incised between the legs and extending slightly up into the ground out intaglio area representing the rounded hips.

Just to the right of this woman and extending from just above her waist to almost grab her breast is a disembodied human hand and forearm. The short arm and small circular palm of the hand are incised as wide lines with the five short fingers carved with somewhat narrower lines. Positioned at an oblique angle, this capture hand is clearly positioned as if reaching up to grab this woman by her breast.

INTERPRETATION

These captured women clearly document the counting of two coups by the live capture of two enemy females. The positioning of the disembodied capture hands in both cases is essentially identical to other scenes showing the actual capture of women in rock art (Figure 5b-d, f, g) and also to the symbolic capture of others by use of the capture hand convention (Figure 5i, j). When placed on a spectrum of conventionalization, such depictions show a clear trend from realistic portrayals to completely schematic illustrations (Figure 6). If one compares these images to such a spectrum there is no doubt as to what they show.

Differences in both technique and artistic sophistication strongly suggest the two drawings are the products of different artists. Although both human representations are of nearly equal size, the woman "a" is a far more refined representation, drawn largely by pecking. Facial features, earrings and leggings, and carefully drawn hands and feet coupled with a firmness

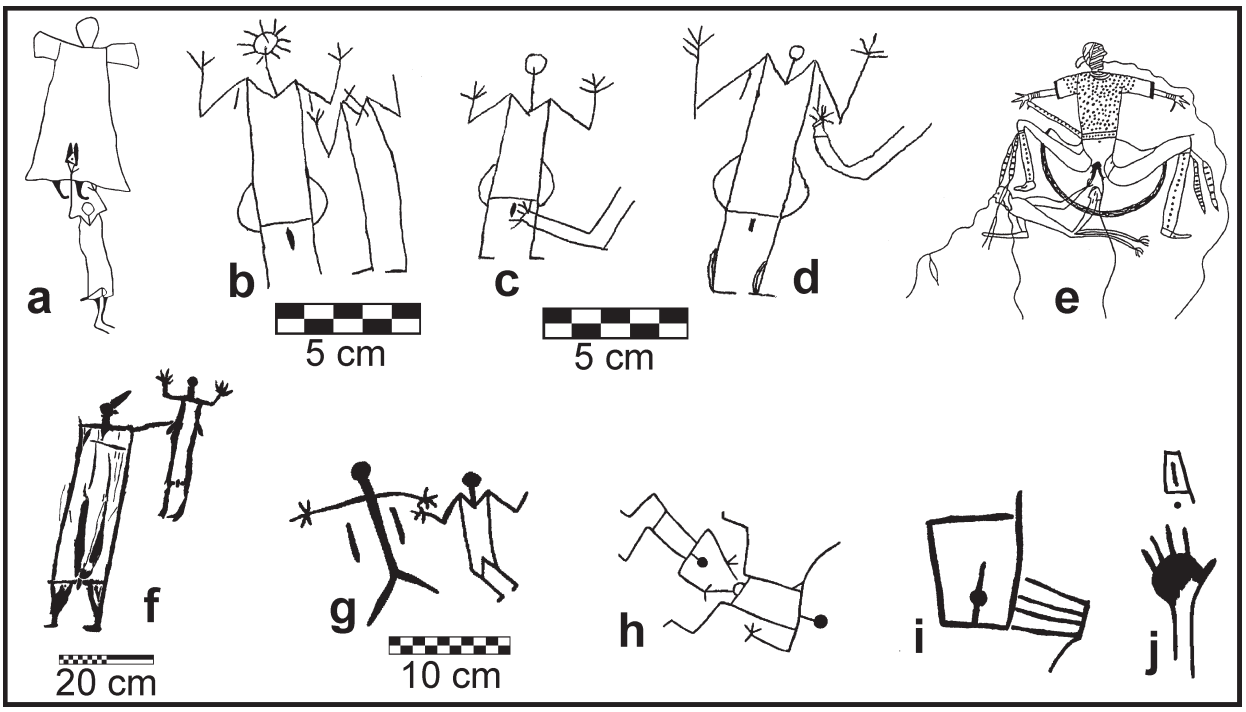

Figure 5: The "sexual" capture of women in Plains rock art ranges from fully narrative scenes (a, b, e-h), through more abbreviated scenes that have become pictograms (c, d), to compositions that are ideograms (i, j) whose meaning relies on detailed "insider" knowledge of the cultural system in which they were used. a, 39HN217 (Keyser et al. 2006); b-d, 24FR2, Bear Gulch (Greer and Keyser 2008); e, 24CB402, Joliet (Keyser et al. 2006); f, 48WA2066 (Keyser and Poetschat 2009); g, 48BH4275 (Keyser and Poetschat 2014); h, DgOv-2, Writing-On-Stone (Keyser 1977); i, 39HN893 (Keyser et al. 2006); j, 24BH653, Davidson Microcave (Keyser and Poetschat 2005).

and clarity of line composing the image render an expressive human figure who appears to be much more than a mere stick-figure representation. Interestingly the figure itself contrasts markedly to the almost cartoonish hand thatreaches up to effect its capture.

Conversely, the woman on the right is notably sketchy with simplistic pecking used to differentiate only the head and hip areas from the otherwise crudely drawn, stick-figure body. The only features added to the minimalist stick-figure form are hair, fingers on one hand, and fringed leggings, and the latter two attributes are sketchy and incomplete. Unlike the other figure, the capture hand reaching up toward this woman is more carefully drawn than she is, and shows a more realistic hand than any of the others drawn in the scene, including the other capture hand and those drawn on the human figures.

There is no chronological indicator associated with either of these women. However, elsewhere at the Red Canyon site, much of the other imagery has been dated by the presence of depicted items (e.g., full-body size shields, metal weapon points, horses, equestrian period shields, guns) and stylistic criteria to the Late Prehistoric, Protohistoric, and Historic periods (Francis and Loendorf 2002:148-182; Keyser and Klassen 2001:196-225; Keyser and Poetschat 2014:43-53, 258-271). Based on stylistic criteria, it seems almost certain these figures date either to the Protohistoric or Historic periods, just as do most other images from this site.

CONCLUSIONS

Two warrior artists documented coups at the

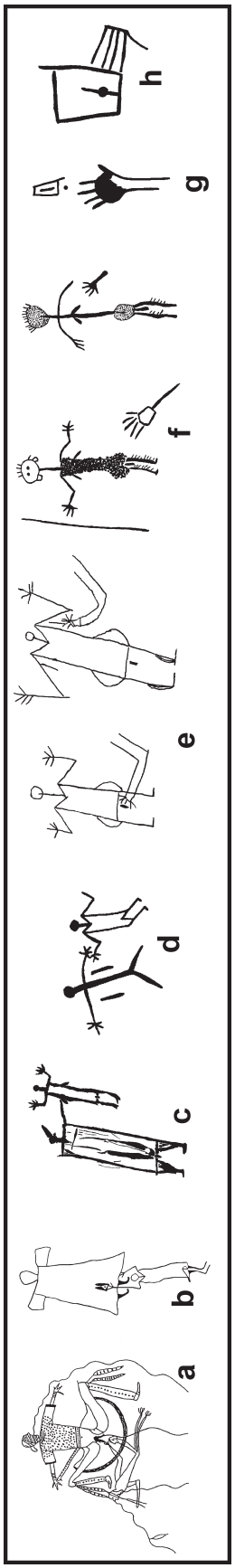

Figure 6: A spectrum of conventionalization for illustrating the capture of a woman's reproductive potential, from easily understandable narrative scene (a), through somewhat sketchier compositions (b-f), to ideograms (g, h).

Red Canyon site by illustrating capture hands reaching out to take enemy women. The capture of these women has an obvious sexual symbolism, with the capture hands reaching out toward the vulva in one instance and the breast in the other. This symbolism is identical to that which occurs at other Northwestern Plains rock art sites scattered from Writing-On-Stone, Alberta to Wyoming's Bighorn Basin (Greer and Keyser 2008:95, 98; Keyser and Poetschat 2009:15, 2014:99; Keyser et al. 2006:59; 2012:77-78). In Plains Indian cultures this symbolism served to show a man's counting coup by claiming (or "capturing") a woman's reproductive potential (Keyser et al. 2006:59). Such capture of women was a key component of the Plains warfare system, since captives were highly sought after to replace dead relatives killed by epidemic diseases and inter-tribal warfare. This Red Canyon rock art composition provides another testament to the importance of women captives in the warfare system of the Northwestern Plains.

ACKNOWLEDGEMENTS

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REFERENCES CITED

Barbeau, Marius
1960 Indian Days on the Western Prairies. *National Museum of Canada Bulletin* 163.

Bouma, Janis and James D. Keyser
2004 Dating the Deadmond Bison Robe: A Seriation Study of Blackfeet Biographic Art. *Plains Anthropologist* 49:9-24.

Brownstone, Arni
2001 The Musee de L'Homme's Foureau Robe and its Moment in the History of Blackfeet Painting. *Plains Anthropologist* 46:249-267.

Dempsey, L. James
2007 *Blackfoot War Art: Pictographs of the Reservation Period, 1880-2000*. University of Oklahoma Press, Norman.

Francis, Julie E. and Lawrence L. Loendorf
2002 *Ancient Visions: Petroglyphs and Pictographs of the Wind River and Bighorn Country, Wyoming and Montana*. University of Utah Press, Salt Lake City.

Greer, Melissa and James D. Keyser
2008 Women Among Warriors: Female Figures in Bear Gulch Rock Art. *American Indian Rock Art* 34:89-103

Horse Capture, George P., Anne Vitart, Michael Waldberg, and W. Richard West, Jr.
1993 *Robes of Splendor: Native North American Painted Buffalo Hides*. The New Press, New York.

Keyser, James D.
1977 Writing-On-Stone: Rock Art on the Northwestern Plains. *Canadian Journal of Archaeology* 1:15-80.
2006 Bear Gulch and the Origins of Narrative Art. *Archaeology in Montana* 47(2):57-75.
2014 Man's Shirt. In *The Plains Indians: Artists of Earth and Sky*, Gaylord Torrence, editor, pp. 98-99. Skira Rizzoli, New York.

Keyser, James D., David A. Kaiser, George Poetschat and Michael W. Taylor (editors)
2012 *Fraternity of War: Plains Indian Rock Art at Bear Gulch and Atherton Canyon, Montana*. Oregon Archaeological Society Press, Publication 21, Portland.

Keyser, James D., David A. Kaiser, and Livio Dobrez
2015 Biographic Rock Art Tallies: Explicit, Implicit, or Inferred Narrative? *American Indian Rock Art* 41:69-85.

Keyser, James D. and George Poetschat
2005 Another Elk Petroglyph from the Gateway Site: Some Possible Functional Implications. *The Wyoming Archaeologist* 49(2):3-14.
2009 *Crow Rock Art in the Bighorn Basin: Petroglyphs at No Water Wyoming*. Oregon Archaeological Society Press, Publication 20. Portland.
2012 "On the Ninth Day We Took Their Horses:" Blackfeet Horse Raiding Scenes at Writing-On-Stone. *American Indian Rock Art* 38:35-52
2014 *Northern Plains Shield Bearing Warriors: A Five Century Rock Art Record of Indian Warfare*. Oregon Archaeological Society Press, Publication 22, Portland.

Keyser, James D., Linea Sundstrom, and George Poetschat
2006 Women in War: Gender in Plains Biographic Rock Art. *Plains Anthropologist* 51:51-70.

Keyser, James D. and Michael Klassen
2001 *Plains Indian Rock Art*. University of Washington Press, Seattle.

Keyser, James D., and Timothy J. Brady
1993 A War Shirt from the Schoch Collection: Documenting Individual Artistic Expression. *Plains Anthropologist* 38:5-20.

Loendorf, Lawrence and Robert Mark
2010 *Report on the Project to Photograph the Shield from Aztec Ruins*. Report on file with Aztec Ruins National Monument, Aztec New Mexico.

Mallery, Garrick
1972 *Picture-Writing of the American Indians*. Dover Books, New York. (Reprint of Tenth Annual Report of the Bureau of American Ethnology dated 1893).

Maurer, Evan M.
1992 *Visions of the People: A Pictorial History of Plains Indian Life*. The Minneapolis Institute of Arts, Minneapolis, MN.

Taylor, Colin
1994 *The Plains Indians*. Crescent Books, New York.

Vatter, Ernst
1927 Historienmalerei und Heraldische Bilderschrift der Nordamerikanischen Präriestämme: Beiräge zu einer Ethnographischen und Stilistischen Analyse. *IPEK: Annual Review of Prehistoric and Ethnographic Art* 4:46-81. Klinkhardt & Biermann Verlag, Leipzig, Germany.

Wissler, Clark
1911 The Social Life of the Blackfoot Indians. *Anthropological Papers of the American Museum of Natural History* Vol. VII, Part I.

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PECKED PETROGLYPHS AT THE GATEWAY SITE: THE UNCOMPAHGRE STYLE IN THE GREEN RIVER BASIN

by
James D. Keyser
and
Angelo Eugenio Fossati

ABSTRACT

A recent discovery of Archaic period pecked petroglyphs at the Gateway site (48LN348) is the first occurrence of Uncompahgre style imagery in the northern Green River Basin. Badly impacted by superimposed Late Prehistoric period incised petroglyphs, the Uncompahgre style images are a panel of abstract lines and circular forms whose overall form is similar to other Uncompahgre style petroglyphs at a site further south along the Green River. We document these newly discovered Gateway site petroglyphs and summarize the current evidence for the Uncompahgre style in the Green River Basin.

INTRODUCTION

During a field trip in conjunction with the American Rock Art Research Association's 2014 annual meeting, Italian rock art specialist, Angelo Fossati, visited the Gateway petroglyphs (48LN348), which Keyser had supervised the recording of ten years before (Keyser and Poetschat 2005a). During his site visit, Fossati—whose primary rock art experience is recording ancient pecked petroglyphs in a variety of Old World settings (e.g., Fossati 2006, 2015)—recognized shallow, highly weathered, pecked petroglyphs underlying a portion of the main panel of shield bearing warriors at the Gateway site. He mentioned this to Keyser and noted these petroglyphs appeared to be similar to other Archaic period imagery at the Confluence site (48SW45) farther south in the Green River Basin where we had worked together just a week before. We decided to return to Gateway after the conference in mid-July to record the pecked images to provide a more complete site record and document the first instance of Archaic period Uncompahgre style petroglyphs in the northern Green River Basin. We were accompanied by Dave Vlcek who assisted us in coordinating our work with Lynn Harrell, BLM archaeologist at the Kemmerer Resource Area. The 2014 tracing done to the same standards as the original tracings made at the site in 2004 and 2006 (Keyser and Poetschat 2005a, 2005b), and a photocopy reduction of it, have been sent to the Kemmerer Resource Area for curation with the previous site records.

THE GATEWAY SITE

The Gateway site (Figure 1) is a small concentration of petroglyphs incised and abraded on several faces of a distinctively shaped sandstone outcrop perched high on a sharply rising ridge above the confluence of Fontenelle Creek and the Green River. Located on the highest point of this steep-sided ridge, the site has a commanding view to the east down Fon-

Figure 1: Overview of Gateway site atop end of ridge in center of photograph. Inset shows cleft in which main rock art concentration is located. Panel 1, with petroglyphs of interest, is indicated by arrow.

tenelle Creek valley and out onto the Green River floodplain, now inundated by the waters of Fontenelle Reservoir. Deeply incised and abraded petroglyphs are the primary images at the site, and the ones most easily recognized today. They are found on both surfaces within a deep cleft between two parts of the sandstone bedrock outcrop, and also outside this cleft on the outcrop's northeast-facing side. The original recorders divided the site into five separate panels (Keyser and Poetschat 2005a:112), the largest of which—Panel 1—is located within the cleft on its interior, south-facing wall. This panel dominates the site, with more than 70 images—nearly half the site total. The most striking images on this panel (Figure 2) are a phalanx of incised Seedskadee style shield bearing warriors facing off against an opposing force carved on this face and an adjacent one. Just above this warrior phalanx is a long, horizontally oriented arm and hand symbol floating above the warriors in the position of a protective talisman. Just to the right of these warriors is a large bear paw and below the phalanx are four comb or rake-like images. Other drawings on the panel in the immediate vicinity of the warrior phalanx are a horizontally oriented, crook-neck coup stick, three lizardmorphs (or odd stick figure humans), and two complex spiney figures. It is underneath the shield bearing warriors, bear paw, and three of the rake-like images where Fossati recognized the old, highly weathered pecked imagery recorded in July of 2014.

THE PECKED IMAGERY

Occupying a roughly rectangular area measuring about 90 cm wide by 60 cm high is an amorphous patch of pecked lines and crude circles (Figures 2, 3), which underlies the much later incised imagery for which the Gateway site is better known (e.g., Keyser and Poetschat 2005a:112-123, 2014:275-277). Pecking here is quite shallow and the lines are wide, but close inspection shows highly eroded dints are still observable in the bottoms of many pecked areas. Coupled with the fact the sandstone surface here is naturally somewhat rough textured, the severe weathering of the pecking on this panel

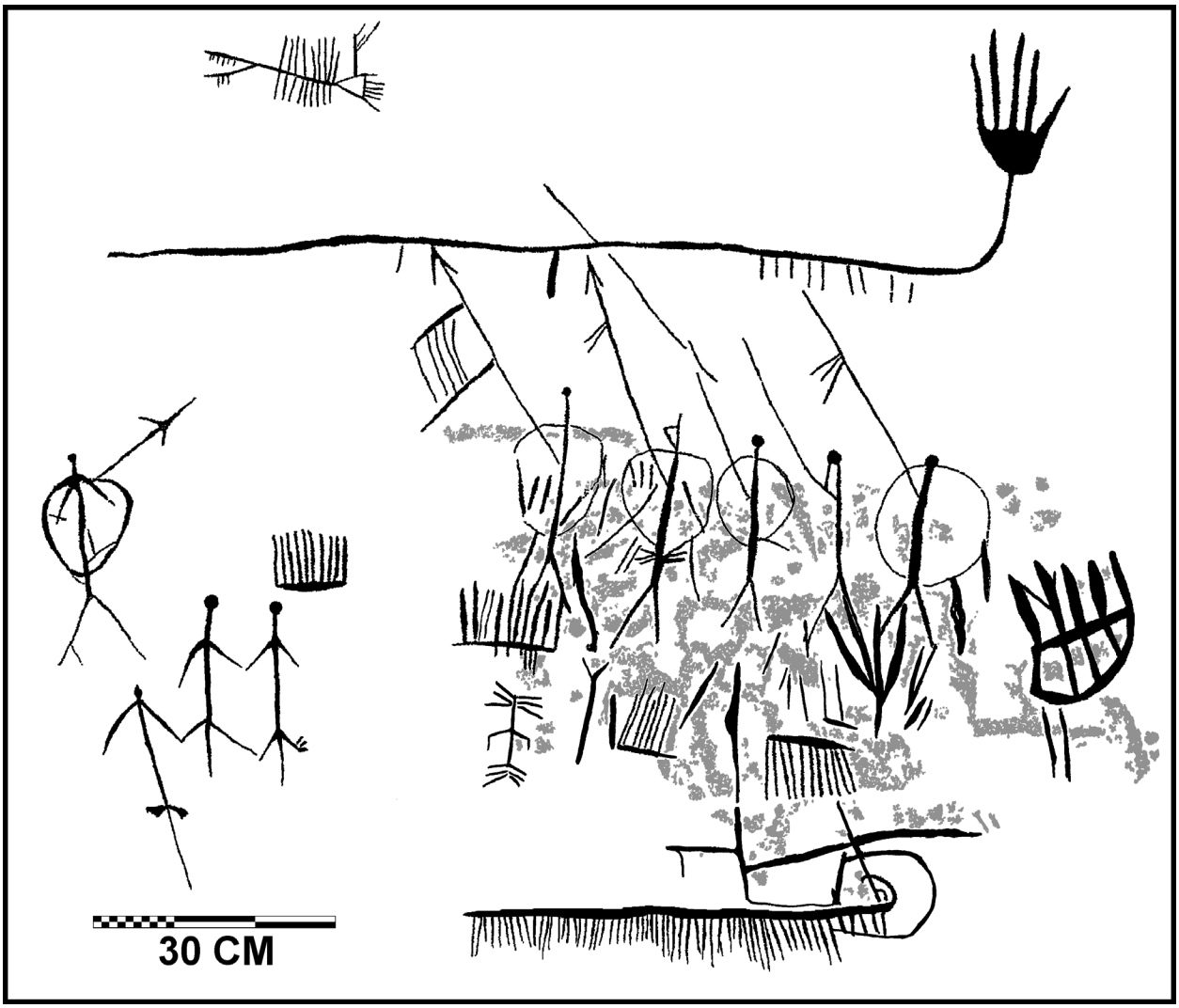

Figure 2: Main area of Panel 1 showing phalanx of shield bearing warriors, arm and hand symbol, bear paw, and other images incised over much earlier, more eroded pecked petroglyphs (shown in grey). Note how later, deeply incised images have greatly impacted earlier pecked petroglyphs.

is the reason it was not previously recognized.

No real representational "images" or "figures" can be distinguished in the pecked petroglyphs at Gateway, aside from a few horizontal lines and two or three crude circular forms. In part, this lack of recognizable imagery is likely from a combination of extreme weathering of the old pecking and superimposition of later deeply incised petroglyphs that have almost certainly destroyed some of the earlier lines and probably obscured parts of others. However, Uncompahgre style pecked petroglyphs at the Confluence site to the south in the Green River Basin do show similarly abstract patterns over broad areas (Figure 4) in addition to representational figures. At Gateway, it may simply be any representational figures that might have originally been associated with the surviving pecked imagery, but located on a higher part of the panel, have not been preserved. The fact that the upper part of this main panel appears to be somewhat more eroded than the lower part lends some credence to this suggestion. On the other hand, the general form of the pecking at both Gateway and Confluence is quite similar in both size and content (cf. Figures 3, 5), and

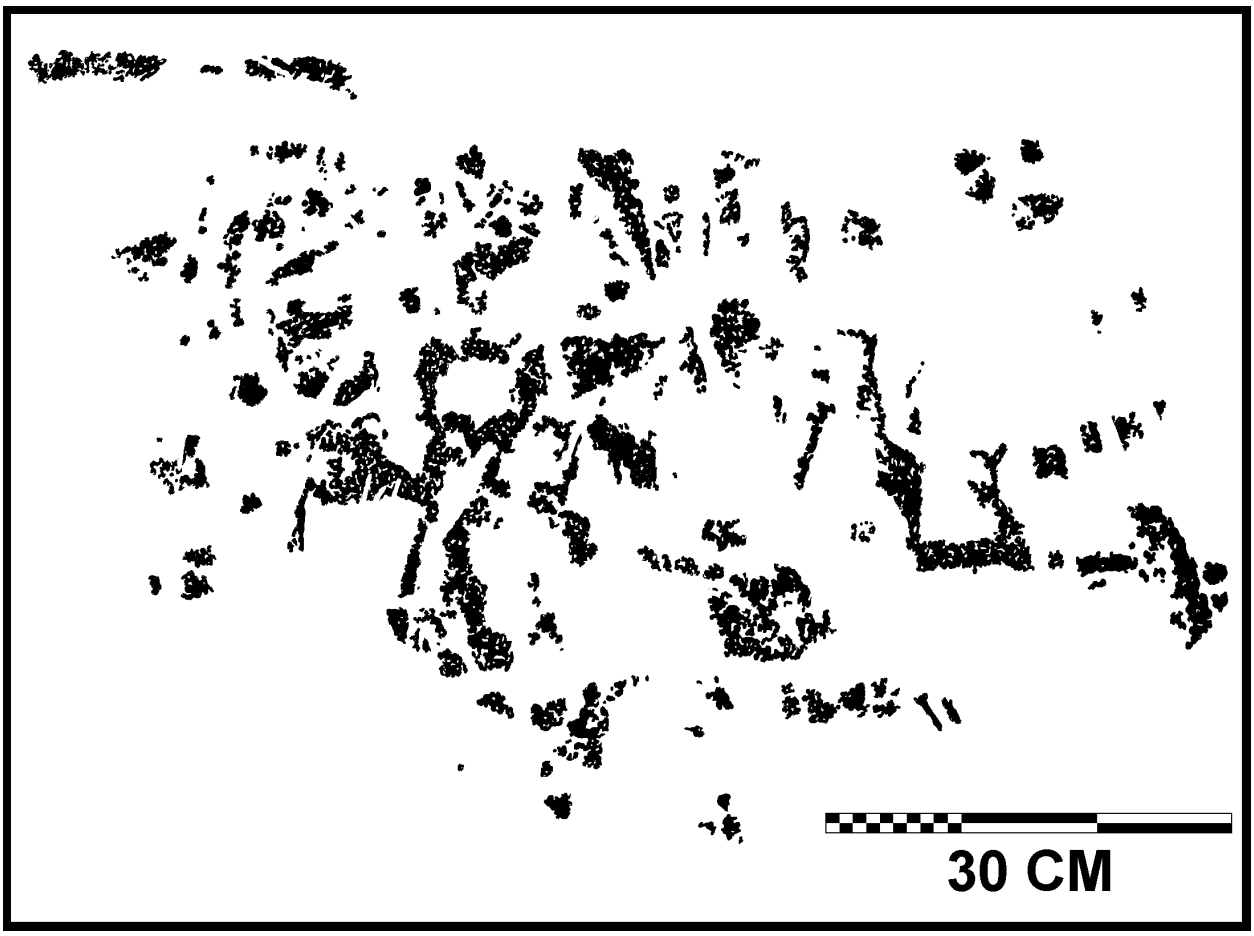

Figure 3: Pecked petroglyphs at Gateway site, Panel 1, with superimposed incised imagery removed for clarity. Note fragmented nature of pecking due to impacts of deeply incised later petroglyphs.

it seems just as likely these large clusters of abstract imagery were meant to have importance in their own right. No other pecking was noted on any of the other four Gateway site panels.

UNCOMPAHGRE STYLE IMAGERY IN THE GREEN RIVER BASIN

The Uncompahgre style was originally defined and named in the Uncompahgre Plateau area of far west-central Colorado almost 50 years ago by Bill Buckles (1971), who classified the pecked Uncompahgre petroglyphs into three "styles." His schema proved unwieldy, however, and later careful analysis by Sally Cole (1987) found significant overlap between Buckles' three styles that led her to lump them all together into a single, more inclusive, broader-based Uncompahgre style dating between about 1000 B.C. and A.D. 1000 based on evidence of superimposition and other dating clues she recognized (Cole 1990:82-96, 2009:107-114). Based on Buckles' original work and her own work for the Colorado BLM, Cole mapped the Uncompahgre style west of the continental divide across a large area of west-central Colorado stretching from the Rocky Mountains along the Colorado River just into eastern Utah and then south along the Dolores River (Figure 6).

More recently published research, however, has documented significant numbers of sites north of the Colorado River in northwestern

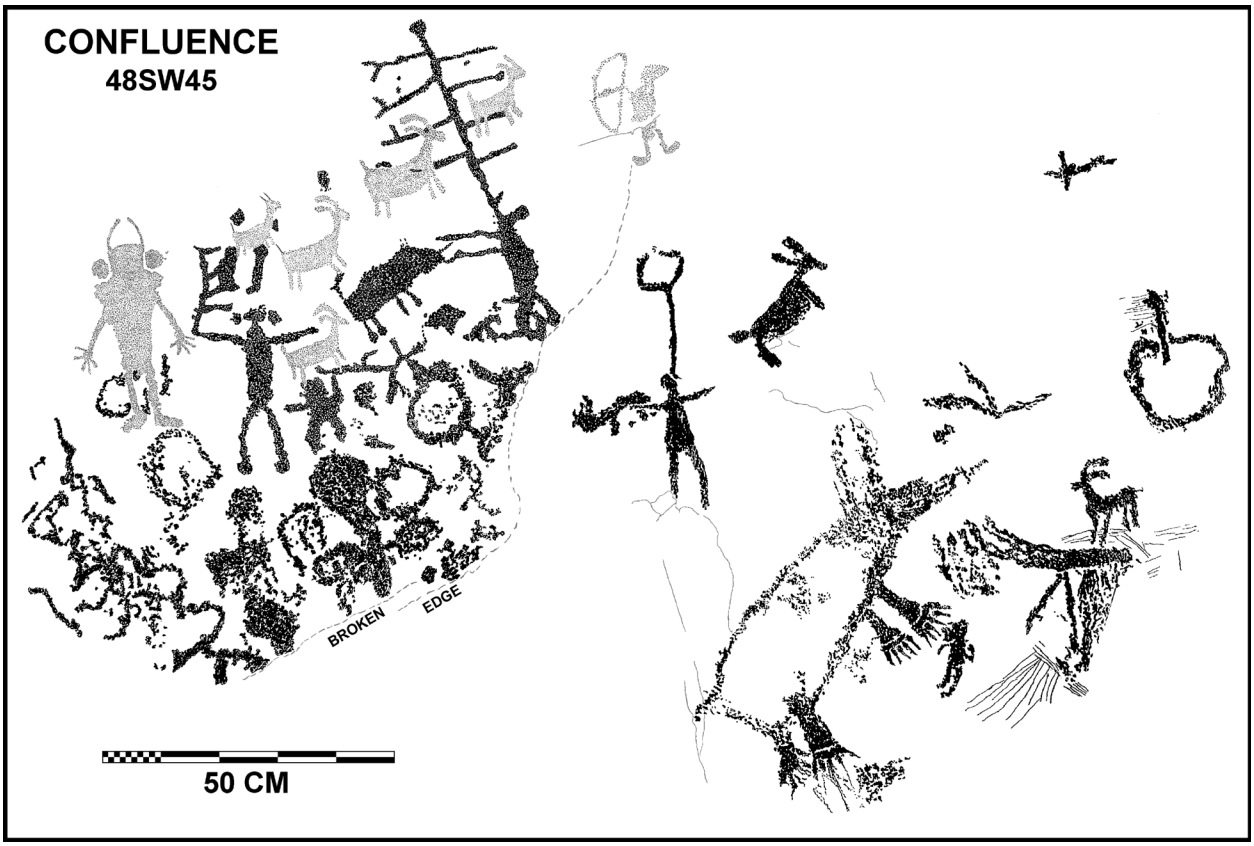

Figure 4: Tracing of petroglyphs at the Confluence site, 48SW45, along the Green River in Flaming Gorge National Recreation Area. Darker stippling shows Archaic period Uncompahgre style imagery superimposed by Fremont style hunting scene shown in lighter grey stippling at upper left. Note abstract pattern of circles lines and blobs just above scale and Uncompahgre style bear with segmented bear paw feet at lower right center. Also note large Uncompahgre style human figure just to right of tall Fremont anthropomorph.

Colorado and southwestern Wyoming contain pecked imagery essentially identical to the Uncompahgre style (Keyser and Poetschat 2008:66-67; 2015; McKern 1978:88-96). For example, at the Craig Sandrocks site (5MF4306), W. C. McKern noted in 1922[1] that there were "Old Type" petroglyphs that "resemble[d] to a surprising extent a type of petroglyphs found on the Mesa Verde" (McKern 1978:91) and which were "closely allied to the Shavano Valley. . .forms" (McKern 1978:96). His illustrations show both pecked human and animal forms closely resembling what was 50 years later classified as Uncompahgre style imagery, including a large suite of imagery at the Shavano Valley site itself (Buckles 1971:1088, 1097). These include at least one segmented bear paw (Figure 7b), a form noted to be typical for Uncompahgre style bear paws (Cole 2009:108, 111-112), and also found as part of Uncompahgre style pecked rock art at two southwestern Wyoming sites (Figure 8, also see Keyser 2015). Another form found at Craig Sandrocks appearing typical of Uncompahgre style art is an animal whose feet are shown as hoof prints or paw prints (in this case cloven hooves) pointing downward from the ends of the creature's legs (Figure 7c).

Just to the north, in far southwestern Wyoming, Uncompahgre style petroglyphs have

[1] Note that McKern's field work was done in 1922 and his original report was written in 1924, but the report was not published until 1978.

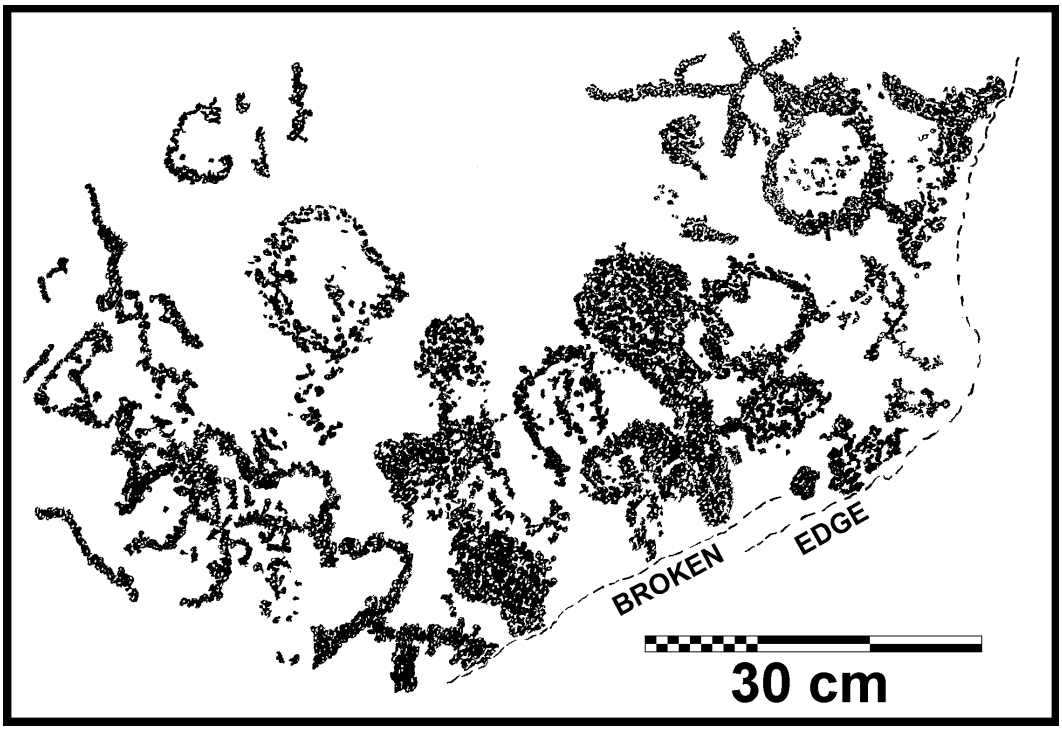

Figure 5: Abstract pattern of pecked petroglyphs at the Confluence site with superimposed Fremont imagery and other representational images removed for clarity. Compare with pecked imagery at Gateway site shown in Figure 3; but note these petroglyphs are not as heavily impacted by later superimposed images.

been recognized at several sites over the past decade (Keyser and Poetschat 2008, 2015). Site 48SW9444 in the Powder Wash area showed a pecked bear paw and circles that were highly weathered and appeared to be much older than the charcoal-drawn pictographs of the Late Prehistoric and Historic periods which dominate most sites in the area (Keyser and Poetschat 2008:15, 66). However, more extensive collections of imagery are found at half a dozen sites in the southern Green River Basin. At the Lucerne and Henry's Fork sites, just west of Flaming Gorge Reservoir and immediately north of the Utah/Wyoming state line, Uncompahgre style imagery shows bears, bear paws, elk, mountain sheep, bison, and various human figures including a variety of large and small anthropomorphs some of which hold ceremonial regalia. Extensive panels of pecked Uncompahgre style petroglyphs at 48SW83 and 48SW88 rival some of the largest of those recorded by Buckles in both size and complexity of imagery (Keyser and Poetschat 2015). Further north on the west side of Flaming Gorge Reservoir is the Confluence site (48SW45) where another extensive Uncompahgre style petroglyph panel is superimposed by Fremont images. The underlying Archaic period imagery shows simple anthropomorphs; a bear with downward-pointing, segmented paws for feet; mountain sheep and other animals, and an extensive area of abstract, amorphous, curvilinear lines and circles (Figure 4).

West of Flaming Gorge there are four recorded sites with Uncompahgre Style imagery. In the Little Bitter Creek drainage, the Keeper of the Canyon (48SW18434) and Little Bitter Creek sites both show extensive panels of pecked imagery focused on humans, elk, and bighorn sheep (Figures 9, 10). At Keeper of the Canyon, several human figures wear horned headdresses mimicking antlers pecked

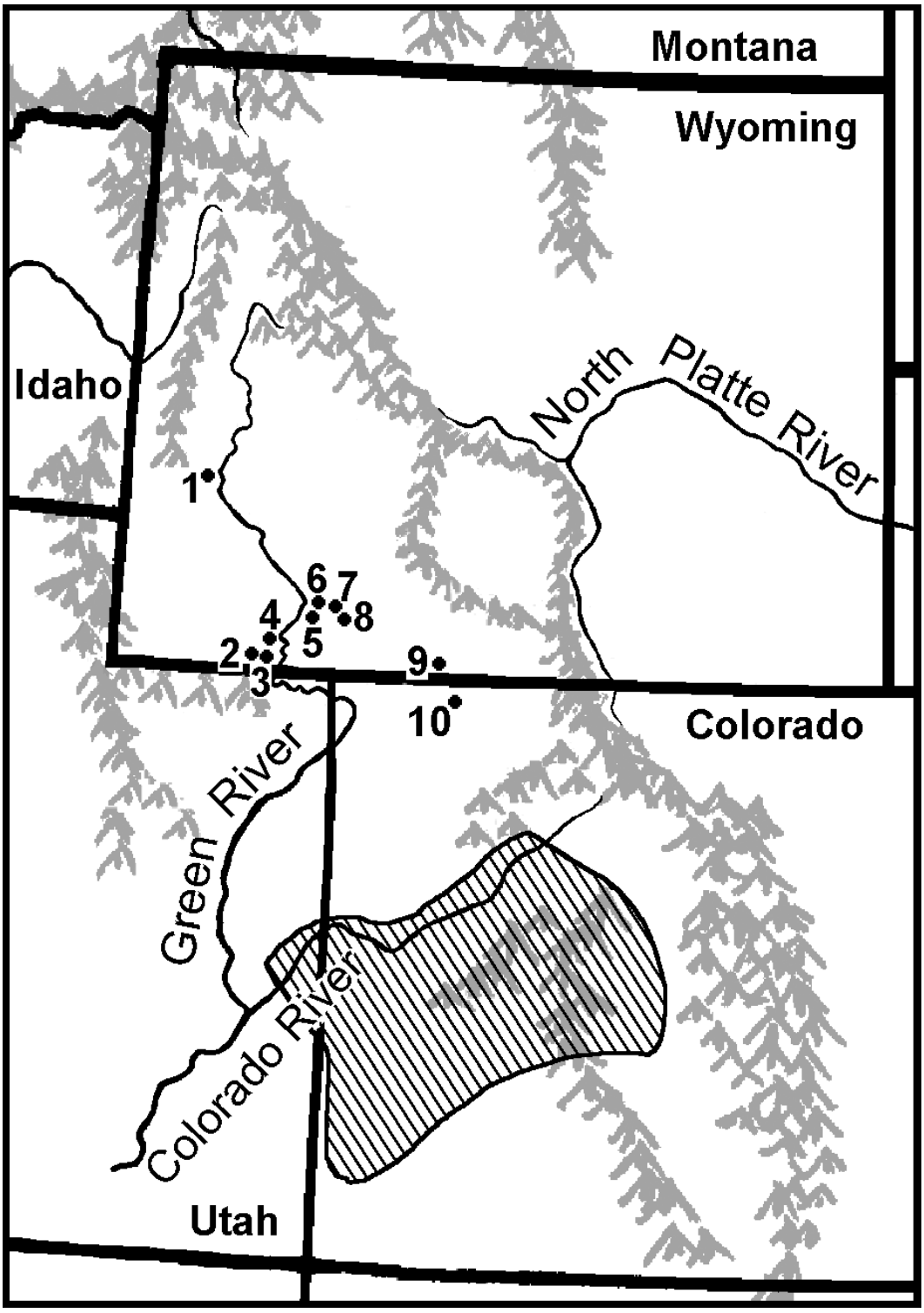

Figure 6: Distribution of Uncompahgre style petroglyphs in the Green River Basin of southwestern Wyoming. Hachured area shows distribution of Uncompahgre style as mapped by Cole (1990, 2009). Green River Basin sites with Uncompahgre style petroglyphs are: 1, Gateway; 2, Henry's Fork (48SW88); 3, Lucerne (48SW83); 4, Confluence (48SW45); 5, Currant Creek; 6, Sugarloaf; 7, Little Bitter Creek; 8, Keeper of the Canyon (48SW18434); 9, Powder Wash (48SW9444); 10, Craig Sandrocks (5MF4306).

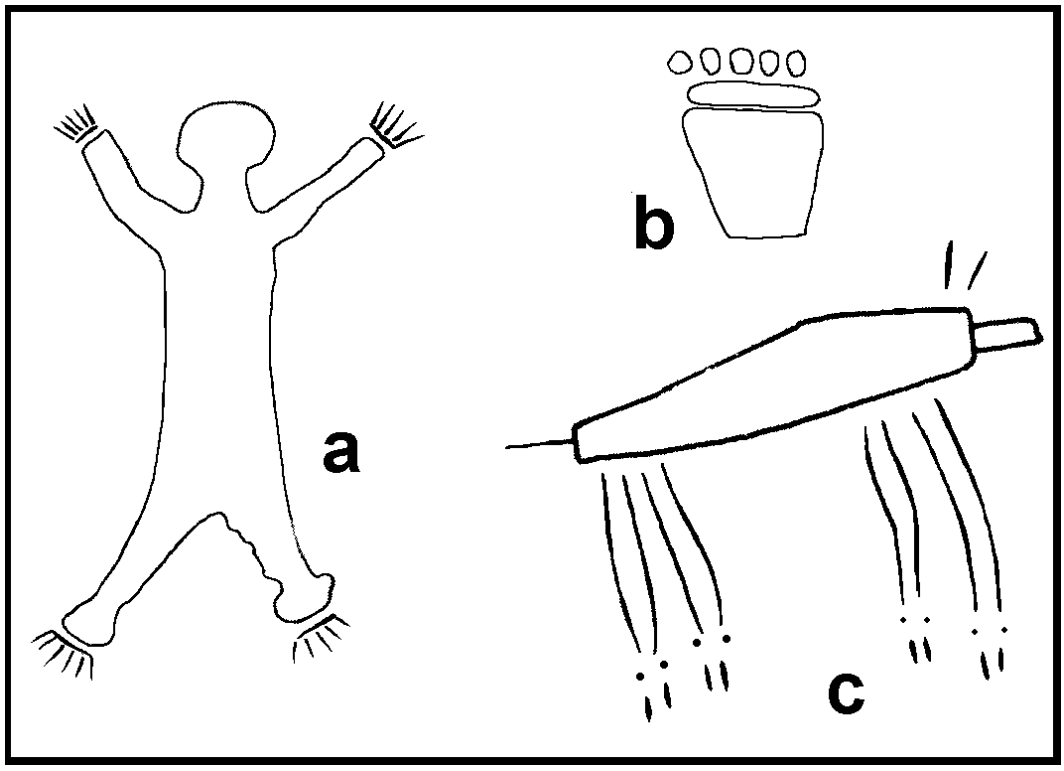

Figure 7: W. C. McKern's sketches of petroglyphs at the Craig Sandrocks site in Colorado showing affinities to Uncompahgre Style. (adapted from McKern 1978: Figures 49 and 50).

elsewhere on the panel to transform a natural feature of the cliff face into the profile of an elk. West of Little Bitter Creek in the Currant Creek drainage are the Currant Creek and Sugarloaf sites, both with Archaic-age pecked petroglyphs of humans, elk, and bighorn sheep. At least one Sugarloaf human figure also wears an antler headdress (Figure 11). In both technique and composition, the petroglyphs at all four of these sites in the Little Bitter Creek and Currant Creek drainages resemble quite closely those classified by Buckles and Cole as Uncompahgre style images in Colorado.

These eight sites south of Interstate 80 are certainly not the only ones in this area of southwestern Wyoming with Archaic-age petroglyphs that are likely part of the Uncompahgre style, but there is a marked lack of organized rock art inventory in this part of the state, and several of the previously described sites resulted from inventory efforts of members of the Sweetwater chapter of the Wyoming Archaeological Society. What we currently know of the Uncompahgre style rock art at the Confluence, Little Bitter Creek, and Keeper of the Canyon sites is from the chapter's efforts to either find the sites or involve professionals in the documentation of previously known sites. Future work in this broad area is certain to result in the location of more Uncompahgre style imagery.

North of Interstate 80, the situation is somewhat different. Keyser has seen one or two sites northeast of Rock Springs with pecked imagery similar to the sites to the sites already discussed, but there has been no recording work done in the area where they are located and even photographs are lacking. In this general location, pecked petroglyphs at the Black Mountain site have been dated to the Paleoindian period (Tanner et al. 1995), but the method used to date the images has not been proven completely reliable in the years since this date was obtained so their

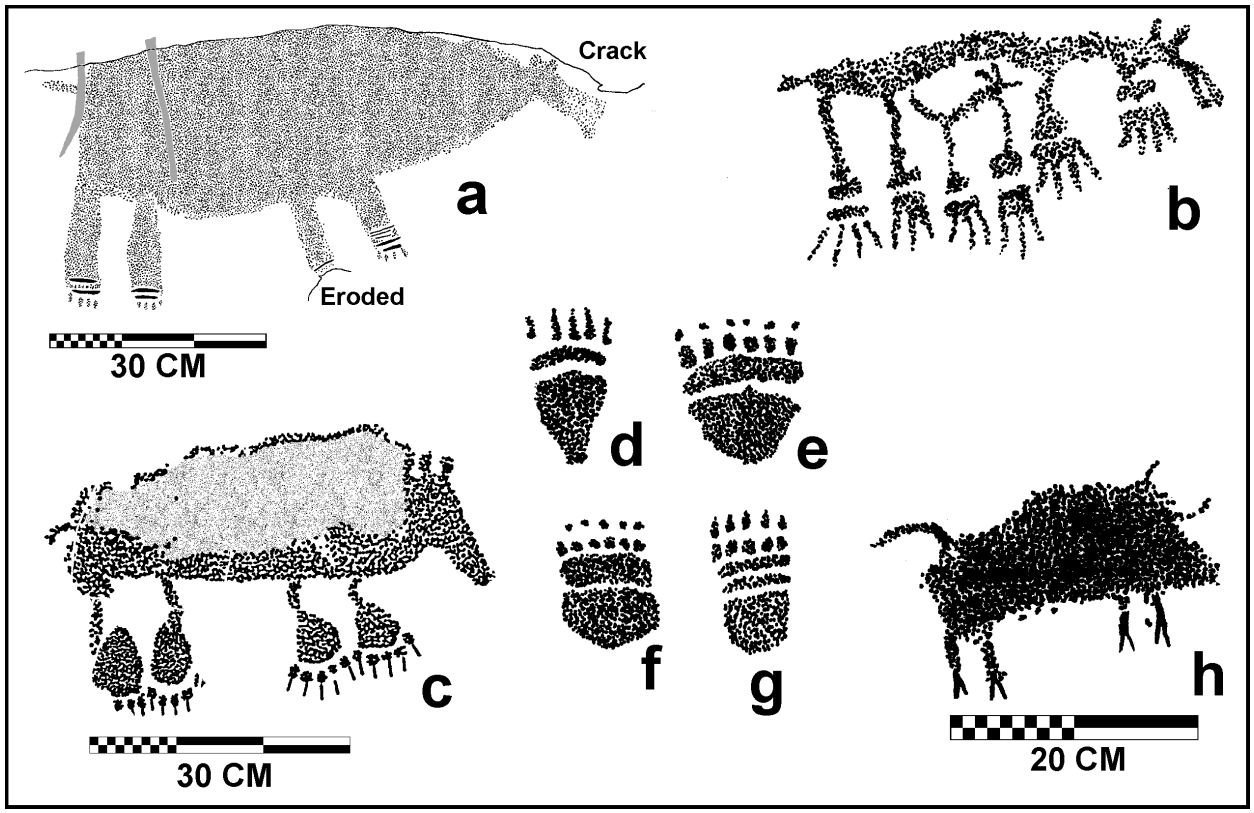

Figure 8: Uncompahgre style bears and bison showing typical illustration of tracks as feet and segmented bear paw prints. a, Henry's Fork (48SW88); b, west-central Colorado, note "cub" beneath larger bear (adapted from Cole 2009:111); c, Lucerne (48SW83); d-g, Uncompahgre Plateau (adapted from Buckles 1971); h, bison, Lucerne (48SW83).

age is not conclusively demonstrated. Whether the pecked imagery in this area is Archaic period Uncompahgre style or significantly earlier awaits further research.

To the northwest, from the Cedar Canyon-White Mountain district to the upper Green River, Dave Vlcek and Russ Tanner have maintained a long term interest in the rock art, and they have summarized the known sites in several papers (Keyser et al. 2004; Tanner 1990; Tanner and Vlcek 1995; Vlcek 2001; Vlcek and Drucker 2014). Because of their (and other scholars) interest, several sites have been recorded to varying levels of completeness (Bozovich and Bozovich 1968; Keyser and Poetschat 2005a, 2005b; Keyser et al. 2004). But in this broad area from Rock Springs north to Pinedale and then back southwest to Kemmerer, no Archaic period petroglyphs had previously been documented. All of the known imagery was incised petroglyphs dating from the Late Prehistoric period through the Protohistoric period and into Historic times.

Thus, the newly recognized pecked petroglyphs at Gateway are a first for this area. While their form is somewhat amorphous, comparison to the panel of curvilinear lines and circular elements unmistakably associated with Uncompahgre imagery at the Confluence site shows them to be similar in form and technique, and nearly identical in size (cf. Figures 3, 5). In sum, were the Gateway petroglyphs found at any of the other Green River Basin Uncompahgre style sites, they would be included in the style without reservation.

So how does it appear the Gateway site

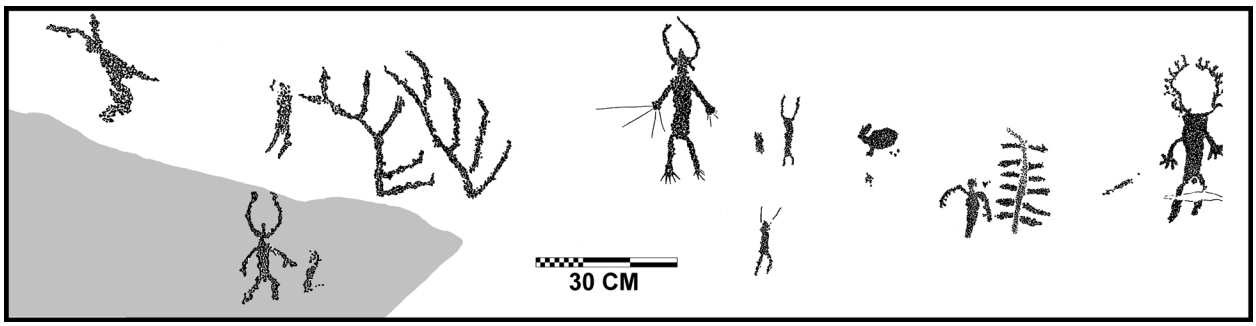

Figure 9: Uncompahgre style imagery from Keeper of the Canyon site (48SW18434). Grey area at left is a natural feature of cliff resembling an elk's head, which has been enhanced with pecked antlers. Note antler headdresses worn by associated anthropomorphs. Small bird located at right center.

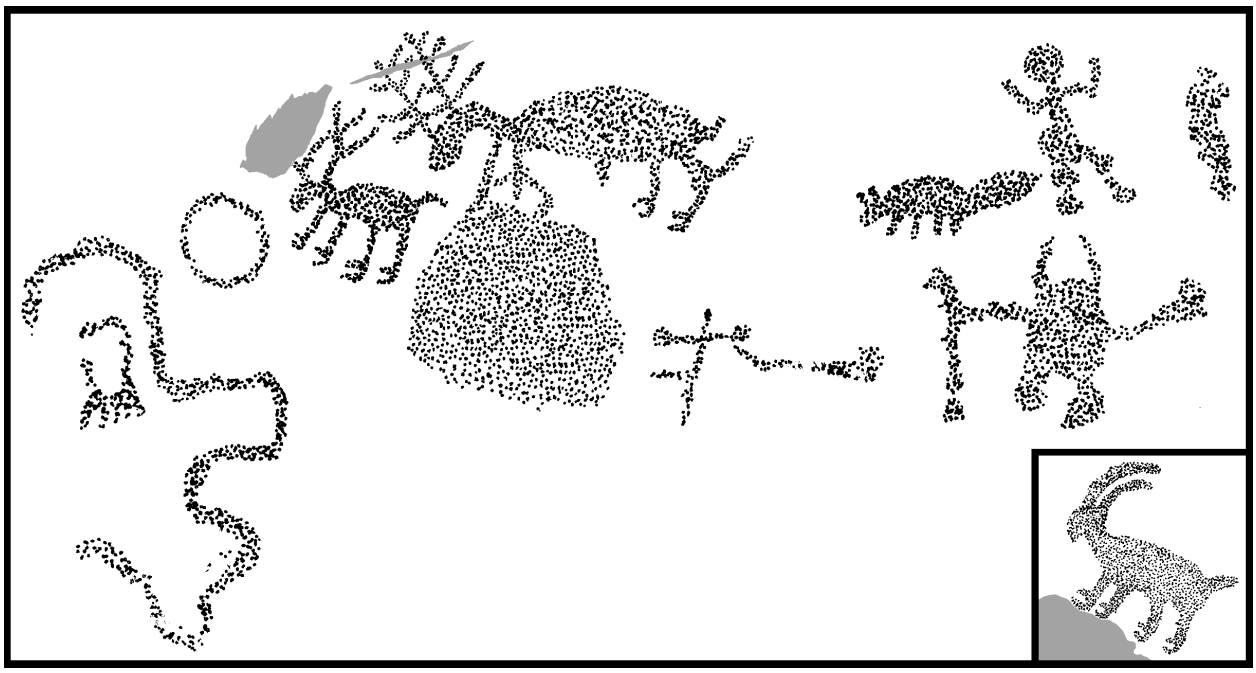

Figure 10: Uncompahgre style imagery at the Little Bitter Creek site. Inset shows mountain sheep pecked on separate panel. Note treatment of hooves on both elk and mountain sheep.

Uncompahgre style imagery functioned? Despite the early suggestion that Uncompahgre style petroglyphs functioned in some sort of hunting magic ritual (Buckles 1971:1104-1105, 1116), later analysis by Sally Cole (1987:69-73) suggested the rock art probably functioned in several different ways for several different populations over time. She suggested some of these functions probably included shamanic rituals, fertility rites, recounting of mythological events, and hunting activities (Cole 1987:73).

The Uncompahgre style petroglyphs in southwestern Wyoming support Cole's broader interpretation of function. At the nine sites with documented Uncompahgre style imagery, there are few obvious hunting scenes showing humans actually pursuing or killing game animals. In fact, at 48SW83 images of bears and bear paws far outnumber even the simple depictions of game animals themselves. Furthermore, at Keeper of the Canyon and Sugarloaf the "connection" between humans and elk, which are

Figure 11: Petroglyphs at the Sugarloaf site show elk and human figures. Note antler headdress worn by human at center of photograph. Elk at right and large pecked circular areas in center are similar to imagery at Little Bitter Creek site. (courtesy of John and Mavis Greer).

the most common game animals portrayed, seems to be one of ceremonialism (where humans wear antler headdresses as apparent ritual paraphernalia) rather than direct physical interaction between hunters armed with their weapons chasing down or facing off with their prey. This is especially relevant when one considers that since elk antlers are far too bulky to actually wear as a hunting disguise, these headdresses—even if made as made as some sort of small-scale or light-weight "model" to be worn in real life—almost certainly represent a metaphoric connection between man and beast. Likewise, the "traveling bear meets a shaman" scene at 48SW83 (Figure 12) shows a bear traveling along a nineteen-pawprint trackway to confront two human figures, one of whom has bear paw feet and the other who has a trackway of bear paws emerging from the top of his head (Keyser and Poetschat 2015:114, 137-138). Clearly, ritual relationships between humans and animals are portrayed in these compositions, and their frequency suggests those ritual relationships (rather than hunting prowess or hunting magic) were the key aspect of Uncompahgre style art at several of the largest of these southwest Wyoming sites.

Likewise, large anthropomorphs, some with outsized extremities or elaborate headdresses and others brandishing ritual paraphernalia are found at the Confluence, Lucerne, and Henry's Fork sites (Figures 4, 13-15). These anthropomorphs are as large and imposing as the Fremont anthropomorphs carved at several southwest Wyoming sites, suggesting—like the Fremont figures— that they also served as performative images (see Dobrez 2012 for a discussion of performative images as a perceptual universal). Such images, when freshly pecked, would have commanded attention from

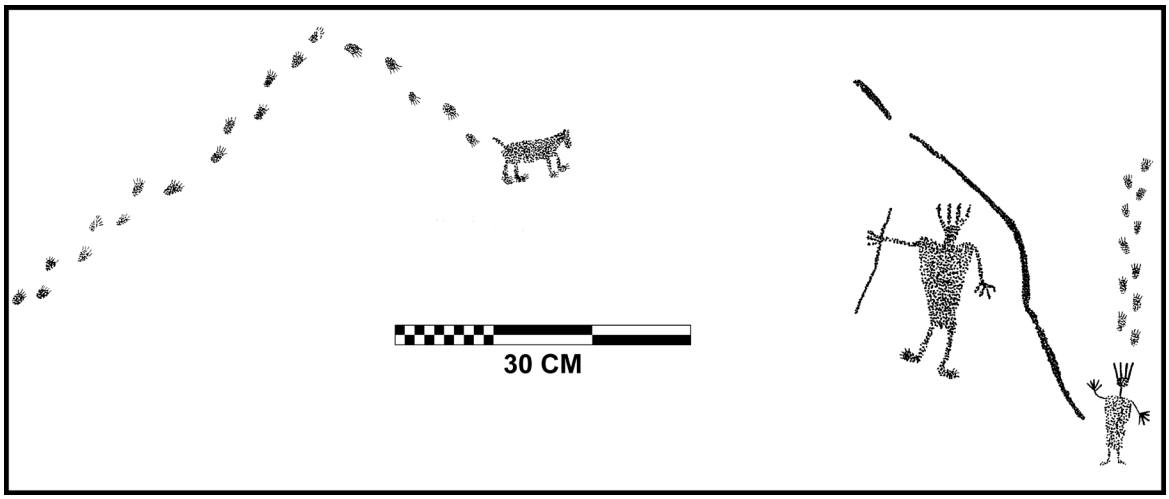

Figure 12: Scene at 48SW83 showing a traveling bear meeting a bear shaman. Note hand and arm postures of both humans and bear paw trackway rising up from smaller human figure's head. The symbolism here apparently shows a shaman's acquisition of bear power.

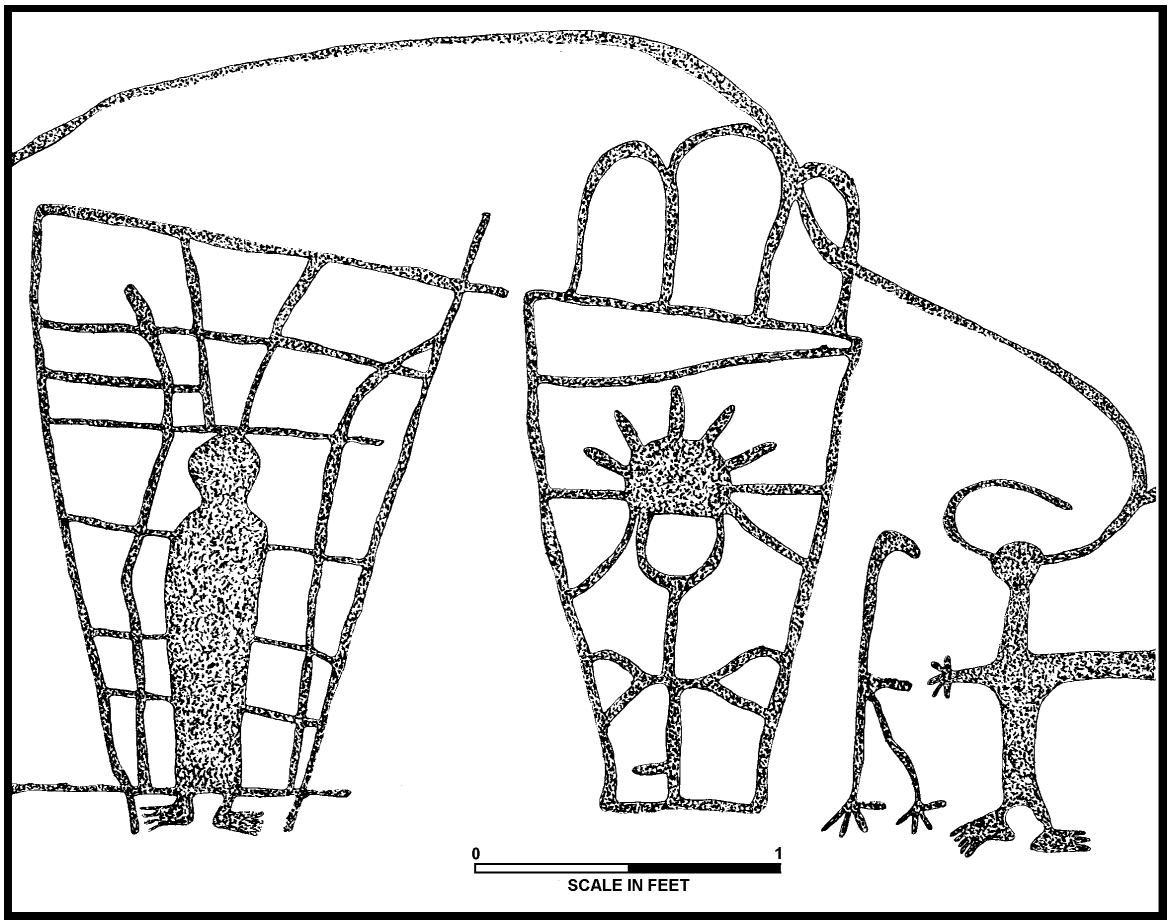

Figure 13: Large Uncompahgre style humans pose on a high cliff face at Henry's Fork site (48SW88). At this site, several of these figures are surrounded by pecked lines and grids (cf. Figure 14). Taken from Day and Dibble (1963:11).

Figure 14: Large Uncompahgre style humans pose on a high cliff face at the Henry's Fork site (48SW88). Note both larger figures are polydactylous. At this site, several such figures are entangled in mazes of pecked lines (cf. Figure 13).

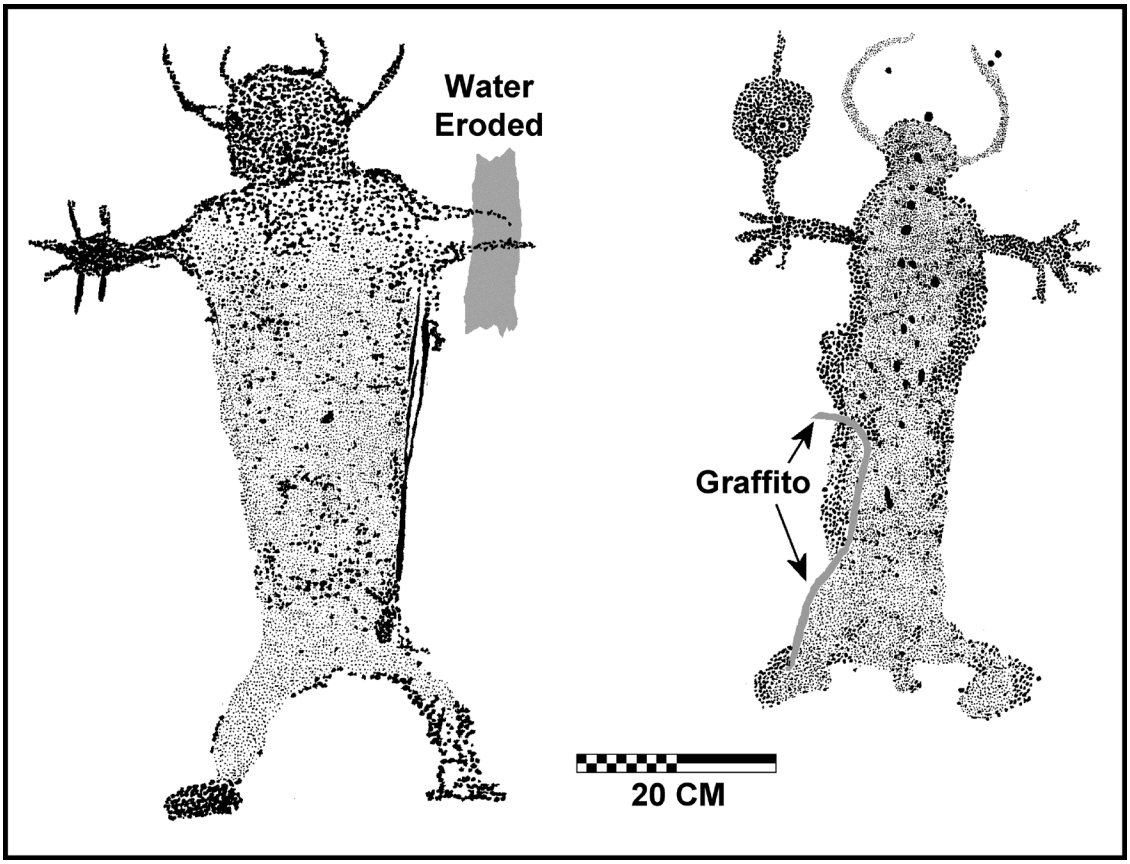

Figure 15: Large Uncompahgre style humans at Lucerne site (48SW83). Note rattle held in hand of figure at right. Lighter stippling indicates burnished areas within bodies of both figures.

the viewer in a somewhat confrontational sense; especially those at Henry's Fork and Lucerne, which are nearly a meter tall and pecked either at or significantly above eye level so the observer is placed in an equal or subordinate position to them as they are carved on the cliff. As such, these anthropomorphs give the strong impression they represented shamans or powerful supernatural beings with significant influence over mere mortals, but they clearly do not appear to be related to hunters or hunting in any obvious way.

Finally, Uncompahgre style art at several of these sites has a large component of abstract imagery. Part of it is quite organized, showing spirals, circle chains, and meandering lines—some of which surround and frame anthropomorphic figures (Figures 13, 14). Other abstracts are more amorphous, like the extensive panels at Gateway and Confluence. Such abstract imagery is difficult to interpret because nothing depicted in these compositions "makes sense" from a modern Western perspective, and it would be quite easy to simply suggest the reason behind these carvings is now impossible to discern. However, rock art scholars have recently begun to theorize that art like this functioned in a shamanic context where it reflects trance experiences. Sundstrom (1990) has made an eloquent case for why similar abstract Northern Plains petroglyphs represent shamanic trance because their lack of carefully controlled structure reflects a loosening of everyday social rules and controls that would likely accompany shamanic rituals and performances. She also notes many of the most frequently depicted elements in this abstract imagery—meandering lines, circles, circle chains, and spirals—are entoptic images commonly experienced during trance. We feel that a shamanic origin for these extensive Uncompahgre abstract panels makes more sense than any other proposed explanation, and certainly more sense than trying to argue this sort of art relates to hunting magic.

No matter how the abstract petroglyphs originally functioned at Gateway, is it possible they were the reason for later Late Prehistoric period artists choosing this site to make their own petroglyphs? We cannot answer this question with any degree of certainty. When the rock face was unmarked by incised images, the old pecking might have been more visible, but if the pecking was already 2,000 or more years old when these later artists first used the site (as it may well have been), the pecked abstract imagery might have been just as difficult to detect then as it is today. Conversely, if the early pecking was readily visible, the later artists who drew the elk and large tool grooves at Gateway may have been responding to the fact earlier artists had carved here, but it seems just as likely these Late Prehistoric period artists were instead attracted to the site by its unique vulva-like natural form (Keyser and Poetschat 2005a, 2005b). The presence of elk and large tool grooves, which imply women's art, fits well with this hypothesis. In fact, it is possible the earlier artists who pecked Uncompahgre style abstracts were drawn to the site by its form as well, but they left no obvious clue as to whether this was the case.

CONCLUSIONS

During a 2014 field trip to the Gateway site (48LN348), located along the Green River, Fossati made a fortuitous discovery of early pecked petroglyphs underlying the better known incised images of shield bearing warriors on the main panel. A few days after his visit we returned to the site and traced the pecked imagery, which shows a relatively extensive panel of abstract petroglyphs similar to others recently recorded at the Confluence site (48SW45) 100 km southeast, also along the Green River.

As part of a relatively extensive corpus of pecked rock art imagery recently documented at eight southwestern Wyoming sites, the pecked petroglyphs at Gateway can be classified as belonging to the Archaic-age Uncompahgre style better known in the Colorado Plateau

region of west-central Colorado. Most Uncompahgre style sites in Wyoming are found south of Interstate 80; the images at Gateway are the first to be documented in the northern Green River Basin. Apparently made for a variety of reasons, much of the Uncompahgre style imagery in southwestern Wyoming appears to relate to shamanic practices and a significant amount appears to show metaphoric connections between humans and animals, especially elk and bear. Abstract petroglyphs like those at Gateway also occur at several sites, but Gateway is the only one where such abstracts are the only Uncompahgre style images recorded. We do not know if there were originally more images at Gateway, including naturalistic ones, which are now lost to erosion. Uncompahgre style rock art is a relatively new discovery in southwestern Wyoming and additional rock art survey in the area will undoubtedly result in finding more sites of this style, while recording and study of these and other known sites will provide a better understanding of this complex Archaic-age art.

ACKNOWLEDGEMENTS

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REFERENCES CITED

Bozovich, Joseph and Joseph F. Bozovich
1968 The White Mountain Petroglyphs. The Wyoming *Archaeologist* 11(2):10-23.

Buckles, William G.
1971 *The Uncompahgre Complex: Historic Ute Archaeology and Prehistoric Archaeology on the Uncompahgre Plateau in West Central Colorado*. PhD. Dissertation, University of Colorado, University Microfilms, Ann Arbor, MI

Cole, Sally
1987 An Analysis of the Prehistoric and Historic Rock Art of West-Central Colorado. *Colorado State Office, Bureau of Land Management, Cultural Resource Series*, 21. Denver, Colorado.
1990 *Legacy on Stone*. Johnson Books, Boulder, Colorado.
2009 *Legacy on Stone* (revised and updated edition). Johnson Books, Boulder, Colorado.

Day, Kent C. and David S. Dibble
1963 *Archaeological Survey of the Flaming Gorge Reservoir Area, Wyoming-Utah.* University of Utah Anthropological Papers 65.

Dobrez, Livio
2012 American Ikon: how to choose an ARARA logo. *American Indian Rock Art* 38:145-164

Fossati, Angelo
2006 Nymphs, Waterfowl, and Saints: The Role of Ethnography in the Interpretation of the Rupestrian Tradition of Valcamonica, Italy. In *Talking With The Past: The Ethnography of Rock Art*, James D. Keyser, George Poetschat, Michael W. Taylor, editors, pp. 254-281. *Oregon Archaeological Society Press, Publication* 16, Portland.
2015 Rock Art in Jebel Akhdar, Sultanate of Oman: An Overview. *American Indian Rock Art* 41:1-8

Keyser, James D.
2015 Preliminary Recording of Images at the Henry's Fork Petroglyphs (48SW88). Appendix II in *Seeking Bear: The Petroglyphs of Lucerne*

Valley, Wyoming. James D. Keyser and George Poetschat, pp. 205-220. Oregon Archaeological Society Press, Publication 23, Portland.

Keyser, James D. and George Poetschat (editors)
2008 *Ute Horse Raiders on the Powder Rim: Rock Art at Powder Wash, Wyoming*. Oregon Archaeological Society Press, Publication 19, Portland.

Keyser, James D. and George R. Poetschat
2005a *Warrior Art of Wyoming's Green River Basin: Biographic petroglyphs Along the Seedskadee*. Oregon Archaeological Society Press, Publication 15, Portland.
2005b Another Elk Petroglyph from the Gateway Site: Some Possible Functional Implications. *The Wyoming Archaeologist* 49(2):3-14.
2014 *Northern Plains Shield Bearing Warriors: A Five Century Rock Art Record of Indian Warfare*. Oregon Archaeological Society Press, Publication 22, Portland.
2015 *Seeking Bear: The Petroglyphs of Lucerne Valley, Wyoming*. Oregon Archaeological Society Press, Publication 23, Portland.

Keyser, James D., Russel L. Tanner, and David T. Vlcek
2004 Pictures by the Seedskadee: A Preliminary Analysis of the Biographic Rock Art of the Green River Basin, Southwestern Wyoming. *Plains Anthropologist* 49:129-151.

McKern, W. C.
1978 *Western Colorado Petroglyphs*. Cultural Resource Series 8. Bureau of Land Management, Colorado State Office, Denver, CO.

Sundstrom, Linea
1990 *Rock Art of the Southern Black Hills: A Contextual Approach.* Garland Publishing, Inc., New York.

Tanner, Russel L.
1990 Images from the Great Margin: Rock Art of the Green River Basin in Wyoming. Paper presented at "Rock Art 90: A Symposium," San Diego Museum of Man, San Diego, California.

Tanner, Russel L., Joseph Bozovich, Julie E. Francis, and Ronald I. Dorn
1995 The Black Rock Petroglyphs: A Possible Clovis-Age Rock Art Site. Poster paper presented at the 53rd Annual Plains Anthropological Conference, Laramie, Wyoming.

Tanner, Russel L., and David T. Vlcek
1995 Picturing the Past: Prehistoric and Historic Rock Art of the Green River Basin in Wyoming. Paper presented at the Second Biannual Rocky Mountain Anthropological Conference, Steamboat Springs, Colorado.

Vlcek, David T.
2001 Native American Rock Art Sites in the Green River Basin. Manuscript on file, Bureau of Land Management Pinedale Field Office, Pinedale, Wyoming.

Vlcek, David, and J. D. "Sam" Drucker
2014 Smaller Rock Art Sites of the Upper Green River Basin. Paper presented at the 41st Annual American Rock Art Research Association Conference, Rock Springs, Wyoming, July 4-7, 2014.

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ARCHAEOLOGICAL EXCAVATION AT THE FERRIS DUNE SITE (48CR310)

by
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ABSTRACT

Archaeological excavations at the Ferris Dune site (48CR310) yielded two buried cultural components. Component 1 dated to the Late Prehistoric Uinta phase (950 ± 30 years B.P.), and Component 2 dated to the Late Archaic Deadman Wash phase (1920 ± 30 years B.P.). Component 1 represents a relatively well preserved hunting camp where at least two bison were processed, while the cultural materials associated with Component 2 were appreciably more ephemeral and representative of a nondescript short term hunter-gatherer occupation. Each of the occupations suggests the site was occupied by small groups of highly mobile hunter-gatherers conducting basic subsistence activities within the context of a foothill/mountain ecozone, perhaps as the result of seasonally conditioned adaptive strategies employed within the broader context of hunter-gatherer lifeways within the Wyoming Basin.

INTRODUCTION

The Ferris Dune site is located in central Wyoming at an elevation of 6600 ft (2012 m) above sea level. Prominent physiographic features within the surrounding area include the Ferris Dune Field, which encompasses the site; the Ferris Mountains immediately north; Sand Creek Canyon immediately northeast; and Bear Mountain to the northeast. The immediate site area is situated adjacent to a large linear sand dune within the northeastern portion of the Ferris Dune Field near the lower slopes of the eastern Ferris Mountains (Figure 1). Sand Creek is located 800 ft (245 m) north of the site as it parallels the mountain range, trending northeasterly before entering Sand Creek Canyon. The site is situated within a rolling sagebrush steppe ecoregion surrounded by a Foothills Shrublands and Low Mountain ecoregion located along the slopes of Ferris Mountains (Chapman et al. 2004).

Forty square meters of intact sediment were excavated within a contiguous excavation block during the excavation at the site to a depth ranging from 0.0 m to 1.5 m below the present ground surface. The excavated portion of the Ferris Dune site yielded two buried cultural components. Component 1 dated to the Uinta phase of the Late Prehistoric, and Component 2 dated to the Deadman Wash phase of the Late Archaic (Wyoming Basin Chronology). The single radiocarbon age estimate established for Component 1 during excavation was 950 ± 30 years B.P. Component 2 is represented by a single radiocarbon age estimate of 1920 ± 30 years B.P. Most (98.99%) of cultural materials recovered during the excavation were associated with Component 1. The excavation at the site yielded two features, 36 chipped stone tool specimens, 4,153 lithic reduction specimens, one steatite bead, and 4,589 faunal specimens. The location of the site, close to Sand Creek, and associated riparian zones and foothill-mountain ecozones, was likely a significant contributing factor in the repeated use of the locality during the latter part of the Holocene.

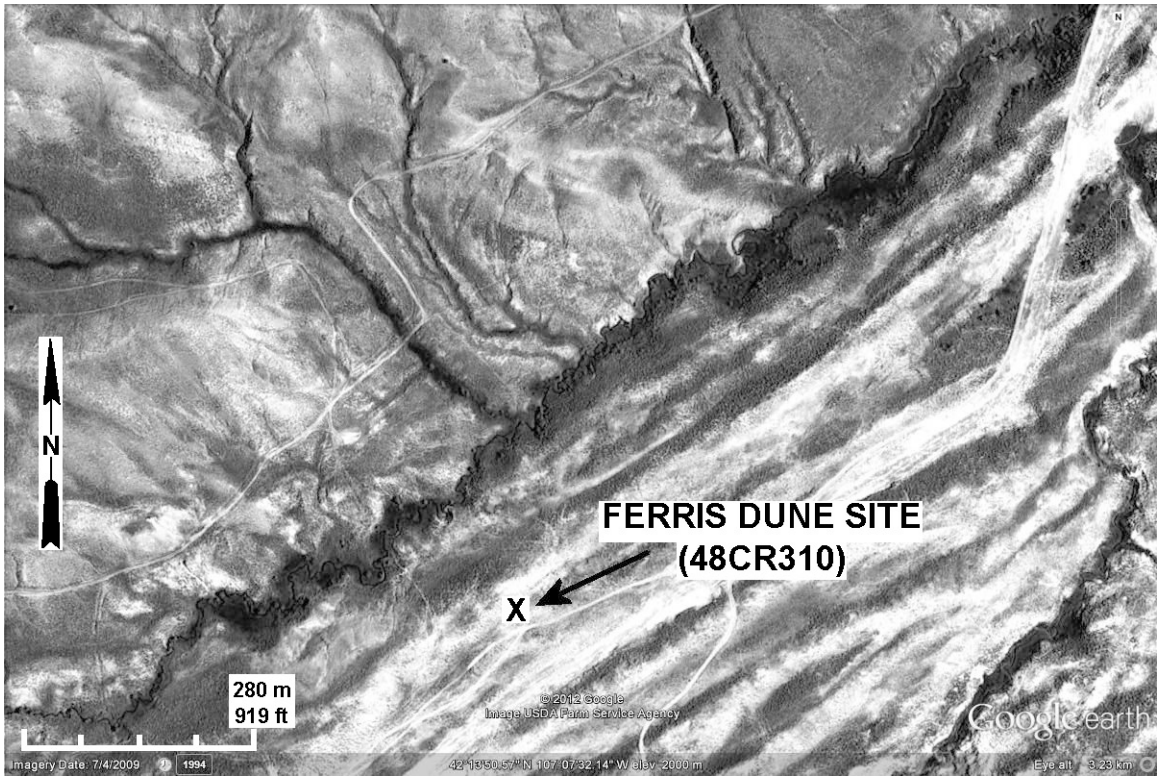

Figure 1: Aerial image of the Ferris Dune site locality (adapted from Google Earth).

GEOARCHAEOLOGICAL ASSESSMENT

Large active and dormant dunes and blow-out areas are present in the Ferris Dune Field near the immediate vicinity of the project area. Seasonal ponds and wetlands are also present in interdunal areas. The dune sand is derived from the Eocene-aged, fluvially derived, Battle Springs Formation and has been accumulating almost continuously for the last 10,000 years (Gaylord 1982; Stokes and Gaylord 1993). Based on dune morphology, the prevailing paleowind direction was west-southwest during the formation of the dunes (Gaylord 1987). Stokes and Gaylord (1993) recorded and dated the stratigraphy of the Ferris Dune Field showing there were two significant eolian episodes between 8200-7400 years B.P. and again between 4300-4000 years B.P. Periods of dune stabilization existed between 7400-6700 and 5300-5000 years B.P. and sporadic eolian activity was recorded for the interval between 6500-5500 years B.P. In addition, there was at least one period of increased dune activity after 2000 years B.P.

The geoarchaeology of the site supports the assertion of Stokes and Gaylord (1993) for renewed dune activity after 2000 years B.P. The stratigraphic profile within the excavated portion of the site represents 1.5 m of eolian sand, all of which was deposited after 1920 years B.P. An additional 4 m (deepest extent of testing possible) of eolian sand was recorded in auger probes excavated in the bottom of the excavation block. Periods of increased eolian activity within the dune field appear to correspond with eolian deposition at the site.

The stratigraphy of the site is relatively simple, consisting of a surface soil horizon, unmodified eolian deposits; two buried cultural horizons and associated buried soils. All identified strata are derived from eolian deposition or modified eolian sand. The stratigraphic sequence is composed of three strata sequences

and three substrata to a depth of ca. 140-150 cm. The soil-stratigraphic sequence was relatively simple and consisted of stacked A-C horizons directly correspond to stratigraphic units. The stratigraphic sequence recorded during the excavation at the site represents about 2000 years of eolian activity spanning from the present to 1920 years B.P. (Figure 2, Table 1).

COMPONENT 1

Component 1 at the Ferris Dune site was a stratigraphically discrete 15-20 cm thick anthropogenically-stained horizon (Stratum IIb) contained within eolian sand. The cultural horizon was relatively uniform across the spatial extent of the excavation block. It was largely formed through human trampling in loose substrate and introduction of organic material during the Component 1 occupation. The radiocarbon data for Component 1 suggest the cultural deposit represents at least one temporally discrete occupation of the site during the Late Prehistoric period Uinta phase. The occupation was a short-term open camp with associated cultural activities, including procurement and processing of at least two bison. The component yielded a single conventional radiocarbon age estimate of 950 ± 30 years B.P. derived from feature fill matrix sample. Cultural materials associated with the Late Prehistoric occupation include one thermal basin, one thermally altered stone discard feature, 4,117 lithic reduction specimens, 34 stone tools, one stone bead, and 4,539 fragmented faunal specimens.

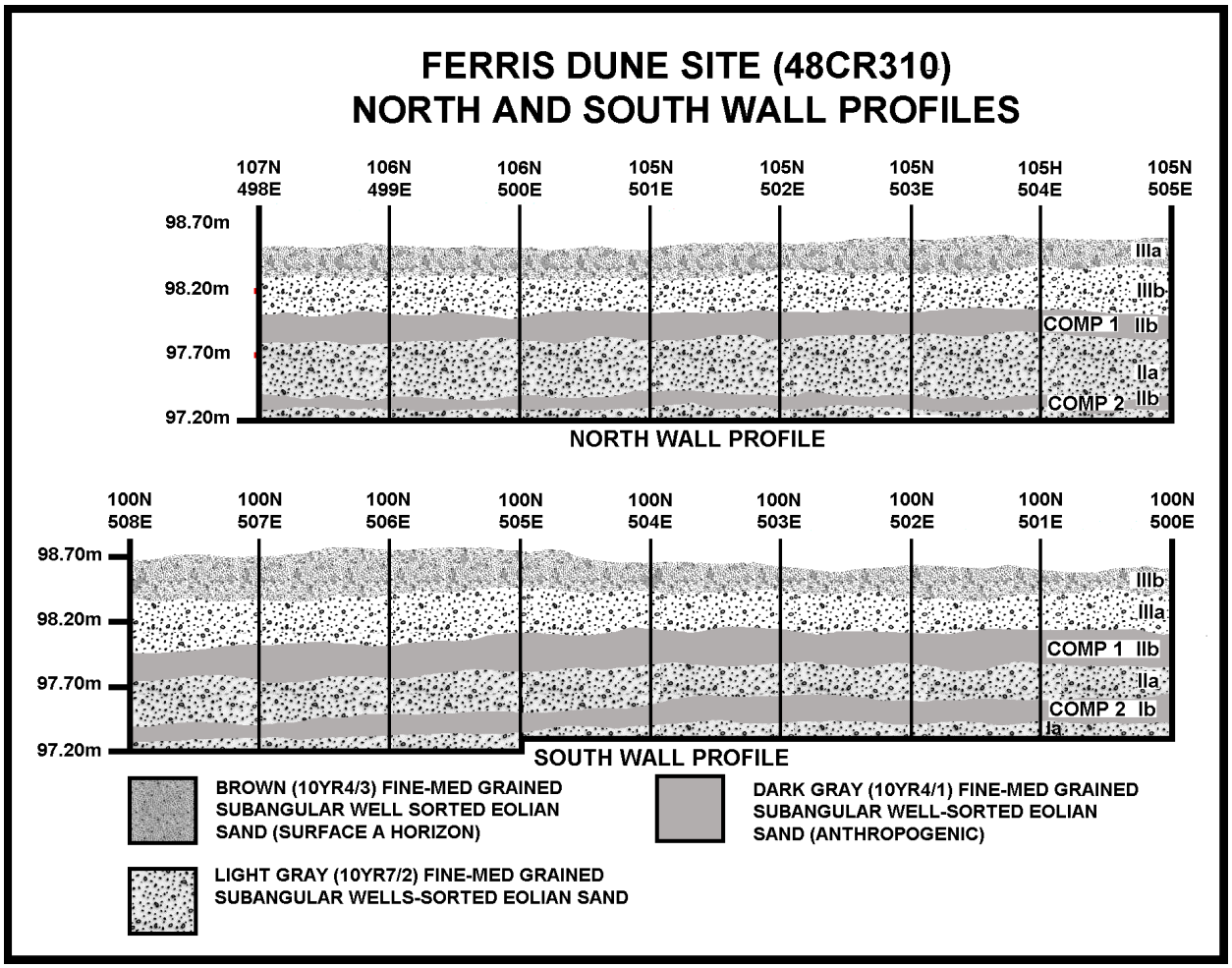

Figure 2: Stratigraphic profile of north and south walls of excavation block at Ferris Dune site.

Table 1: Stratigraphic profile summary for Ferris Dune site.

STRATUM	COLOR (Munsell)	STRUCTURE	TEXTURE	SOIL HORIZON	CULTURAL HORIZON	DEPOSITIONAL ENVIRONMENT	THICKNESS (cm)	AGE (yrs. B.P.)
IIIb	Brown (10YR4/3)	Massive	Fine-Medium Sand	A	-	Eolian	35-40	< 950
IIIa	Grayish Brown (10YR5/2)	Massive	Fine-Medium Sand	C	-	Eolian	25-30	< 950
IIb	Dark Gray (10YR4/1)	Massive	Fine-Medium Sand	Ab2	Comp 1	Eolian	15-20	950±30
IIa	Light Gray (10YR7/2)	Massive	Fine-Medium Sand	Cb1	-	Eolian	35-40	>950
Ib	Dark Gray (10YR4/1)	Massive	Fine-Medium Sand	Ab2	Comp 2	Eolian	10-15	1920±30
Ia	Light Gray (10YR7/2)	Massive	Fine-Medium Sand	Cb2	-	Eolian	100+	>1920

FEATURES

Two cultural features were recorded for Component. These included one rock-filled thermal basin (Feature 1) and one thermally-altered stone discard feature (Feature 2) associated with the thermal basin.

Feature 1

Feature 1 is a partially wind-deflated, rock-filled thermal basin with 36 thermally altered stones weighing 20.65 kg. Morphologically, Feature 1 was circular to ovate in planview with low, sloping walls and a shallow, flat bottom (Figure 3). Radiocarbon analysis of a sample of fill sediment yielded a conventional radiocarbon age estimate of 950 ± 30 years B.P. The feature was also spatially associated with a thermally altered stone discard feature (Feature 2), located 1-2 m west. The discard feature represents stone removed from Feature 1 during use and discarded laterally.

Cultural materials recovered from Feature 1 included 74 lithic reduction flakes and 51 fragmented faunal specimens. The debitage was comprised of 50 (67.57%) finishing/maintenance flakes; 14 (18.92%) tertiary flakes; seven (9.46%); flake fragments without cortex; two (2.70%) bifacial thinning flakes; and one (1.35%) piece of shatter. Raw material was dominated by fossiliferous chert (90.54%). Other raw material types observed at appreciably lower frequencies included obsidian (1.35%) and quartzite (8.11%). Only two (4.05%) of the debitage specimens recovered from Feature 1 exhibited observable evidence of thermal alteration.

The faunal specimens recovered from Feature 1 included 15 identified as mammal Size-Class V-VI (deer to bison-sized), and 36 identified as mammal Size-Class IV-VI (dog to bison-sized). Thermal alteration in the form of blackening or calcination was seen on 21 (41%) of the Feature 1specimens. These faunal remains suggest large mammal elements, most probably bison, were processed within or near the feature. The portion of a semi-articulated bison lower limb (distal tibia, proximal metatarsal, astragalus, calcaneus, tarsals) exhibiting green-bone fractures was observed one m south of Feature 1 (Figure 4). Feature 1 most likely functioned as a roasting basin for the purpose of processing portions procured bison, perhaps for bone grease production, and as a focal point for a hearth-centered activity area during the Component 1 occupation.

Feature 2

Feature 2 consisted of a thermally altered

Figure 3: Post-excavation photograph of Feature 1 from Ferris Dune site.

Figure 4: Photograph of in-situ bison lower hind limb elements associated with Feature 1 at Ferris Dune site.

stone discard feature spatially associated with the Feature 1 thermal basin. The discard feature was associated with 615 thermally altered stones weighing 38.56 kg, and dark anthropogenically-stained sand from combustion of fuels within Feature 1. The morphology of Feature 2 was amorphous in planview and profile. No radiocarbon, pollen, or FTIR samples were collected. Cultural materials recovered included 177 fragmented faunal specimens and 31 lithic reduction flakes.

The lithic debitage recovered from Feature 2 consisted of 31 specimens comprised of 20 (64.52%) finishing/maintenance flakes, 8 (25.81%) tertiary flakes, and 3 (9.68%) flake fragments without cortex. Raw material type representation for the debitage recovered from Feature 2 was dominated by fossiliferous chert (80.65%) with quartzite (12.90%) and obsidian (6.45%) being recorded at lower frequencies.

The faunal specimens included two Size-Class VI (bison-sized) long bone fragments, 109 specimens identified as Size-Class V-VI (deer to bison-sized) mammal, and 70 specimens identified as Size-Class IV-VI (dog to bison-sized) mammal. Thermal alteration in the form of blackening or calcination was observed for 34 (19%) of these specimens. Faunal remains from Feature 2 are consistent with those recorded for Feature 1 and the area surrounding both features, suggesting large mammal elements, most probably bison, were processed within Feature 1 and near Feature 2.

LITHIC RAW MATERIAL

The overall lithic assemblage (including all stone tools and debitage) from the site is comprised of 4,189 specimens, most of which are lithic reduction materials (99.14%) (Table 2). Fossiliferous chert was the dominant lithic raw material type represented within the overall lithic assemblage (85.65%). Quartzite and obsidian were the second and third most prevalent raw material types, but were recorded at relatively low observed frequencies (7.17% and 5.04%

Table 2: Cross tabulation of lithic reduction stage by lithic raw material type for debitage and tool raw material type for overall assemblage from Ferris Dune site.

DEBITAGE TYPE	LITHIC RAW MATERIAL TYPE								
	CH	CN	FG	FO	MA	ON	QG	TOTAL	%
Primary	0	0	17	0	0	1	1	19	0.45%
Secondary	0	1	58	0	0	6	0	65	1.55%
Tertiary	0	5	611	3	1	34	57	711	16.97%
Bifacial w/o Cortex	0	0	30	0	0	1	0	31	0.74%
Bifacial w/ Cortex	0	0	0	0	0	0	0	0	0.00%
Finishing/ Maintenance	0	9	2623	4	0	142	229	3007	71.78%
Fragment w/o Cortex	0	6	206	1	0	14	34	261	6.23%
Fragment w/ Cortex	0	0	4	0	0	1	1	6	0.14%
Shatter	1	0	39	0	0	12	1	53	1.27%
Tools	1	7	21	0	0	3	4	36	0.86%
TOTAL	2	28	3609	8	1	214	327	4189	100.00%
%	0.05%	0.67%	86.15%	0.19%	0.02%	5.11%	7.81%	100.00%	

CH = chalcedony; FO = chert fossiliferous ostracods; CN = chert non-fossiliferous general; MA = moss agate; ON = obsidian; FG = chert fossiliferous general; QG = quartzite general

respectively). Non-fossiliferous general chert, chalcedony/opaline chert, and moss agate chert represent significantly lesser proportions of the overall lithic assemblage (0.02-0.50%). Formal tools derived from fossiliferous chert were most prevalent, 58.33% of the tool assemblage. This is followed distantly by non-fossiliferous chert (19.44%), quartzite (11.11%), obsidian (8.33%), and chalcedony/opaline chert (2.77%).

Many of the recorded stone tools were likely manufactured on-site rather than being transported to the locality based on frequency of recorded debitage raw material and flake types and tool raw material types. Late-stage lithic reduction and tool maintenance appear to the predominant stone working activities based on observed frequencies of finishing/maintenance flakes and tertiary flakes (88.75% of the overall debitage assemblage). Based on the lithic raw materials represented from the site, it is probable the groups using the site primarily exploited regionally available lag and fluvial cobbles. It is also likely these groups curated and transported chert cores, bifaces, and formal tools derived from regionally available raw material sources. Obsidian tools and bifaces also appear to have been transported to the site in limited quantity and worked during the site occupations.

OBSIDIAN SOURCING ANALYSIS

Obsidian artifacts recovered during the excavation included 211 lithic reduction specimens, two fragmented projectile points, and one final biface fragment. Most (98.60%) obsidian artifacts were recovered from Component 1 (dated to 950±30 B.P.). Six of the Component 1 specimens were submitted to the Geochemical Research Laboratory for nondestructive quantitative energy-dispersive X-ray fluorescence (EDXRF) analysis (Hughes 2013) (Table 3).

Results of the obsidian analyses for the Component 1 specimens show two obsidian source areas: Teton Pass, Wyoming; and Bear Gulch, Idaho. The four lithic reduction specimens were sourced to Bear Gulch, and the two projectile point specimens were sourced to Teton Pass. The Teton Pass obsidian source is located 285 mi (459 km) northwest of the Ferris Dune site, and the Bear Gulch source is situated 380 mi (612 km) west-northwest of the site. It is conceivable highly mobile people inhabiting sites in Wyoming procured obsidian from regional primary sources over the course of the seasonal round; however, it is also probable local groups obtained obsidian through trade with other groups (Scheiber and Finley 2011; Smith 1999; Thompson et al. 1997). Obsidian artifacts derived from Greater Yellowstone area obsidian have been recovered from Hopewell archaeological sites in the Midwest, up to 1700 miles to the east (Hatch et al. 1990). The notion hunter-gatherers inhabiting the site could have obtained obsidian from primary source areas in Wyoming and Idaho over the course of seasonal migrations is reasonable given those source areas are located 285-380 mi (459-612 km) from the site. Alternatively, obsidian from

Table 3: Summary information for obsidian specimens from Ferris Dune site submitted for EDXRF analyses.

CATALOG NUMBER	NORTH	EAST	ELEVATION UPPER	ELEVATION LOWER	COMPONENT	SPECIMEN TYPE*	SOURCE**	APPROX. DISTANCE TO SOURCE
CR310-318	102.55	502.25	97.85	N/A	1	Projectile Point	Teton Pass, WY	285 mi (458 km) NW
CR310-330	104	499	98.0	97.9	1	Projectile Point	Teton Pass, WY	285 mi (458 km) NW
CR310-177	103	500	97.9	97.8	1	Secondary Flake	Bear Gulch, ID	380 mi (611 km) W-NW
CR310-184	103.06	501.23	97.91	N/A	1	Tertiary Flake	Bear Gulch, ID	380 mi (611 km) W-NW
CR310-231	104.04	499.06	97.9	N/A	1	Tertiary Flake	Bear Gulch, ID	380 mi (611 km) W-NW
CR310-217	104	498	98.0	97.9	1	Tertiary Flake	Bear Gulch, ID	380 mi (611 km) W-NW

** Analysis conducted by Richard Hughes, Geochemical Research Laboratory, Portola Valley, CA.

these sources may have been obtained secondarily from other geomorphic contexts, through trade with other groups, or scavenging lithic material from abandoned sites.

Debitage derived from obsidian represents only 5.0% of the overall Component 1 debitage assemblage (N=4,117). Finishing/maintenance flakes derived from obsidian comprise 67.46% of the obsidian debitage. Obsidian finishing/maintenance, tertiary, and bifacial thinning flakes combined represent 83.73% of the obsidian debitage assemblage for Component 1. This suggests much of the obsidian transported to the site was in the form of cores or blanks, perhaps exclusively from the Bear Gulch source. Two of the three obsidian tools (only two were sourced) represented in Component 1 were sourced to the Teton Pass area, suggesting obsidian artifacts derived from this source were transported to the site in tool form. Unfortunately, the small sample size confounds any substantive interpretation. Based on the quantity of obsidian artifacts, the procurement of obsidian was not an important activity during the Component 1 occupation.

CHIPPED STONE TOOLS

The Component 1 chipped stone tool assemblage from the site is comprised of 34 specimens (Table 4). Ten projectile points and point fragments (29.41% of the stone tools) are represented in the Component 1 chipped stone tool assemblage. These include one complete specimen, one nearly complete specimen, four proximal-medial fragments, and four proximal fragments (Figure 5). Twelve final biface specimens (35.29%) are also represented in the Component 1 chipped stone tool assemblage. These include two complete specimens, one specimen represented by medial-proximal and medial-distal fragments, two medial-proximal fragments, two medial-distal fragment, three medial fragments, one lateral fragment, and one indeterminate fragment. Additionally, one preform specimen, one bifacial scraper, and one indeterminate biface specimen, and one core representing 11.76% of the assemblage were recorded for the Component 1. Eight flake tools consisting of three retouched flakes and five utilized flakes were also recorded. Flake tools represent 23.53% of the Component stone tool assemblage.

DEBITAGE

The Component 1 lithic debitage assemblage is comprised of 4,117 specimens. Finishing/maintenance flakes were recorded at an observed frequency of 72.58%. Combined, final and later stage lithic reduction types including finishing/maintenance flakes, bifacial thinning flakes, tertiary flakes, and flake fragments without cortex comprise 96.58%. Early stage lithic reduction types including primary flakes, secondary flakes, and flake fragments with cortex represent only 2.16%. Seven general varieties of lithic raw material types are represented in the Component 1 assemblage. These include non-fossiliferous chert, fossiliferous chert, chalcedony/opaline chert, ostracod chert, moss agate, obsidian, and quartzite. Fossiliferous chert specimens were recorded at the highest observed frequency (86.42%). The combined debitage data for Component 1 suggest later stage lithic reduction activities and final-stage tool manufacture and re-tooling were the primary stone-working activities conducted during the occupation. It is probable the people who occupied the site curated, and transported partially reduced raw material and prepared early-stage bifaces to the site where additional bifacial thinning and tool production/finishing and maintenance activities were performed.

BEADS

One complete stone bead is recovered from Component 1. The specimen is a small, complete stone bead manufactured from brown steatite. The overall maximum dimensions of the bead measure 6.1 mm long x 6.0 mm wide x 1.7 mm thick with a 1.9 mm bore. The specimen is highly polished with no macroscopically visible striations and exhibits a uniform circular morphology.

Table 4: Summary of chipped stone tool characteristics from Component 1 at Ferris Dune site.

CATALOG NUMBER	PROVENIENCE	ELEV.	TOOL TYPE	LITHIC TYPE	DIMENSIONS L x W x TH (mm)	CONDITION/ PORTION	EDGE RETOUCH/ CROSS SECTION/ MORPHOLOGY/ COMMENT
48CR310-326	Component 1 104N 498E	98.00-97.90 m	Projectile Point	Light Gray Fossiliferous Chert	19.3 x 13.1 x 2.8	Complete	Bifacial/All / Lenticular / Side-notched, Expanding/Straight Stem, Flat Base, Uinta-like
48CR310-345	Component 1 105N 499E	98.00-97.90 m	Projectile Point	Translucent Chalcedony/ Opaline Chert	15.7 x 10.7 x 2.1	Nearly Complete	Bifacial/All / Lenticular / Side-notched, Expanding/Straight Stem, Flat Base, Uinta-like
48CR310-318	Component 1 102.55N 502.25E	97.85 m	Projectile Point	Black Obsidian	9.1 x 11.4 x 2.1	Medial-Proximal	Bifacial/Some / Beveled Unilaterally /Side-notched, Expanding/Straight Stem, Flat Base, Uinta-like/ Submitted for EDXRF analysis. Result: Teton Pass, WY source area.
48CR310-323	Component 1 103N 502E	97.90-97.80 m	Projectile Point	Grayish Brown Fossiliferous Chert	11.6 x 14.1 x 2.1	Medial-Proximal	Bifacial/Some / Lenticular / Side-notched, Expanding/Straight Stem, Indeterminate Base
48CR310-313	Component 1 100N 506E	97.90-97.80 m	Projectile Point	Dark Gray Fossiliferous Chert	7.1 x 12.5 x 1.8	Medial-Proximal	Bifacial/Some / Lenticular / Side-notched, Short Stem, Convex base
48CR310-336	Component 1 104N 504E	97.90-97.80 m	Projectile Point	Gray-Black Chert	8.3 x 13.3 x 2.5	Medial-Proximal	N/A / Lenticular / Side-notched, Short/Straight Stem, Flat Base
48CR310-324	Component 1 103N 502E	97.90-97.80 m	Projectile Point	Olive Gray Chert	6.7 x 9.3 x 2.1	Proximal	N/A / Lenticular / Side-notched, Short/Straight Stem, Flat Base
48CR310-328	Component 1 104N 499E	98.30-98.20 m	Projectile Point	Grayish Brown Fossiliferous Chert	6.4 x 11.4 x 2.0	Proximal	N/A / N/A / Side-notched, Short/ Straight Stem, Flat Base
48CR310-330	Component 1 104N 499E	98.00-97.90 m	Projectile Point	Gray-Black Obsidian	6.3 x 13.7 x 1.8	Proximal	N/A / N/A / Side-notched, Short Stem, Flat Base/ Submitted for EDXRF analysis. Result: Teton Pass, WY source area.
48CR310-337	Component 1 105N 498E	98.10-98.00 m	Projectile Point	Brownish Gray Quartzite	6.5 x 12.9 x 2.9	Proximal	N/A / N/A / Side-notched, Short Stem, Flat Base
48CR310-334	Component 1 104.40N 500.26E	97.96 m	Final Biface	Gray- Red/ Brown Fossiliferous Chert	41.0 x 12.7 x 3.2	Complete	Bifacial/All / Lenticular / Rectangular Blade Shape
48CR310-332	Component 1 104N 499E	97.90-97.80 m	Final Biface	Grayish Brown Fossiliferous Chert	49.8 x 14.2 x 6.2	Complete	Bifacial/All / Plano-Convex/ Bi-Pointed Blade Shape
48CR310-322	Component 1 103.72N 501.77E	97.93 m	Final Biface	Yellowish Brown Fossiliferous Chert	1) 17.9 x 14.3 x 2.4 2) 14.0 x 14.0 x 3.2	Medial-Distal and Proximal	Bifacial/Some / Lenticular / Lanceolate Blade Shape / 2 Pieces, Mid-Section Missing
48CR310-331	Component 1 104N 499E	98.00-97.90 m	Final Biface	Black Obsidian	8.9 x 7.9 x 1.5	Medial- Proximal	Bifacial/Some / Lenticular / Triangular Blade Shape
48CR310-329	Component 1 104N 499E	98.00-97.90 m	Final Biface	Yellowish Brown Fossiliferous Chert	18.2 x 12.1 x 2.2	Medial- Proximal	Bifacial/All / Lenticular / Triangular Blade Shape
48CR310-346	Component 1 105N 499E	98.00-97.90 m	Final Biface	Gray Chert	16.7 x 11.0 x 3.1	Medial- Distal	Bifacial/All / Lenticular / Triangular Blade Shape
48CR310-340	Component 1 105N 498E	98.00-97.90 m	Final Biface	Reddish Brown-Brownish Gray Quartzite	11.1 x 11.0 x 2.5	Medial- Distal	Bifacial/Some / Lenticular / Triangular Blade Shape / *Refits with 48CR310-338

Table 4 (continued)

48CR310-338	Component 1 105N 498E	98.00-97.90 m	Final Biface	Reddish Brown-Brownish Gray Quartzite	6.6 x 7.2 x 2.1	Distal	Bifacial/Some / N/A / N/A / *Refits with 48CR310-340
48CR310-316	Component 1 101N 504E	97.90-97.80 m	Final Biface	Reddish Yellow Fossiliferous Chert	8.9 x 5.3 x 1.3	Distal	Bifacial/All / Lenticular / Triangular Blade Shape
48CR310-317	Component 1 102N 499E	98.00-97.90 m	Final Biface	Dark Gray Chert	7.6 x 3.6 x 2.2	Distal	Bifacial/All / Biconvex / N/A
48CR310-327	Component 1 104N 498E	98.00-97.90 m	Final Biface	Pale Brown Fossiliferous Chert	13.3 x 7.5 x 2.4	Lateral	Bifacial/Some / N/A / N/A
48CR310-339	Component 1 105N 498E	98.10-98.00 m	Final Biface	Dark Gray Chert	7.0 x 11.4 x 2.4	Indeterminate Fragment	N/A / N/A / N/A
48CR310-1	Component 1 104.36N 500.48E	97.92 m	Bifacial Scraper	Reddish Brown Chert	57.7 x 36.7 x 7.1	Nearly Complete	Bifacial/Some / Lenticular / Lanceolate/ Submitted for blood residue analysis (CIEP). Result: Rabbit.
48CR310-335	Component 1 104N 501E	98.00-97.90 m	Preform	Gray Fossiliferous Chert	54.2 x 34.4 x 8.7	Complete	None / Indeterminate / Irregular
48CR310-348	Component 1 106N 498E	98.00-97.90 m	Biface	Light Red Quartzite	18.9 x 12.4 x 3.2	Indeterminate Fragment	N/A / N/A / N/A
48CR310-347	Component 1 105N 499E	98.00-97.90 m	Re-touched Flake	Gray Fossiliferous Chert	21.2 x 29.4 x 6.0	Complete	Unifacial/Some / N/A / N/A
48CR310-315	Component 1 101N 503E	97.90-97.80 m	Re-touched Flake	Light Gray Fossiliferous Chert	26.5 x 18.0 x 3.5	Complete	Unifacial/Some / N/A / N/A
48CR310-344	Component 1 105N 499E	98.00-97.90 m	Re-touched Flake	Brown Fossiliferous Chert	17.0 x 15.7 x 2.8	Medial	Unifacial/All / N/A / N/A
48CR310-319	Component 1 102N 504E	97.90-97.80 m	Utilized Flake	Dark Gray Banded Chert (Bridger Formation Tiger Chert)	51.2 x 44.7 x 11.6	Complete	N/A / N/A / N/A
48CR310-314	Component 1 100N 507E	98.10-98.00 m	Utilized Flake	Light Gray Fossiliferous Chert	31.3 x 23.3 x 5.7	Complete	N/A / N/A / N/A
48CR310-341	Component 1 105.65N 498.29E	97.99 m	Utilized Flake	Greenish Gray Fossiliferous Chert	58.9 x 22.4 x 6.0	Complete	N/A / N/A / N/A
48CR310-343	Component 1 105N 498E	98.00-97.90 m	Utilized Flake	Red Fossiliferous Chert	32.3 x 23.3 x 4.2	Complete	N/A / N/A / N/A
48CR310-325	Component 1 103N 503E	98.00-97.90 m	Utilized Flake	Black Fossiliferous Chert	16.3 x 8.8 x 2.5	Fragment	N/A / N/A / N/A
48CR310-320	Component 1 103N 500E	97.90-97.80 m	Core	Gray Fossiliferous Chert	47.8 x 24.1 x 21.0	Depleted	N/A / N/A / Multidirectional

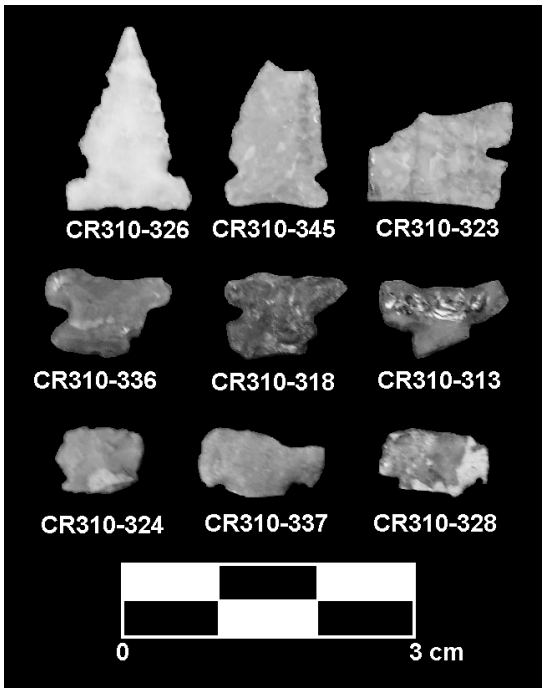

Figure 5: Selected projectile points specimens from Component 1 at Ferris Dune Site.

FAUNAL REMAINS

The Component 1 faunal assemblage is comprised of 4,539 cultural specimens representing 98.10% of the 4,607 cultural specimens recovered from Component 1 and 2 combined (Table 5).

Identified taxa from Component 1 include: pronghorn (*Antilocapra americana*); bison (*Bison bison*); cow/bison (*Bos/Bison*); ground squirrel (*Spermophilus* sp.); pocket gopher (*Thomomys* sp.); beaver (*Castor canadensis*); mouse (Subfamily Neotominae); and cottontail rabbit (*Sylvilagus* sp.). One hundred and twenty-four specimens were identified as bison (*Bison bison*) or cow/bison (*Bos/Bison*). Based on the stratigraphic integrity of Component 1 cultural horizon, all of the remains identified as *Bos/Bison* on osteological grounds can be assumed to represent *Bison bison* based on the archaeological context. A minimum number (MNI) of two individual bison and 124 bison specimens are within the assemblage. Bison remains from the assemblage are represented by a variety of skeletal parts, including axial (cranium, mandibles, scapula, innominate, and lumbar vertebra), forelimb (humerus, carpals), and hindlimb (femur, tibia, metatarsal, tarsals). Cutmarks were observed on six specimens and probable anvil marks or percussion striations were observed on five specimens. Evidence of thermal alteration was seen on 29 specimens.

Faunal specimens classified to size class only from Component 1 at the site are dominated by Size Class IV-VI (coyote to bison-sized), V-VI (deer to bison-sized), and VI (bison-sized) large mammal remains. Specimens from these size classes represent >90% (4,126 specimens) of the cultural faunal materials recovered from Component 1. Based on the composition of the Component 1 faunal assemblage from the site, it appears the occupation is representative of an open camp in which at least two bison were procured nearby and processed at the locality. In addition, one beaver and one cottontail rabbit appear to have been procured during the occupation as well.

SPATIAL ORGANIZATION

Information regarding the spatial distribution of cultural materials recovered from Component 1 illustrates the potential for identifying the spatial organization and types of activities conducted during the occupation. The 34 chipped stone tools recovered from Component 1 were comprised primarily (73.53%) of projectile points/point fragments and final bifaces/biface fragments. This suggests bifacial tool manufacture and retooling were important activities conducted during the occupation, and likely associated with hunting forays conducted along Sand Creek and the lower slopes of the Ferris Mountains. The density distribution for stone tools (Figure 6) shows most stone tools were recovered in an area concentrated west of Feature 1. This suggests most bifacial tool manufacture and maintenance activities were conducted in a hearth-centered activity area tethered to Feature 1. The only exception to this trend is five of the eight (62.50%) flake tools recovered from Component 1 were recovered

Table 5: Summary of faunal remains from Component 1 at Ferris Dune site.

ORDER	TAXON	COMMON NAME NISP	ALL REMAINS		CULTURAL[1]	
			MNI	NISP	MNI	NISP
Class Mammalia (mammals)						
Artiodactyla	*Antilocapra americana*	Pronghorn	1	1	1	1
	Bison bison	Bison	18	2	18	2
	Bos/Bison sp.	Domestic cattle or Bison	106	--	106	--
Rodentia	*Thomomys* sp.	Pocket gopher	2	1	1	1
	Castor canadensis	Beaver	3	1	2	1
	Subfamily Neotominae	Mouse	1	1	--	--
Lagomorpha	*Sylvilagus* sp.	Cottontail rabbit	3	1	2	1
Unknown	Size Class I	Mouse-sized	6	--	0	--
	Size Class II	Squirrel-sized	2	--	2	--
	Size Class I-II	Mouse to squirrel-sized	2	--	2	--
	Size Class III	Rabbit-sized	22	--	15	--
	Size Class I-III	Mouse to rabbit-sized	9	--	9	--
	Size Class IV	Coyote-sized	1	--	1	--
	Size Class V	Deer-sized	17	--	17	--
	Size Class V-VI	Deer to bison-sized	2,206	--	2,206	--
	Size Class IV-VI	Coyote to bison-sized	1,514	--	1,514	--
	Size Class VI	Bison-sized	406	--	406	--
	Unidentified	Unidentified mammal	229	--	229	--
		Total Identified to Class	4,548	7	4,531	6
		Unidentified	9	--	8	--
		Total	4,557	7	4,539	6

[1] Excludes complete specimens from Size Class I-II taxa, taxa with skeletal completeness, and specimens with digestive modification.

from the south-central and southeastern portion of the excavation block (designated by single contour lines). The distribution of these flake tools may be representative of expedient tools used for the processing of bison during the Component 1 occupation. The density distribution for finishing/maintenance flakes shows a dense concentration of this type of debitage to the west of Feature 1 (Figure 6). This is the same area in which most of the Component 1 stone tools were recorded, and supports the assertion bifacial tool manufacture and maintenance was conducted in the hearth-centered activity area associated with Feature 1.

Finishing/maintenance flakes, bifacial thinning flakes, tertiary flakes, and flake fragments without cortex comprise 96.58% of the Component 1 debitage assemblage, suggesting late stage lithic reduction and stone tool production/maintenance were the primary stone working activities. A density distribution map (Figure 7) for bifacial thinning flakes, tertiary flakes, and flake fragments without cortex for Component 1 shows most of these flake types were recorded in an area west of Feature 1, similar to the distribution for finishing/maintenance flakes and bifacial tools. The spatial distribution of these flake types suggests late stage lithic reduction activities conducted during the Component 1 occupation were also primarily conducted in the hearth-centered activity area associated with Feature 1. A density distribution for primary

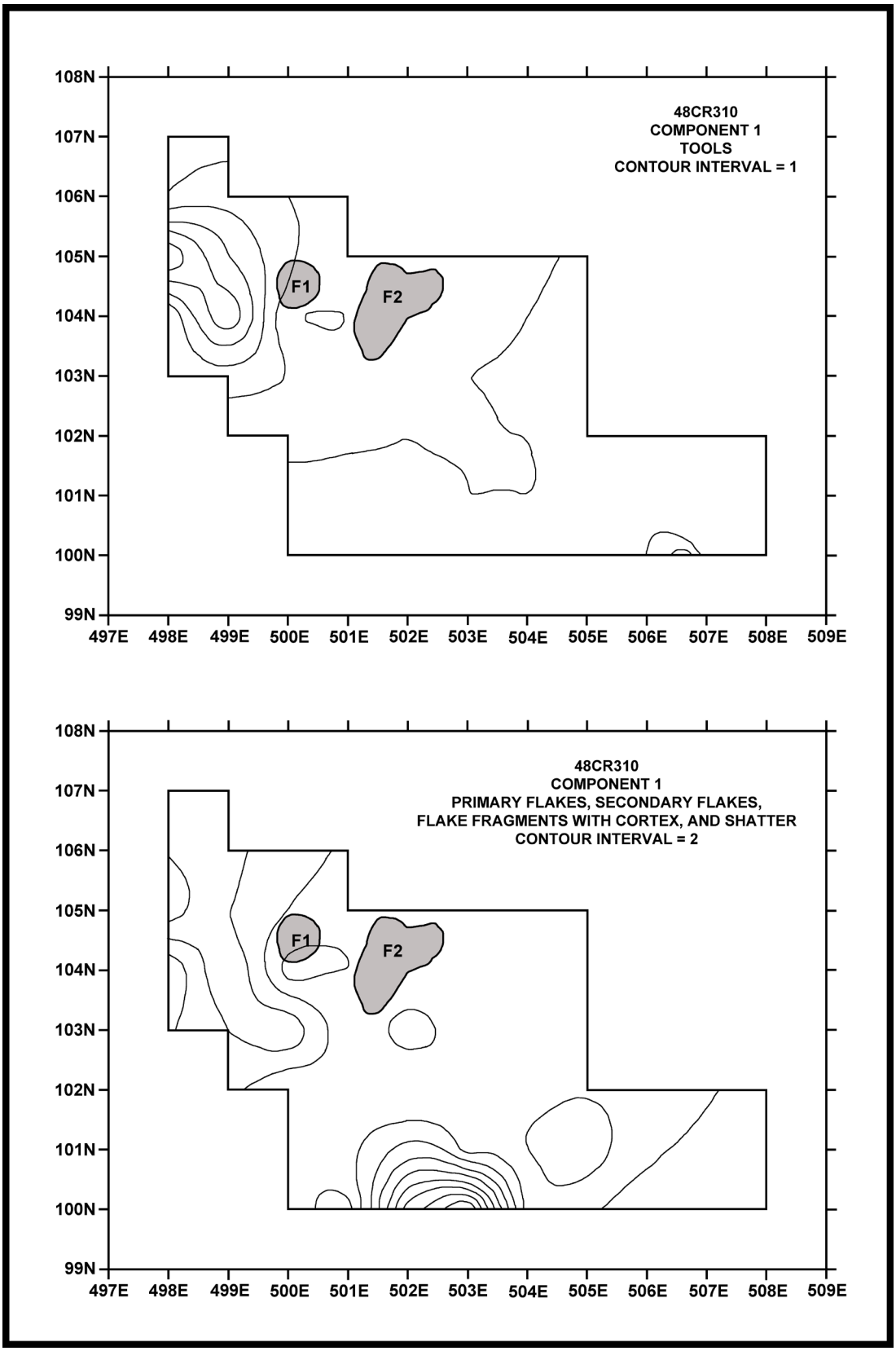

Figure 6: Contour density map showing distribution of stone tools and pressure flakes from Component 1 at Ferris Dune site.

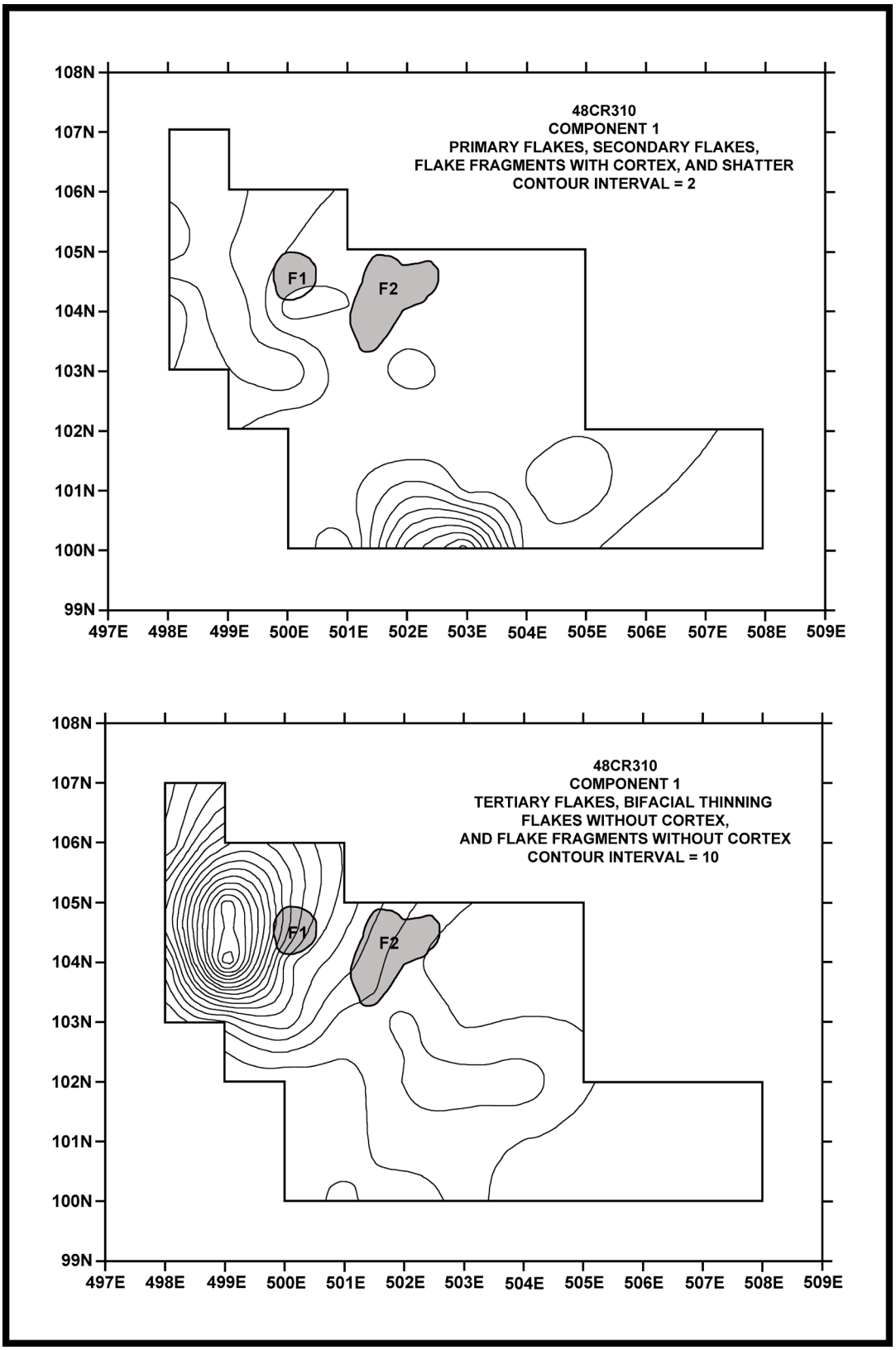

Figure 7: Contour density map showing distribution of primary flakes, secondary flakes, flake fragments with cortex, and shatter; and tertiary flakes and bifacial thinning flakes without cortex from Component 1 at Ferris Dune.

flakes, secondary flakes, flake fragments with cortex, and shatter is also presented (Figure 7). The spatial distribution of these types of debitage suggests the limited early stage lithic reduction which did occur during the Component 1 occupation was conducted in the south-central portion of the excavation block, away from the Feature 1 activity area; however, some early stage lithic reduction also appears to have been conducted west of Feature 1 in the area were most late stage stone working occurred. The spatial distribution of late stage debitage types suggests lithic material may have been initially reduced and prepared in the south-central portion of the site, and later transported to the Feature 1 activity area to tool production.

Faunal specimens from Component 1 at the site were dominated (>91%) by those classified as *Bison bison*, Size Class IV-VI (coyote to bison-sized), V-VI (deer to bison-sized), and VI (bison-sized) remains. A contoured density distribution map (Figure 8) for Component 1 faunal specimens classified as *Bison bison* and Size Class VI (bison-sized) shows two distinct distributions of bison remains, one in the southeastern portion of the excavation block, and the other in the south-central portion of the excavation block. Both areas are not directly spatially associated with Feature 1, and may represent areas where portions of procured bison were initially processed. At least two individual bison are represented in the Component 1 faunal assemblage, and it is possible the two distinct areas of bison bone concentration may be representative of these animals. The density distribution for faunal specimens classified as Size Class V (deer-sized), V-VI (deer to bison-sized), and IV-VI (coyote to bison-sized) from Component 1 (Figure 8) shows a distinct concentration of these size classes of faunal remains in association with the Feature 1 activity area, to the west of Feature 1, and two limited concentrations of remains in the southeastern and south-central portion of the excavation block. The latter two concentrations are likely representations of the bison remains recorded in the same areas of the block.

Based on the spatial distribution of artifacts recovered from Component 1, it appears use of the Feature 1 thermal basin as a hearth-centered activity area was central to the Uinta phase occupation at the site. Tool manufacture, retooling, and late stage lithic reduction activities were clearly associated with Feature 1. These activities were likely related to the procurement and processing of bison in association with the hearth-centered activity area, as well as, within close proximity to it. Overall, the types of cultural material recorded and spatial distribution of those materials suggest the Component 1 occupation is representative of a short term hunting camp from which at least two bison procured and processed.

COMPONENT 2

Component 2 at the Ferris Dune site was a 10-15 cm thick anthropogenically-stained horizon (Stratum Ib) contained in eolian sand. The component is dated by a single conventional radiocarbon age estimate of 1920 years B.P obtained from a stratigraphic sediment sample. The date assigns the Component 2 occupation to the Deadman Wash phase of the Late Archaic period. The component yielded only limited cultural materials and is representative of an ephemeral, short-term occupation. The cultural materials associated with the Component 2 Late Archaic occupation included only two chipped stone tool specimens, 36 lithic reduction specimens, and 49 fragmented faunal specimens. No features or other artifacts were recorded during the excavation of Component 2.

CHIPPED STONE TOOLS

The Component 2 chipped stone tool assemblage from the site is comprised of two specimens; a final biface fragment and a retouched flake. The biface specimen consists of the proximal-medial portion of a fragmented final biface derived from grayish brown fossiliferous chert. The specimen's morphology

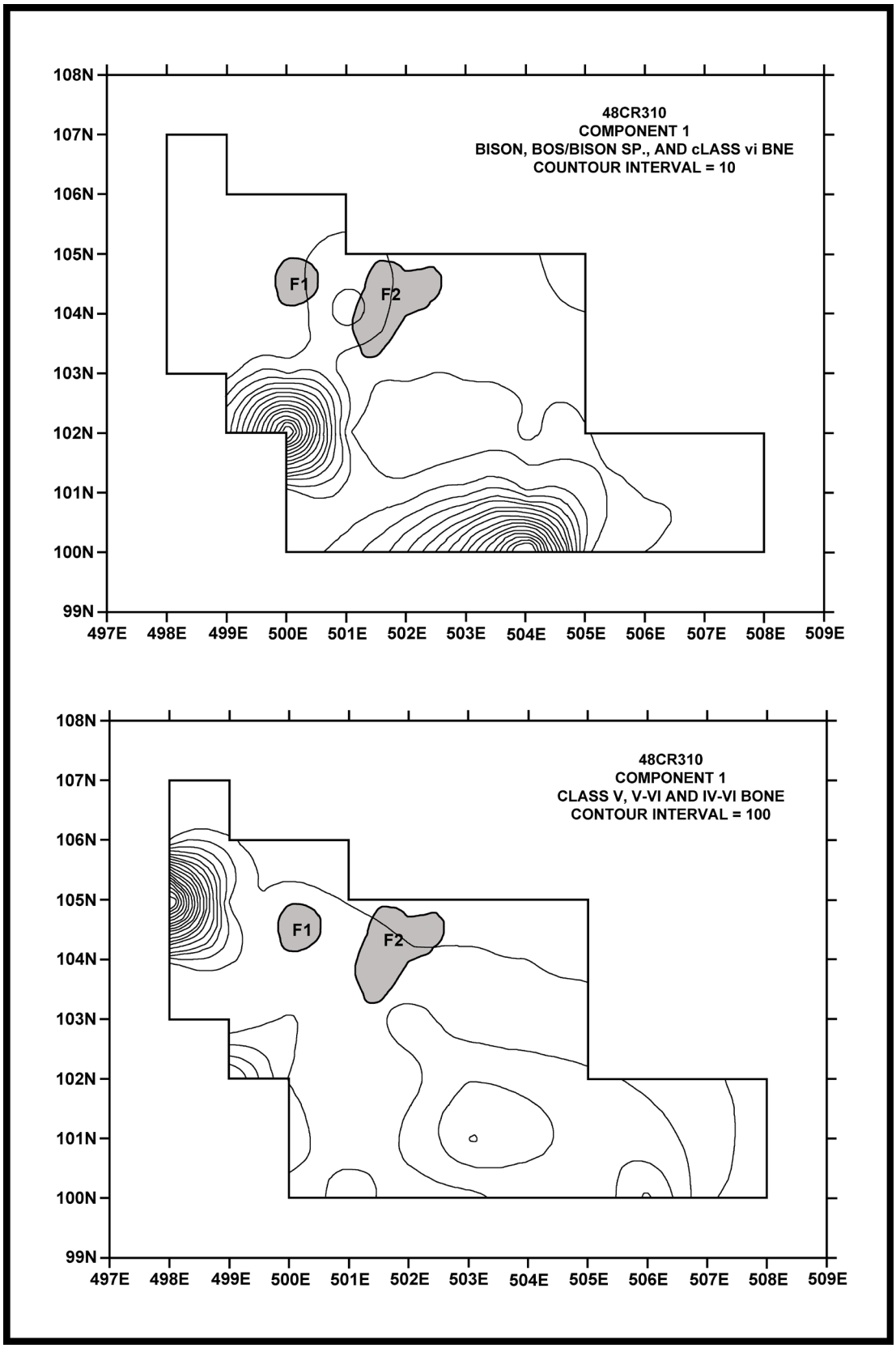

Figure 8: Contour density map showing distribution of *Bison, Bos/Bison* sp., and Class VI; and Class V, V-VI, and IV-VI bone from Component 1 at Ferris Dune site.

is irregular with a lenticular cross section. It exhibits bifacial edge retouch on some lateral margins and measures 11.9 mm long x 13.5 mm wide x 2.3 mm thick. The flake tool specimen represents a complete end-retouched flake derived from brown fossiliferous chert. The tool was manufactured from a large tertiary flake, and exhibits unifacial edge retouch on a portion of the distal margin. The overall maximum dimensions of the specimen measure 43.4 mm long x 23.3 mm wide x 9.0 mm thick.

DEBITAGE

The Component 2 debitage assemblage from the site consists of 36 specimens. The paucity of lithic reduction flakes from the component precludes any substantive analysis of lithic technology. The assemblage consist of 19 (52.78%) finishing/maintenance flakes, eleven (30.56%) tertiary flakes, three (8.33%) flake fragments without cortex, one (2.78%) secondary flake, and one (2.78%) piece of shatter. Four lithic raw material types are represented in the Component 2 debitage assemblage including: fossiliferous chert (83.33%), quartzite (8.33%), obsidian (5.56%) and non-fossiliferous chert (2.78%). None of the obsidian specimens from Component 2 were submitted for sourcing analysis.

FAUNAL REMAINS

The Component 2 faunal assemblage is comprised of 49 cultural specimens. The limited quantity of faunal remains recovered from the component precludes any substantive analysis regarding faunal resource use for the Component 2 occupation. Basic summary information regarding the Component 2 assemblage is provided below.

Identified taxa from the Component 2 faunal assemblage include: ground squirrel (*Spermophilus* sp.); pocket gopher (*Thomomys* sp.); jackrabbit (*Lepus* sp.); and bison (*Bison bison*) or cow/bison (*Bos/Bison*). Faunal specimens classified to size class only from the Component 2 faunal assemblage represent 90% of the assemblage and are dominated by Size Class IV-VI (coyote to bison-sized), V-VI (deer to bison-sized), and VI (bison-sized) large mammal remains. Specimens from these size classes represent 84% (42 specimens) of the cultural faunal materials recovered from Component 2. Overall, the faunal assemblage is comprised predominantly of large mammal remains, suggesting at least one large mammal and a jackrabbit may have been procured and processed during the Component 2 occupation.

THE FERRIS DUNE SITE AND OTHER NEARBY FOOTHILL/ MOUNTAIN SITES

Two of the most occupationally similar and spatially close sites to the Ferris Dune site include the Pathfinder Ranch site (48CR332) (Buenger 2013) and the Sheep Mountain site (48FR5125) (Buenger 2011). The Pathfinder Ranch site is located near the base of Ferris Mountains, four miles north-northeast of the Ferris Dune site, and the Sheep Mountain site is located near the base of the Green Mountains, 35 miles west-northwest. Component 1 at the Pathfinder Ranch site yielded radiocarbon age estimates ranging between 1290 ± 30 and 2260 ± 30 years B.P., assigning it to the Uinta phase of the Late Prehistoric and the upper portion of the Deadman Wash phase of the Late Archaic. The component yielded three thermal basins, one manuport cluster, 7,237 lithic reduction specimens, 61 stone tools, four groundstone specimens, two bone tool/artifact specimens, and 6,552 fragmented faunal specimens. Each of the Component 1 occupations of the Pathfinder Ranch site was representative of short-term open camps in which a variety of activities were conducted. Based on the archaeological evidence these activities predominantly consisted of faunal processing (primarily large mammal), final and late stage stone tool production, and tool maintenance. However, other activities such as floral resource processing and domestic activities were also likely conducted during some of the occupations. Many of the

Component 1 occupations appeared to be associated with hunting camps in which large mammals were procured nearby and processed at the site. The Component 1 faunal assemblage is dominated by Size Class V, V-VI, and IV-VI faunal remains, which comprise 87.02% of the cultural faunal assemblage. Identified large mammal taxa also include elk (*Cervus elaphus*), deer (*Odocoileus* sp.), pronghorn (*Antilocapra americana*), sheep (*Ovis* sp.), bison (*Bison bison*). The composition of the faunal assemblage is uncommon for contemporaneous interior basin faunal assemblages from the Wyoming Basin (Lubinski 2000). This is likely related to the landscape setting and use of the locality for hunting camps by several groups over the duration of the Component 1 site occupations.

Component 2 at the Pathfinder Ranch site was represented by at least two temporally discrete occupations during the Deadman Wash phase of the Late Archaic period based on three radiocarbon age estimates of 2620 ± 30 and 2710 ± 30 years B.P. The Component 2 occupations of the locality are representative of short-term open camps with associated thermal basins and cultural materials showing a range of subsistence activities, including large mammal resource procurement/processing and late stage tool production/maintenance. The recovered cultural materials associated with Component 2 included two thermal basins, three chipped stone tool specimens, 589 lithic reduction specimens, three bone tool/artifact specimens, and 4,268 fragmented faunal specimens. The faunal assemblage from Component 2 is also notable for the predominance of large mammal remains (89.01% of the assemblage). Identified large taxa also include elk (*Cervus elaphus*), deer (*Odocoileus* sp.), pronghorn (*Antilocapra americana*), and bison (*Bison bison*). The composition of the Component 2 faunal assemblage from the Pathfinder Ranch site contrasts with Late Archaic Wyoming Basin archaeological sites in this regard. Again, this was largely conditioned by the geographic setting of the Pathfinder Ranch site, and use of the locality by Late Archaic hunter-gatherers as camps from which to procure highly ranked subsistence resources.

The Sheep Mountain site is located at the base of Green Mountain on the far southwestern side of the range where Sheep Mountain extends westward from the range near Crooks Gap. Component 1 at the Sheep Mountain site was representative of several short-term, Uinta phase, Late Prehistoric occupations. Radiocarbon age estimates established for Component 1 ranged between 1230 ± 40 and 1410 ± 40 years B.P. The component yielded six thermal basins, three discard features, 26 chipped stone tool specimens, 2,525 lithic reduction specimens, four groundstone specimens, four bone tool specimens, 808 fragmented faunal specimens, and additional organic residue evidence of floral and faunal resource processing. The Component 1 faunal assemblage from the Sheep Mountain site was dominated by large mammal remains. Pronghorn, deer-sheep-pronghorn, and Size Class V-VI and VI remains included 576 specimens comprising 71.29% of the assemblage. Cottontail rabbit and Size Class III remains represent only 10.89% (88 specimens) of the faunal assemblage. Similar to the Pathfinder Ranch site, this was likely a function of the landscape setting and the use by several groups for the purpose of procuring highly ranked resources during the seasonal round.

While Components 1 and 2 from the Ferris Dune site were not as intensively occupied as the chronologically similar components at the Pathfinder Ranch and Sheep Mountain sites; the combined data from the three sites do suggest Late Prehistoric and Late Archaic groups likely established seasonally-conditioned base camps at the sites for the purpose of foraging available floral resources and conducting logistical forays for large mammals along the surrounding well-watered drainages and mountain slopes. These localities would have offered access to perennial and seasonal water as well as a diverse variety of seasonally conditioned basin/foothill-

mountain floral and faunal resources. Hunter-gatherer groups appear to have been repeatedly drawn to the localities to exploit highly ranked resources. Regional groups of Late Prehistoric and Late Archaic hunter-gatherers may have organized their mobility strategies around the seasonally conditioned exploitation of floral and faunal resources located along the well-watered slopes of small, and relatively isolated mountain ranges located within the larger encompassing Wyoming Basin.

SUMMARY

During the data recovery project at the Ferris Dune site, 40 m² of intact eolian sediment was excavated to a maximum depth of 1.50 m below the present ground surface. The excavated portion of the site yielded two buried cultural components dating to the Uinta phase of the Late Prehistoric (Component 1) and the Deadman Wash phase of the Late Archaic (Component 2). The site is located in deep eolian sand at the northern margin of the Ferris Dune Field, adjacent to Sand Creek and the lower slopes of the northeastern portion of the Ferris Mountains. Tthe excavation at the site yielded two features, 36 chipped stone tool specimens, 4,153 debitage specimens, one stone bead, and 4,589 faunal specimens. Most (98.99%) of the artifacts recorded during the excavation were recovered from Component 1. The cultural materials recovered at the suggest the Component 1 and 2 occupations represent single, short-term camps likely characterized by seasonally-conditioned resource procurement, to include bison hunting/processing during the Component 1 occupation.

Component 1 represents a single occupation characterized by a short term hunting camp dating to 950 ± 30 B.P. Cultural materials associated with the Late Prehistoric Uinta phase occupation include one thermal basin, one thermally altered stone discard feature, 4,117 lithic reduction specimens, 34 stone tools, one steatite bead, and 4,539 fragmented faunal specimens. The Component 1 occupation was seen as a hearth-centered activity area where several activities were conducted during the occupation. These activities included use of a rock-filled hearth as a roasting basin; stone tool manufacture/maintenance; late stage lithic reduction; and processing of procured faunal resources comprised predominantly of bison. Lithic reduction materials recovered from Component 1 were comprised of >72% finishing/maintenance flakes, suggesting stone tool production/maintenance and late stage reduction were the primary stone working activities conducted during the occupation. The Component 1 stone tool assemblage was comprised of >73% projectile points/point fragments and final bifaces/biface fragments. The limited number (8) of flake tools recovered from the component were likely used as expedient cutting tools during processing of faunal resources. The remains of at least two individual bison are represented within the Component 1 faunal assemblage), which was dominated by those classified as *Bison bison*, Size Class IV-VI (coyote to bison-sized), V-VI (deer to bison-sized), and VI (bison-sized) remains. No evidence of floral resource procurement was recorded during the excavation; however, this does not necessarily preclude the possibility floral resources were procured and processed during the occupation. Based on the archaeological evidence of Component 1, the associated Late Prehistoric occupation appears to represent a short term hunting camp in which at least two bison and limited numbers of other mammals were processed. The proximity of the camp to Sand Creek and the lower slopes of the Ferris Mountains likely conditioned the use of the locality by a mobile group of hunter-gatherers, perhaps as part of a seasonally-conditioned subsistence strategy.

Component 2 at the site is represented by a single conventional radiocarbon age estimate of 1920 years B.P., assigning the associated occupation of site to the Late Archaic Deadman Wash phase. The component yielded only lim-

ited cultural materials and is representative of an ephemeral, short-term occupation. The cultural materials recovered during the excavation of Component 2 included only two chipped stone tool specimens, 36 lithic reduction specimens, and 49 fragmented faunal specimens. No features or other artifacts were recorded during the excavation of Component 2. Unfortunately, the limited quantity of cultural material recorded in association with Component 2 precludes any substantive interpretation of the nature of cultural occupation. The data loosely suggest the component is representative of a short term open camp in which some lithic reduction and stone tool use was conducted, most likely in association with the procurement and processing of faunal resources.

The most interesting aspect of the archaeological deposits at the Ferris Dune site is the ecological setting. The site is situated close to a perennial water source (Sand Creek), the extensive Ferris Dune Field, and the diverse foothill/mountain ecozone of the Ferris Mountains. The ecologically productive setting likely conditioned the repeated site use by Late Prehistoric and Late Archaic hunter-gatherers as open camp locations from which to conduct productive hunting and gathering forays. In addition, Sand Creek Canyon creates a natural travel corridor between the Ferris Mountains and Bear Mountain, providing access to the Sweetwater River to the north, and the sub-basins located to the north and south of the mountain ranges. Hunter-gatherer groups and wildlife likely used this corridor to gain access to necessary resources. The canyon walls, steep banks of Sand Creek, and large, linear dunes in the Ferris Dune field may have been used to drive and entrap bison during bison hunts (as evidenced by the Component 1 bison processing camp). Late Prehistoric communal bison kill localities within the Wyoming Basin are known from the Wardell (48SU301; Frison 1973), Barnes (48LN350; McKern 1995), and Inman (48SW3604; Latady et al. 1996) sites. The evidence recorded form Component 1 is not indicative of a communal bison kill; however, at least two bison were procured by a small group of hunter-gatherers, perhaps on an encounter basis or in an organized manner using the local topography.

Nonetheless, it is reasonable to suggest the ecological setting surrounding the Ferris Dune site conditioned hunter-gatherer prey choices, and subsequently the composition of the faunal assemblages recovered from each of the excavated components. The Ferris Dune site affords an opportunity to study hunter-gatherer adaptive strategies in which a foothill-mountain ecozone used through time, as a part of a more generalized adaptive strategy to life in the high altitude, xeric environment of the Wyoming Basin. Overall, the data collected during the excavations at these sites are consistent with evidence compiled within the region relating to hunter-gatherer mobility, site occupation, and subsistence; however, the added dimension of foothill-mountain ecozone use presents an interesting topic of discussion within the context of the prehistory of the Wyoming Basin.

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REFERENCES CITED

Buenger, Brent A.
2011 The Sheep Mountain Site (48FR5125). In *Data Recovery Excavations along the Anadarko Howell CO_2 Pipeline: 8,000 Years of Hunter-Gatherer Adaptation in Central Wyoming*, edited by Brent A. Buenger and Stacy R. Goodrick, pp. 435-677. Prepared for Anadarko Exploration and Production. Western Archaeological Services, Rock Springs, Wyoming.
2013 *Data Recovery Excavation at the Pathfinder Ranch Site (38CR332).* Prepared for Sinclair Pipeline Company. Western Archaeological Services, Rock Springs, Wyoming.

Chapman, Shannen S., Sandra A. Bryce, James M. Omernik, Donald G. Despain, Jeremy Zumberge, and Mark Conrad
2004 *Ecoregions of Wyoming*. U.S. Geological Survey, Reston, Virginia.

Frison, George C.
1973 *The Wardell Buffalo Trap 48SU301: Communal Procurement in the Green River Basin*. Museum of Anthropology, University of Michigan, Anthropological Papers No. 48. Ann Arbor, Michigan.

Gaylord, David R.
1982 Geologic History of the Ferris Dune Field, South-Central Wyoming. *Geologic Society of America Special Paper* 192:65-82.
1987 Airflow-Terrain and Hydrologic Controls on Eolian Sedimentation and Holocene Paleoclimatic Fluctuations in Wyoming. *University of Wyoming Contributions to Geology* 25:157–165.

Hatch, James W., Joseph W. Michels, Christopher M. Stevenson, Barry E. Scheetz, and Richard A. Geidel
1990 Hopewell Obsidian Studies: Behavioral Implications of Recent Sourcing and Dating Research. *American Antiquity* 55:461–479.

Hughes, Richard E.
2013 *Energy Dispersive X-ray Fluorescence of Obsidian Artifacts from the Ferris Dune Site (48CR310), Central Wyoming*. Geochemical Research Laboratory Report 2013-51. Prepared by Geochemical Research Laboratory, for Western Archaeological Services. Copies available from Geochemical Research Laboratory, Portola Valley, CA.

Latady, William R., Jr., Lucy Hinze, and Robert F. Scott, IV
1996 Inman Buffalo Site. *The Wyoming Archaeologist* 40(2):47-69.

Lubinski, Patrick M.
2000 Of Bison and Lesser Mammals: Prehistoric Hunting Patterns in the Wyoming Basin. In *Intermountain Archaeology*, edited by David B. Madsen and Michael D. Metcalf, pp. 176-188. Anthropological Papers No. 122, University of Utah Press, Salt Lake City, Utah.

McKern, Scott T.
1995 *The Barnes Site (48LN350): A Late Prehistoric Bison Jump in the Western Wyoming Basin*. Western Wyoming College Contributions to Archaeology No. 7, Rock Springs.

Scheiber, Laura L., and Judson B. Finley
2011 Obsidian Source Use in the Greater Yellowstone Area, Wyoming Basin, and Central Rocky Mountains. *American Antiquity* 76(2):372-394.

Smith, Craig S.
1999 Obsidian Use in Wyoming and the Concept of Curation. *Plains Anthropologist* 44(169):271–291.

Stokes, Stephen and David R. Gaylord
1993 Optical Dating of Holocene Dune Sands in the Ferris Dune Field,

Wyoming. *Quaternary Research* 39 (3):274–281.

Thompson, Kevin W., Jana V. Pastor, and Steven D. Creasman

1997 Wyoming Basin - Yellowstone Plateau Interaction: A Study of Obsidian Artifacts from Southwest Wyoming. *Tebiwa* 26:241-254.

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