ARCHAEOLOGICAL INVESTIGATIONS OF TWO UTE TRAILS IN MESA COUNTY, COLORADO

15 AUGUST 2016

COMPLETED FOR HISTORY COLORADO STATE HISTORICAL FUND AND THE BUREAU OF LAND MANAGEMENT GRAND JUNCTION FIELD OFFICE

DARG Dominquez Archaeological Research Group

A CONSORTIUM FOR CULTURAL RESOURCES RESEARCH, PRESERVATION AND EDUCATION IN THE NORTHERN COLORADO PLATEAU

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Including Appendix B:

IDENTIFYING CULTURAL LANDSCAPES: ARCHAEOLOGICAL DOCUMENTATION AND ANALYSIS OF NATIVE AMERICAN ROCK ART ALONG PROPOSED PREHISTORIC-TO-HISTORIC TRAILS IN MESA COUNTY, WEST CENTRAL COLORADO

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ARCHAEOLOGICAL INVESTIGATIONS OF TWO UTE TRAILS IN MESA COUNTY, COLORADO, FOR THE HISTORY COLORADO STATE HISTORICAL FUND AND THE BUREAU OF LAND MANAGEMENT GRAND JUNCTION FIELD OFFICE

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Submitted to

BUREAU OF LAND MANAGEMENT
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FORWARD

Dominquez Archaeological Research Group, Inc. (DARG) is a 501(c)(3) non-profit corporation established in 2003 to serve as a catalyst for innovative and collaborative archaeological and anthropological research, preservation, and education in the northern Colorado Plateau region. Functioning as a consortium of research associates and technical advisors, DARG's operational focus is to coordinate research, raise and administer funding, and manage projects that advance our shared values and mission.

DARG has successfully administered several major past and on-going projects that have significantly expanded baseline knowledge of western Colorado archaeology, notably including the Colorado Wickiup Project and the Colorado Radiocarbon Database Project. Our Ute ethnohistory and ethnobotany studies have opened important new channels of communication with Ute consultants and research partners, and a series of bison studies we recently conducted have revealed a more complete picture of the occurrence of this important resource during the Early Numic and Historic Ute periods in western Colorado. These projects have and will continue to provide us with a solid foundation of baseline knowledge and organizational experience for this and future Ute Trails Projects.

DARG team members for the Ute Trails Project include: Carl E. Conner, Principal Investigator and Ute Trails Project Director; Michael S. Berry, Principal Investigator for Database Development, Chronometry and Multivariate Analyses; Curtis Martin, Principal Investigator for Colorado Wickiup Project; Richard Ott, Ute Consultation Coordinator; and Sally Cole, Rock Art Documentation Specialist. Ute participants in the project include: Betsy Chapoose, Cultural Rights and Protection Director, and Clifford Duncan, Tribal Elder and Cultural Advisor, for the Ute Tribe of the Uintah and Ouray Reservation; and Terry G. Knight, Sr., Ute Mountain Ute Tribal Historic Preservation Officer and NAGPRA Liaison. Lynn Hartman, Ute Mountain Ute THPO administrator coordinated archival research.

DARG projects are funded through grants from the State Historical Fund, various offices of the Colorado Bureau of Land Management and the U.S. Forest Service, and through private contributors including: EnCana Oil & Gas USA, Inc.; EPCO, Inc; Rhino Energy; Grand River Institute; and The Williams Companies, Inc. In addition, DARG research associates regularly contribute significant pro bono hours working both on funded projects and organizational development.

DARG will continue to seek funding for the Ute Trails Project from state and federal grant programs and private foundations, and through our education and outreach efforts we will continue to foster funding relationships with private interests and public groups that support the project' goals. We will also continue our proactive efforts to share our research and educational databases through the cooperative development of a sustainable, internet-based, user-supported program.

ABSTRACT

Dominquez Archaeological Research Group (DARG) pursued this project, entitled Ute Trails of Mesa County, for the purpose of conducting a landscape-scale, multi-disciplinary study of two sections of the historic/prehistoric Ute Trails in Mesa County Colorado. This research project was funded by cultural resource grants from History Colorado State Historical Fund (SHF Project #2015-02-024), the Bureau of Land Management Grand Junction Field Office (BLM) , and Grand River Institute. This project was conducted under Section 110 of the National Historic Preservation Act (NHPA, 16 U.S.C. § 360), and authorized by BLM Permit No. C-67009.

This study integrates archaeological, ethnohistoric and contemporary Native American perspectives. The purposes of the study were to conduct database work, fieldwork school, Ute consultation, rock art documentation, field survey of sites, analysis and completion of the final report and public outreach and information sharing. This included the identification of suspected prehistoric and historic trails or travel routes, the investigation and recording of the general distribution of associated cultural resources, and the evaluation of the significance of the cultural resources for inclusion on the National Register of Historic Places (NRHP).

Two potential aboriginal trails were selected for the project. Located in the Northern Utes' aboriginal territory, both trails were important corridors linking key river crossings and seasonal destination locales for aboriginal inhabitants in west-central Colorado as evidenced by the clustering of Early Numic, Historic Ute and other archaeological sites that have been recorded in the selected study areas. The nature of this study encompassed revisiting and reevaluating 34 selected sites and the recording of 15 sites and 84 isolates that were newly discovered within 20 (randomly selected) 20-acre inventory blocks. Thus, a total of 400 acres of BLM land was newly inventoried and 133 resources were addressed.

Information about the recorded sites was included in a database for the Ute Trails of Colorado and is augmented by a map-based findings review – both of which are accessed through the DARG website under password. Ute tribal participation has occurred at the development and findings stages. Additional involvement is expected during official consultation and specific site visitations that will be co-sponsored by BLM.

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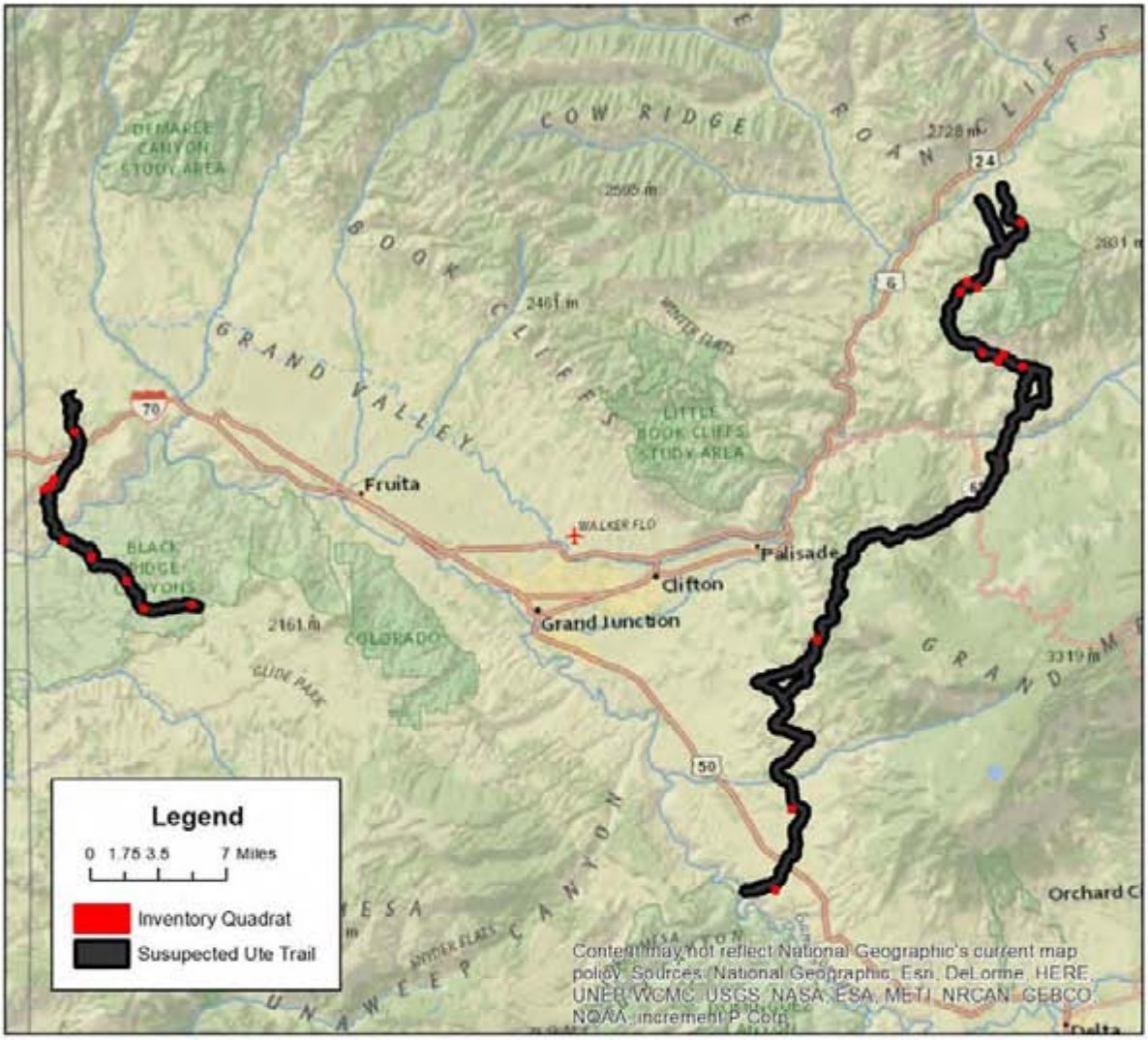


Figure 1.1 Archaeological Investigations of Two Ute Trails in Mesa County, Colorado.
Maps show suspected trail locations and inventory blocks (above) and relative location within the state (left).

1.0 INTRODUCTION

Dominquez Archaeological Research Group (DARG), under a Bureau of Land Management Grand Junction Field Office (BLM) permit and authorization (Permit No. C-67009), conducted a study entitled Ute Trails of Mesa County that included portions of two aboriginal trail systems within the Colorado River corridor. This research project was funded by cultural resource grants from History Colorado State Historical Fund (SHF Project #2014-01-054), the Bureau of Land Management, and Grand River Institute.

These and other trails are historically significant to today's living descendants of the Utes that traveled them, and to the diverse professional and public communities that value and study Ute heritage and early western Colorado history. Centrally located in the Northern Utes' aboriginal territory, the two selected trails offer rich and varied sources of archaeological information. This study integrated archaeological, ethnohistoric and contemporary Native American perspectives. The purposes of the study included the survey of sites, the documentation of rock art, the analysis of artifacts, the creation of a database of the findings, and the completion of final documents and a database to be utilized for Ute consultation, public outreach and information sharing. Resource documentation included the identification of suspected prehistoric and historic trails, the investigation and recording of the general distribution of associated cultural resources, and the evaluation of the significance of the cultural resources for inclusion on the National Register of Historic Places (NRHP).

Field work was conducted under BLM ARPA Antiquities Permit No. C-67009 under the direction of Carl Conner (Principal Investigator) between 22 May 2014 and 30 January 2015. The files search, field survey, and report documents were completed by Carl E. Conner (Principal Investigator), Curtis Martin (Field Crew Chief), Richard Ott, Sally J. Cole, Holly Shelton, Nicole Darnell, Hannah Mills, Courtney Groff, Lucas Piontkowski, and students from the University of Utah.

This project was conducted under Section 110 of the National Historic Preservation Act (NHPA, 16 U.S.C. § 360), which sets out the broad historic preservation responsibilities of Federal agencies and is intended to ensure that historic preservation is fully integrated into the ongoing programs of all Federal agencies. It was initiated as part of BLM's commitment to pursuing projects and programs that further the purposes of the NHPA, and in so doing was conducted to identify historic properties located along the two selected trail sections for their protection and preservation.

2.0 LOCATION OF THE PROJECT AREA

The revisited sites and the 20 discrete inventory blocks lie within Mesa County, Colorado on the following USGS 7.5' quadrangle maps: Bitter Creek Well, De Beque, Dominguez, Housetop Mountain, Juniata Reservoir, Molina, Palisade, and Sieber Canyon. The legal location for the project area is presented below on Table 1.

Table 2.1. Legal location for the project area.

P.M.	Township	Range	Section
Ute	3S	2E	Sections 12 and 35
6th	8S	96W	Sections 15, 31, and 32
6th	9S	96W	Sections 6, 7, 27, 28, and 29
6th	10S	104W	Sections 4, 9, 19, 20, and 30
6th	11S	103W	Sections 27 and 30
6th	11S	104W	Sections 4, 11, 13, and 18
6th	12S	98W	Section 1

3.0 ENVIRONMENT

The project area is on the northeast margin of the Colorado Plateau physiographic province in west-central Colorado. It includes the Grand Valley and the surrounding mountainous terrain of the Uncompahgre Plateau to the south, the Book Cliffs and Roan Plateau to the north, and Grand Mesa to the east. The project areas include benches, mesa slopes, and terraces along the following intermittent creeks: Deer Creek, Kannah Creek, Indian Creek, Whitewater Creek, Alkali Creek, Horsethief Creek, Shire Gulch, Atwell Gulch, Jerry Gulch, along the East Trail; and, within the canyons of McDonald Creek and Knowles Canyon for the West Trail. Deer, Kannah, Whitewater, and Indian Creeks are tributaries of the Gunnison River. Alkali, Horsethief, McDonald Creek, and Knowles Canyon are tributaries of the Colorado River. Shire Gulch, Atwell Gulch, and Jerry Gulch, all drain to Plateau Creek, a perennial tributary of the Colorado River. This section provides discussions of the physiography, soil deposition and paleoclimate, flora and fauna, and modern climate of the study areas.

3.1 PHYSIOGRAPHY

The East Trail begins on the north side of the Gunnison River and ends on the south side of the Colorado River. It is situated at the southern margin of a large northwest-southeast trending structural downwarp known as the Piceance Basin. Subsidence of the basin began during the Laramide Orogeny somewhere between 70 to 80 million years ago and ended 35 to 50 million years ago (Young and Young 1977:46). During this period, the Piceance Basin received as much as 9000 feet of stream and lake deposits, all of which gently dip toward the center of the downwarp. Regional uplift occurred during the Late Tertiary, bounding the basin on the northwest by the Douglas Creek Arch and on the east by the Grand Hogback.

Battlement Mesa is a prominent local topographic feature – a flat-topped, lava-capped erosional remnant of Late Tertiary Basalt flows rising more that 6000 feet above the Grand (Colorado River) Valley. Its name is thought to derive from its resemblance to the upper walls of a castle or fortress (Murray 1973:19). To the south lies Grand Mesa (Plate 3.1), sister of Battlement Mesa – slightly higher and more extensive, but sharing a common ancestry. Further south – past the end of the study area – lies the Uncompahgre Plateau. Whitewater Creek (Plate 3.2) makes up the southern portion of the East Trail.

The Piceance Basin contains geologic formations from Cambrian to Holocene in age, but the thickest section is made up of rocks from the Cretaceous Period. The Cretaceous-age Mesa Verde Group comprises the majority of the deposits in the basin. It ranges in thickness from about 2,000 feet on the west to about 6,500 feet on the east (Johnson and Nuccio 1986). This geologic formation is underlain by Cretaceous-age Mancos Shale and overlain by the lower Tertiary-age Fort Union and Wasatch Formations which consist of fluvial sandstones and shales.

Plate 3.1. View northwest of Grand Mesa.

Plate 3.2. View south of Whitewater Creek area, Uncompaghre Plateau in photo background.

The West Trail is situated on the north end of the Uncompahgre Plateau, a southeast-to-northwest structural uplift on the northeast margin of the Colorado Plateau physiographic province, which is characterized by nearly horizontal geologic formations, deeply incised vertical-walled canyons, high elevations and sedimentary rock formations (Fenneman 1931). The Uncompahgre Plateau represents a massive northwest-southeast uplift that traverses approximately ninety miles, and reaches a maximum elevation at Horsefly Peak (10,300ft). An average elevation of 9500 feet is reported for the summit ridge of the Plateau, which is relatively flat. Dissection of the Plateau has been slowed by the xeric environment, nonetheless, runoff from higher elevations has formed numerous steep-sided canyons separated by mesas that generally run perpendicular to the summit ridge.

The canyons on the north end of the Uncompahgre Plateau expose numerous geologic layers. The Plateau is actually a remnant of a late Paleozoic mountain range, the Uncompahgria, which covered most of Western Colorado. It reached its present elevation after several reactivations, the last of which occurred during the Cenozoic Era. The geologic formations were deposited on the resistant Precambrian gneiss, schist, granite and pegmatite. The West Trail occurs within the south end of McDonald Creek and across the Colorado River in Knowles Canyon (Plates 3.3 and 3.4), where erosion has removed the overlying rocks down to the Triassic-age Kayenta Formation, Wingate Sandstone, Chinle Formation (Young and Young 1977: 61-63).

Plate 3.3. View south-southeast of McDonald Creek and Knowles Canyon area, La Sal Mountains in photo background right.

Plate 3.4. View north of Upper McDonald Creek area.

3.2 FLORA AND FAUNA

The landscape is host to a wide variety of plant species, which thrive at elevations of 4500 feet to 8200 feet. These elevations occur within the Upper Sonoran Zone and the Transition Zone. The four main natural plant communities are: riparian, sagebrush/grassland, pinyon/juniper, and mountain brush community.

The riparian community is found along some of the small drainage corridors, near seeps or springs, and bordering the Colorado and Gunnison Rivers. Cottonwood, box elder, tamarisk, willow, skunkbush, rabbitbrush, and greasewood are present, as well as reed grass, sedges, rushes, and cattail. Besides offering a plethora of floral resources, the riparian habitat attracts animals seeking food, water, and cover. In terms of resource use, the riparian habitat is the most valuable habitat in the study areas and most of the archaeological sites on the benchlands south of the Colorado River, along Plateau Creek and the Gunnison River cluster near the spring areas.

The sagebrush/grassland community covers large portions of the benches and mesas within the various study units and along the trails. It merges with greasewood and saltbush toward the rivers and with oakbrush and snowberry at upper elevations. Sagebrush can support a variety of grasses and herbaceous species, but much of the community has been reduced to sagebrush, prickly pear cactus, and cheatgrass. Other species present are galleta, Indian ricegrass, needle-and-thread, gilia, larkspur, and wild four o'clock.

Many of the sites recorded in the study areas are within the pinyon-juniper community or along its border with sagebrush-grasslands. Pinyon-juniper woodlands occur throughout the Southwest on foothills, low mountains, mesas, and plateaus between elevations of 4500 and 7500 feet. Pinyon pines dominate at higher elevations and junipers at lower. This woodland type has communities that vary widely not only by dominant tree species by also by the makeup of their understories, which may either be sparse or occur with well-developed stands of shrubs and herbaceous vegetation. The determining factor in the composition of the woodland is elevation, although limitations are also imposed by aspect, slope, longitude, latitude, landform, geologic substrate and fire history. Their elevation distributions are usually dictated by negative temperature regimes on their upper and lower edges. When they border a western valley that experiences inversions, they are usually confined to a thermal belt above that valley's inversions and below the colder up-slope elevations (Evans 1988:2-3).

Openings in the pinyon/juniper canopy reveal an understory of sagebrush, saltbush, rabbitbrush, cheatgrass, and occasional native grasses including galleta, Indian ricegrass, needle-and-thread, and western wheat. The community is most developed at elevations above 5800 feet; below this, pinyon is almost absent. This zone’s upper reaches extend to elevations of 7500 feet, but generally occur ca. 5500-6500 feet, and have an annual precipitation range of 12 to 20 inches. Lower reaches of this zone (ca. 4350-5500 feet) are dominated by sagebrush, shadscale, rabbitbrush, cacti and yuccas, and grasses, and have an annual precipitation range of 8 to 14 inches.

Adjacent to the east trail are Battlement and Grand Mesas – mountains that rise to elevations in excess of 10,000 feet. The associated increase in moisture encourages the florescence of a variety of montane vegetation communities which, although they are not actually within the project area, would certainly have been accessible to aboriginal occupants. Three of the more prevalent are the mountain shrub, the aspen/spruce, and the mountain meadow communities. The mountain shrub community is found on the lower slopes of the Battlements and is dominated by oakbrush, mountain mahogany, and serviceberry. Aspen and spruce stands are generally present above 8000 feet, interspersed with open parks, or mountain meadows. Associated plants include shrubs (snowberry, serviceberry, chokecherry, rose, silver sagebrush, shrubby cinquefoil, etc.), forbs (cow parsnip, wild celery, sweet anise, columbine, larkspur, monkshood, fleabane, etc.), and grasses (bearded wheat, mountain brome, slender wheat, Parry oatgrass, fescue, blue wildrye, oniongrass, needlegrass, mountain muhly, etc.) (USDA Soil Conservation Service 1975).

The diversity of habitat within and surrounding the study areas provides for a variety of wildlife inhabitants: large and small mammals, waterfowl and other birds, amphibians, reptiles, and fish. Use of the areas is both year round and seasonal; large mammals and waterfowl tend to migrate to the grassland and riverine environments in the fall and winter, while other wildlife is present throughout the year.

Of the large mammals inhabiting the area, mule deer are the most numerous and most frequently seen. Grazing the high slopes and meadows of the Battlements and the Grand Mesa in summer, these ungulates move to lower elevations when the temperatures drop. Nearly all of the lower slopes (those below 7300 feet) and terraces flanking the major rivers provide suitable winter range – and often critical winter range (Burkhard and Lytle 1978:107). Although most of the mule deer population follows a migrational pattern, occasional small groups browse the area year-round.

Other large mammals present include elk, bighorn sheep, black bear, and mountain lion. Most of the elk are part of the Grand Mesa herd, which summers high in the thick spruce/fir forests atop Grand Mesa and winters on the lower slopes (generally below 9000 feet) bordering the river (Burkhard and Lytle 1978:117). It is probable that, prehistorically, both elk and deer summer range extended below that of present populations, but overgrazing by domestic livestock has depleted the native grasses such that sufficient lower elevation summer range no longer exists. Bighorn sheep are rarely, if ever, seen in the study area; they tend to remain at high elevations year round. In 1978, the Battlement Mesa sheep herd population was estimated at fewer than 60 animals, most of which summered and wintered along the hogback between Horsethief and Horse Mountains (Burkhard and Lytle 1978:137). The black bear population density in and around the study areas is estimated to be one bear per two square miles (ibid:128). Its range extends from the high peaks almost to the rivers. Historically, the grizzly bear has been recorded as well, but the black bear is the only bear species present in the area today (ibid.). Mountain lion territory is essentially coincident with that of the black bear, although its numbers in and around the study areas are estimated to be considerably fewer. In summer, the lions are dispersed fairly evenly; in winter, they tend to concentrate around deer

and elk wintering grounds (ibid:135).

Sufficient habitat exists in the Battlement and Grand Mesa's vicinity for a wide range of small mammals, including insect-eaters (Insectivora), bats (Chiroptera), flesh-eaters (Carnivora), gnawing mammals (Rodentia), and hares and rabbits (Lagomorpha). Among the insect-eaters are the masked shrew, the wandering shrew, and the water shrew, all of which are generally found above 7000 feet. Both migratory and nonmigratory bats occur in the study areas and roost in old buildings, hollow trees, rock crevices, and caves. Carnivorous small mammals include the coyote and bobcat (both of which are found throughout the study units), the raccoon (which is common near water sources), and a variety of fur-bearers the ringtail, marten, ermine, longtail weasel, ferret, mink, badger, striped skunk, spotted skunk, and grey fox. Except for the marten, ermine, and mink, which tend to be high elevation dwellers, these furbearing mammals may be present in any of the vegetation communities, although they usually gravitate toward water sources. Rodents common at higher elevations include the golden-mantled squirrel, red squirrel, pocket gopher, bushytail woodrat, mountain and longtail vole, and the western jumping mouse. The prairie dog, Apache pocket mouse, and house mouse are more frequent at lower elevations where soils are sandier. Rodents found throughout the areas are the marmot, rock squirrel, least chipmunk, Colorado chipmunk, harvest mouse, canyon mouse, deer mouse, pinyon mouse, and porcupine. The beaver and muskrat are inhabitants of riparian environments both along the rivers and along higher streams draining the Battlements and Grand Mesa. Hares and rabbits constitute a large portion of the small mammal population of the study areas. The whitetail jackrabbit and desert cottontail are commonly seen at the lower elevations, while the snowshoe hare and mountain cottontail are more prevalent above 6500 feet. The small rodents and lagomorphs of the area are important prey species for the diurnal predators of the area (Burkhard and Lytle 1978).

Avian species known in the study areas include waterfowl, raptors, upland game birds, and a variety of smaller birds. Along the rivers, harbored in sloughs and marshes, are many resident and migrant waterfowl species, including the Canada goose and numerous ducklike birds: the mallard, gadwall, pintail, green-winged teal, bluewinged teal, cinnamon teal, American wigeon, northern shoveler, ringnecked, redhead, canvasback, lesser scaup, common goldeneye, Barrow's goldeneye, bufflehead, ruddy, common merganser, and redbreasted merganser (Burkhard and Lytle 1978). The most common of the resident waterfowl are the mallard and the greenwinged teal. Raptors reported in the vicinity include the turkey vulture, the redtail and other hawks, the golden eagle, the bald eagle, the prairie and peregrine falcons, the American kestrel (most common of the raptors), and several owl species. These birds prey on the abundant small mammals and aquatic resources available. The most common game birds identified locally by the Colorado Division of Wildlife are the bandtailed pigeon, mourning dove, blue grouse, turkey, ringnecked pheasant, and chukar. The last two are introduced species (ibid.). Numerous small, non-game birds occur in the area as well.

A plentiful source of aquatic animals – toads and frogs, snakes and lizards, and fish – is provided by the rivers and their tributaries. Species of fish include the humpback sucker,

speckled dace, bluehead sucker, carp, mottled sculpin, and brown trout (Archer et al. 1985; USDI 1975).

3.3 MODERN CLIMATE

Modern climate is important to cultural resource management because of conditions of preservation, erosion and redeposition. The climate of the Grand Valley is similar to that of most intermountain areas west of the Continental Divide in its aridity, wide range of daily temperatures, high percentage of bright sunny days, and high evaporation rate (U.S.D.A. Soil Conservation Service 1955). In this semiarid, cool desert environment, winters tend to be mild and summers hot and dry and render the area an attractive place to live year round. Over the Colorado River watershed (east of the Grand Valley), precipitation is recorded on an average of nearly 60 percent of the days. However, 50 percent of the annual precipitation occurs on only 16 percent of the days having precipitation (wrcc.dri.edu). Winter precipitation is derived from stratus-type clouds associated with large-scale frontal systems, whereas localized cumulus-type clouds produce most summer precipitation.

Aside from very local climatic variations within the valley, depending partly on elevation, aspect, and local exposure, climatic conditions at Grand Junction are probably representative of the area. Table 3.1 provides the average temperature for monthly/seasonal/ annual periods from 1900-2010, as reported by the Western Regional Climate Center. Grand Junction is situated at an elevation of 4593 feet and, in general, is relatively warm during summer months and cold during winter months. As elevations increase in surrounding terrain, temperatures tend to decrease and precipitation increases. The highest elevations may receive up to 24 inches of precipitation per year. Over the winter months, snow accumulates above 8000 feet without completely melting until spring. The town of Collbran occurs in a mountain valley south of Battlement Mesa at an elevation of 6000 feet. The summary for its climatic conditions illustrates the increase in precipitation and snowfall, and the decrease average yearly temperatures as elevation increases to the east of the Grand Valley (Table 3.2).

Table 3.1 Monthly climate summary for the Grand Valley from AD 1900-2010 (Western Regional Climate Center 2010). [Period of Record : 1/ 1/1900 to 7/31/2010. Percent of possible observations for period of record: Max. Temp.: 99.9% Min. Temp.: 99.9% Precipitation: 99.9% Snowfall: 99.9% Snow Depth: 99.8%]

Month	Max. Temp. (F)	Min. Temp. (F)	Total Precip. (in.)	Total SnowFall (in.)	Snow Depth (in.)
Jan	36.5	15.9	0.60	6.0	1
Feb	44.6	23.3	0.57	3.8	1
Mar	55.1	31.2	0.82	3.0	0
Apr	65.2	39.2	0.79	0.9	0
May	75.6	48.2	0.79	0.1	0
Jun	86.9	57.2	0.45	0.0	0

Month	Max. Temp. (F)	Min. Temp. (F)	Total Precip. (in.)	Total SnowFall (in.)	Snow Depth (in.)
Jul	92.9	64.1	0.60	0.0	0
Aug	89.5	62.0	0.99	0.0	0
Sep	80.6	53.0	0.96	0.0	0
Oct	67.3	41.0	0.91	0.4	0
Nov	51.3	28.3	0.63	2.3	0
Dec	38.8	18.5	0.59	5.1	1
Annual	65.3	40.2	8.70	21.6	0

Table 3.2 Monthly climate summary for the town of Collbran from AD 1900-1999 (Western Regional Climate Center 2010). [Period of Record : 3/ 1/1900 to 12/31/1999. Percent of possible observations for period of record: Max. Temp.: 91.7% Min. Temp.: 91.4% Precipitation: 92.5% Snowfall: 91.1% Snow Depth: 41.4%.]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	36.3	42.1	50.2	60.8	70.8	80.7	86.8	84.3	76.6	64.8	49.2	38.0	61.7
Average Min. Temperature (F)	8.7	14.9	22.7	30.8	38.0	45.1	51.4	50.1	41.8	31.6	21.2	11.7	30.7
Average Total Precipitation (in.)	1.05	1.02	1.51	1.59	1.40	0.81	1.12	1.41	1.40	1.45	1.11	0.99	14.85
Average Total SnowFall (in.)	15.4	12.1	11.2	5.2	0.5	0.0	0.0	0.0	0.0	1.8	6.6	12.1	65.0
Average Snow Depth (in.)	5	5	2	0	0	0	0	0	0	0	1	2	1

The record for the monthly climatic summary available from the Western Regional Climate Center for the town of Parachute, elevation to 5100 feet, is for a much shorter time period. An official extended weather profile for Parachute was found recorded by the U.S. Weather Bureau, which has maintained temperature and precipitation records since 1965 (U.S. Department of Commerce 1965-1980). Notable is the increase in average total precipitation and snowfall over that for Grand Junction. During that time, winter and summer temperatures have averaged in the low 20s and upper 70s (°F), respectively, although extremes of 22°F and 107°F (both in 1979) are on record. December and January are typically the coldest months, July and August the hottest.

Precipitation at the same weather station has averaged 12.48" per year, but actual annual measurements range from 7.65" (1977) to 20.18" (1969). In most years, Parachute receives slightly more than half of its precipitation as rainfall during the period from May through

October. Local humidity is usually between 15 and 30 percent. Averaged over a 26 year period, a growing season of 150 days is reported by Brooks et al. (1933).

As elevations increase around the west sides of Battlement Mesa and Grand Mesa there is a notable increase in precipitation largely due to snowfall, and a decrease in temperatures. However, it is notable that the south slopes of Battlement Mesa are called the "Sunnyside" and the increase snowfall of that elevation was melted much quicker than the Plateau Valley lowlands and north slopes. In general, while minor climatic differences occur as a result of local variations in slope, aspect, elevation, and vegetation, the climate of the study areas is generally characterized by low precipitation and relative humidity and an abundance of sunshine. In this semiarid, cool desert environment, winters tend to be mild and summers warm and dry and render the area an attractive place to live year-round.

3.4 PALEOCLIMATE

A graphic illustration of regional climatic studies by Petersen (1981) for the La Plata Mountains and by Chen and Associates for the Battlement Mesa area (Conner and Langdon 1987:3-17) is presented in Figure 3.1. As one can see, the two graphs are not in complete agreement, but they offer comparable assessments of the region's paleoclimate based on the present knowledge of the geomorphology. In addition, the following is a distillation of the discussion of general climatic shifts derived from geologic implications as reported in the Class I for the GJFO (Conner et al. 2011:2-8 through 2-50).

In the Southern Rocky Mountains, generally warm, moist conditions prevailed during the Early Holocene (ca. 11,700 BP). As the generalized warming trend continued, the warm/ moist conditions began to change. At the lower elevations, dry/wet climatic fluctuations appear to have brought on drought conditions between 11,200 and 9500 BC in the San Juan and Wyoming Basins, lowering the water table and concentrating surface water into shrinking water holes. In other areas, especially the higher terrain with its orographic uplifts, increased effective precipitation would have produced a rise in the ground water tables, local lake levels, and the number of springs, as well as an expansion of tall and short grass forage regions (Eckerle 1992).

About 9200 BC, wetter environmental conditions again prevailed and timberline was lower in the La Plata Mountains. Dunal areas began to stabilize and the sage brush began to replace the desert shrub. However, around 9000 BC another change occurred and the environment became drier. Between then and about 4300 BC the timberline in the San Juan Mountains gradually retreated to higher elevations than at present. Somewhere around 8250 BC the monsoon pattern appears to have shifted southward.

The Paleoarchaic period (7500-5500 BC) witnessed a deterioration of regional climates accompanied by higher average temperatures and less effective moisture. The three following periods are defined by cultural changes and punctuated by climatic episodes: Early Archaic (ca. 5500-3750 BC), Middle Archaic (ca. 3750-1250 BC), and Late Archaic (ca. 1250 BC - AD 1300).

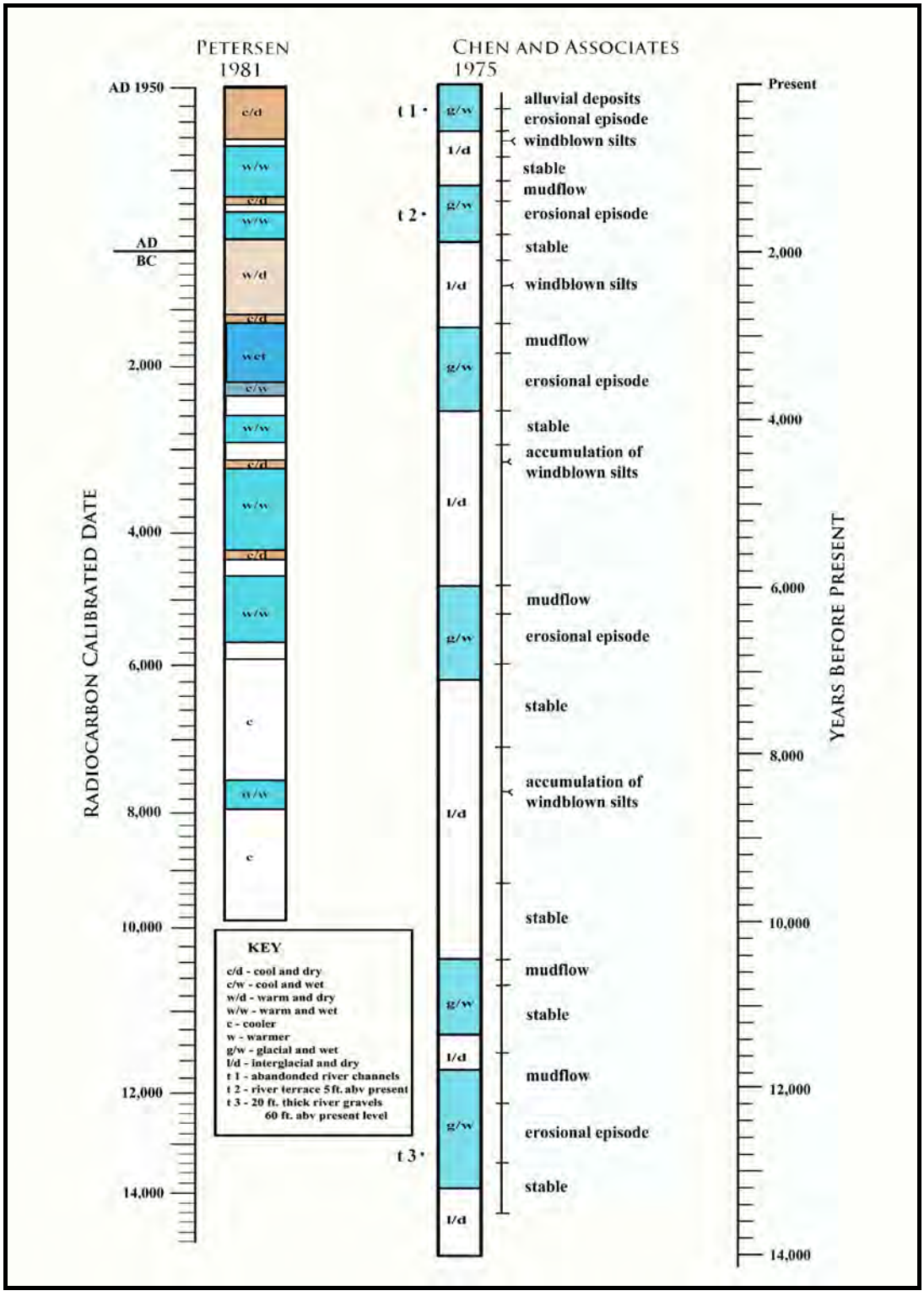


Figure 3.1. Illustration of regional climatic studies by Petersen (1981) for the La Plata Mountains and by Chen and Associates for Battlement Mesa Community (Conner and Langdon 1987:3-17).

The Early Archaic (5500-3750 BC) exhibits a good deal of cultural continuity with the preceding period. This period marks the first half of the Middle Holocene and represents the harshest drought conditions experienced by the prehistoric population.

Based on excavation data, evidence of occupation of northwest Colorado during the Middle Archaic Period, ca. 3750-1250 BC, greatly expands in comparison to the previous periods. This occurs in the second half of the Middle Holocene and roughly corresponds to the Neoglacial period, which exhibited an overall increase in effective moisture and cooler temperatures. Climatic fluctuations occurred during this period and two distinct dry episodes are recorded by Petersen (1981) for the La Plata Mountains and by Chen and Associates for the Battlement Mesa area (Conner and Langdon 1987:3-17). The environmental model prepared for Battlement Mesa Community shows an accumulation of windblown silts ca. 3250 BC (at the end of an extended, increasingly dry episode of the Neoglacial period) and again ca. 600 BC. Between 2850 BC and 2550 BC, is a time of increased moisture which is evidenced in the stabilization of dune fields and reversion to sagebrush steppe of much of the area covered in desert shrub communities.

The Late Archaic (1250 BC - AD 1300) is a time of apparent stress on settlement systems. Drought-like conditions coupled with population packing (increased populations in smaller ecological niches) caused adaptive strategies to reach a pinnacle of intensification. The initial portion of the Late Archaic Period appears to consist primarily of climatic conditions somewhat similar to the present with periodic fluctuations between cooler and wetter, cooler and drier, or hotter and drier conditions, depending upon geographic location.

In summary, the end of glacial conditions came around 13,400 BC [* represents calibrated dates]. An early drought, called the Clovis drought by Haynes (1991), caused erosion and is associated with most of the Pleistocene extinctions. Glacial conditions returned in the Younger Dryas between 11,000 and about 9000 BC*. Severe drought in the early Holocene lasted from 9000 to 5500 BC*, interrupted once around 7450 BC*, which coincides with Pryor Stemmed occupations in the region. After 5500 BC*, climates ameliorated. Conditions between 5500 and 3100 BC* approached but did not exceed conditions during the Late Glacial; changing plant communities, frost heave, syngenetic (in-place) weathering, and changing lake levels all point to cooler conditions. Droughts interrupted the generally cooler-moister conditions after 5500 BC*, with major periods of drought identified between and 1850 to 950 BC*, 275 BC* to 165 AD*, 900 to 1350 AD*. After about 150 years ago, conditions have caused deflation and alluvial deposits have moved in fits and starts downstream, via avulsion.

Geologic evidence can identify changes in climate within a scale of hundreds of years, but lacks precision when compared to tree ring data, but the two compare nicely. The sequence of deposition and erosion is easy to see, but dating the sequence with radiocarbon determinations obtained mostly from cultural features presents its own challenges. Furthermore, although the changes due to climate change are visible in the stratigraphic record, the boundary conditions that favor deflation over deposition in loess deposits or trigger fine

clastic deposition in alluvial valleys are not precisely known. Nevertheless, a coarse summary of climate based on alluvium and aeolian deposition can be suggested, and is generally supported by tree ring data for at least the last 2000 years.

The Holocene paleoclimatic data just adduced are of great value for exploring the general relationship between environment and prehistoric cultural occupation of the Western Slope. However the temporal resolution stemming from radiocarbon dated stratigraphic sequences is less than ideal for correlation with better known cultural events occurring within the past two millennia. The Palmer Drought Severity Index (PDSI) employs precipitation, temperature and the Available Water Content (AWC) of soil types to assess agricultural potential on an annualized basis (Palmer 1965; Alley 1984). When the modern instrumental record is calibrated with available tree-ring indices the PDSI for specific regions can be extended to prehistoric times. Edward R. Cook of the Lamont-Doherty Earth Observatory has recently recalibrated the PDSI for 1825 annually resolved grid points for North America (Cook, as presented in Berry and Benson 2008). The relevant node (Number 117) for northwestern Colorado is depicted in Figure 3.2, averaged to decadal means.

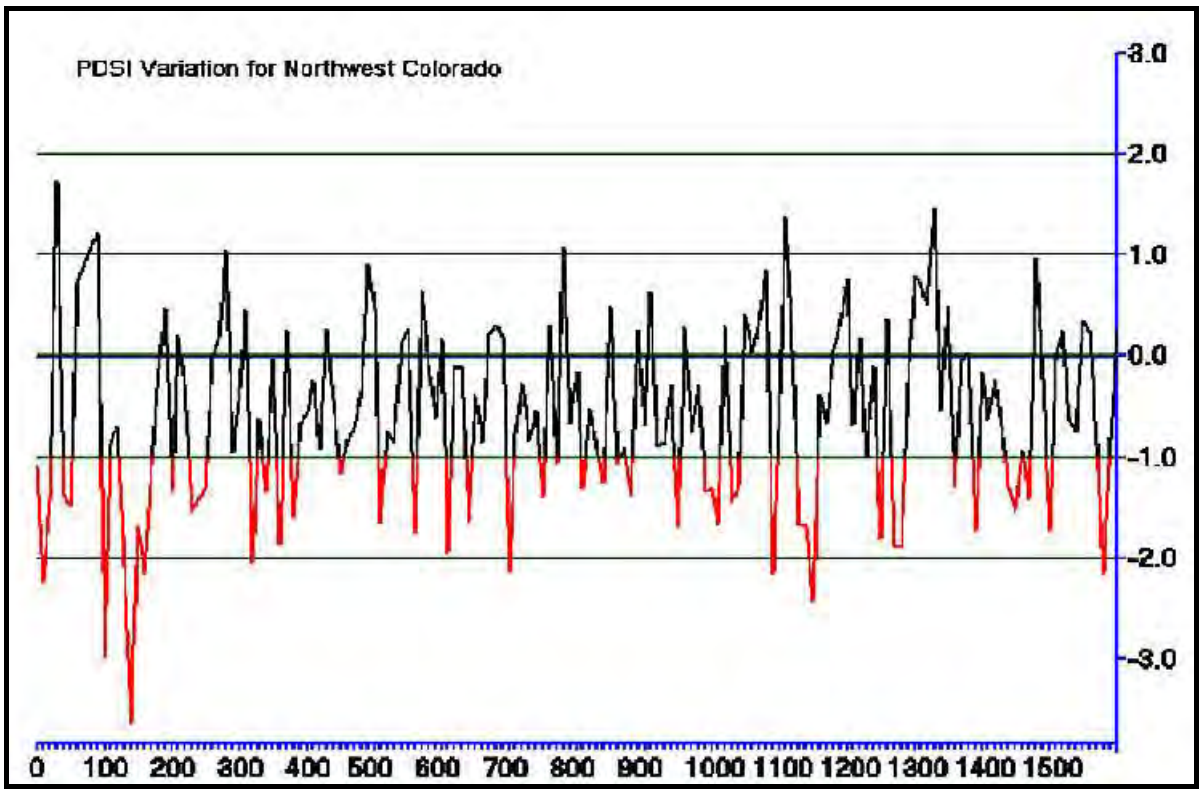


Figure 3.2. PDSI for Northwestern Colorado from 1- 1600 AD. Annual data decadally averaged (Cook, as presented in Berry and Benson 2008).

Drought conditions are indicated in red for negative departures greater than 1-sigma. Correlation with cultural events is straightforward in areas such as southwestern Colorado where cultural events are by and large also subject to tree-ring dating. However Western Slope archeological remains rely upon radiocarbon dating which typically lacks a similar level of resolution. The situation can be markedly improved in the future if the controlling federal agencies set standards of radiocarbon sample selection to be employed by CRM contractors. A ten-year temporal granularity is achievable if enough dates of credible materials from critical proveniences are recovered over time. Botanical annuals are the preferred materials and typically require Accelerator Mass Spectrometry (AMS) analyses. And multiple, same provenience sampling allows for date averaging with a consequent reduction, thus increased precision, in standard errors. Many of the questions regarding environment-cultural interaction (e.g., PDSI in relation to population movement or abandonment) cannot be addressed given the current state of the cultural radiocarbon record.

4.0 SUMMARY OF FILES SEARCH AND LITERATURE OVERVIEW

Prior to field work, files at the GJFO of the BLM were reviewed on 16 May 2014 for known cultural resources within or adjacent to the project area. The Office of Archaeology and Historic Preservation (OAHP) online cultural resource database (i.e., Compass) was also searched for the same information. In addition, General Land Office (GLO) records were reviewed. The searches revealed that 115 cultural resource inventories have been previously conducted within the corridors or overlap the trail corridors. The two corridors contain 595 previously recorded cultural resources. Of these resources 34 were selected for revisiting and re-recording. These sites were selected based on their location of BLM land, need for updating the site forms and site maps, documenting changes, and Government Land Office patents for the project area were also reviewed. Table A-1 in the Appendices provides a bibliographic list of these projects and Table A-2 lists previously recorded cultural resources.

4.1 PREHISTORIC BACKGROUND

North America's first human explorers arrived near the close of the Pleistocene as early as 18,000 years ago traveling by passage along Beringia the continental land bridge between what is now Siberia and Alaska. As craniometric evidence has indicated, the immigrants were diverse in origin, identified as belonging to various populations found in Asia and along the Pacific Rim. Specifically, northern and central Asians, people who later occupied the Polynesian islands, and the Ainu who later resided on the islands of northern Japan have been identified as the earliest ancestors of the Native Americans. The number of these colonists was apparently small because evidence of the first incursions is scant. However, the fact that they rapidly spread across the continents of North and South America is found in excavations at Meadowcroft Rockshelter Pennsylvania (Adovasio et al. 1990) and at Monte Verde in Chile (Dillehay 1984), sites which date to about 18,000 and 14,000 years ago respectively. Consensus has emerged that the dating of Monte Verde is valid; however, the dating of Meadowcroft continues to be the subject of debate (Haynes 1980, 1991). In any case, such

finds suggest a pre-Clovis colonization of the Americas.

Local and regional archaeological studies indicate nearly continuous human occupation of west-central Colorado for the past 12,000 years. The prehistory of the region is outlined in the Colorado Council of Professional Archaeologists' *Colorado Prehistory: A Context for the Northern Colorado River Basin* (Reed and Metcalf 1999), and in the *Archaeological Monitoring and Data Retrieval for the Collbran Pipeline Project* (Conner et al. 2014). Discussed therein are manifestations of the Paleoindian Era big-game hunting peoples (ca. 11,500 - 6400 BC); Foothill-Mountain Tradition (ca. 9500-6500 BC); Paleoarchaic transition period (ca. 7500-5500 BC); the Archaic Era (Early, Middle, Late) hunter/gatherer groups (ca. 6500 - 400 BC); the Formative Era horticulturalist/forager (Fremont, Anasazi, Avonlea) cultures (ca. 400 BC- AD 1300); the Early Numic and Athabaskan hunter/gatherers (ca. AD 1300 - AD 1650); and, the early historic horse-riding nomads (Late Numic, Athabaskan, Plains cultures) ca. AD 1650 - AD 1920). Historic records indicate occupation or use by Euro-American trappers, settlers, miners, farmers, and ranchers as well. An overview of the history of the region is provided in a document published by the Colorado Council of Professional Archaeologists entitled *Colorado History: A Context for Historical Archaeology* (Church et al. 2007).

A temporal illustration emphasizing the overlap of the subsistence strategies employed by the diverse cultural groups over the past 16,500 years is presented in Figure 4.1. It acknowledges the potential of the extension of the Late Archaic hunter-gather occupation coeval with Formative Era cultures. Notably, dates of occupation are presented in **AD-BC** and **BP** (Before Present) contexts, which is important in the understanding of tables and information presented in BP dates.

Reed and Metcalf (1999) summarize the prehistoric occupation in the Northern Colorado River Basin. They report that the earliest Paleoindian era sites in the Northern Colorado River Basin are identified based on projectile point style and subsistence strategies associated with Pleistocene megafauna. Dating roughly between 13,400 and 12,500 BP [cal.], "no Clovis tradition artifacts have been discovered in association with Pleistocene mega-fauna in the study area" (ibid:56). In Western Colorado, it is generalized that the area "was occupied by Foothill-Mountain complex peoples following the Folsom tradition, possibly between 1500 and 7500 BP [cal.]... [with] higher frequencies of Great Basin Western Stemmed complex projectile point types than Plains projectile point types" (ibid:57). Unpredictable or high water flows during the Paleo-Indian Period probably limited a stable depositional context along much of the Gunnison River and the broader valley and foothills to the north may have been more usable.

The Archaic Era, as reviewed by Reed and Metcalf (1999:71), "includes radiocarbon ages from 107 sites in the database, with radiocarbon ages between 8400 and 2000 BP," and is characterized as a hunter-gatherer life way that was less mobile than that of the Paleoindian Era and that was based on a seasonal utilization of locally available resource. Technological

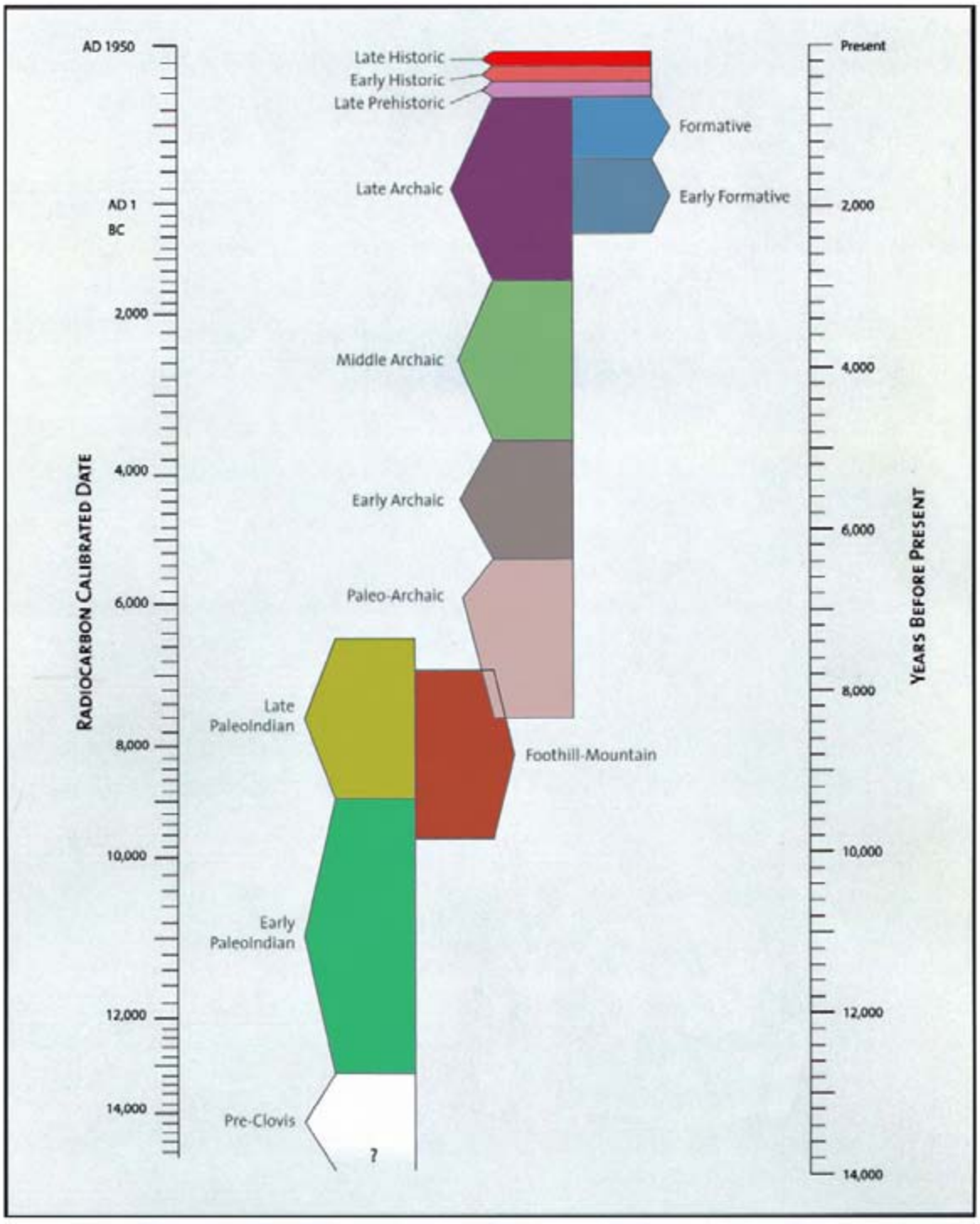


Figure 4.1. Temporal chart emphasizing the overlap of the subsistence strategies employed by diverse cultural groups over the past 16,500 years.

introductions include increasing use of groundstone and projectile point diversity. Both sheltered and open camps feature slab-lined pits.

The occurrence of storage and habitation structures in this region has only in recent years been documented, primarily due to cultural resource management projects. A recent study by Metcalf and Reed (ed. 2011:139) detailed data from a sample of 65 house pits with occupations spanning nearly the entire Archaic Era in Northwest Colorado. House pit ages ranged from the oldest at 8170 to 8022 cal BP (5MF6255) to the youngest at 3970 to 3560 cal BP (5MF2990). Their best documented/dated houses in the sample have ages between 4835 and 8170 cal BP, and the majority of houses date between 5600 and 7100 cal BP (ibid.). Notably, the use of house pits was not observed for the period 3600-2500 BP in northwest Colorado during the UBL/WIC/REX projects.

Prior to their study, two of the oldest pithouses in Colorado were found in the Yarmony site near Kremmling and dated between 5380 and 4800 bc (cf. calibrations in Metcalf and Black 1991:57-58). Also, at altitudes of 8,000 feet or more in Colorado, what were apparently wattle and daub structures have been found in the Curecanti National Recreation Area near Gunnison (Cassells 1997) and at the Hill Horn and Granby sites near the town of Granby (Wheeler and Martin 1982). The Curecanti structures date between 3400 and 1500 BC (Cassells 1997:106-108). The Granby structures date to 2500 BC and the Hill Horn structures may date as early as 7000 and as late as 2500 BC (Wheeler and Martin 1982:24).

Such structures are known to occur in the Grand Valley area (near De Beque and Parachute) during the period ca. 3000-2700 BP (Berry et al. 2013). In the 2009-2010 archaeological monitor project for the Collbran Pipeline, which occurred around the west and south sides of Battlement Mesa, two pithouse structures were discovered in the sidewalls of the pipeline trench. One at site 5ME16786 turned out to be of the same type as at 5GF126 – found at Battlement Mesa Community – and yielded essentially the same date, ca. 2770 BP. Another well defined pithouse was found at 5GF16789 that dated ca. 4660 BP. Three or four levels of potential house pits were identified, but disturbance by natural erosion and pipeline construction precluded their complete documentation. These ranged in dates from about 5750 to 6000 BP. The structures had shallow, dish-shaped floors and several had associated storage cists (Conner et al. 2014). Also in the vicinity is site 5GF1185 located in Parachute Creek canyon. Excavations there exposed evidence of house floors that dated ca. 3370 and 2920 BP (Conner et al. 2014:76).

Interestingly, recent excavations at the McClane Rockshelter, 5GF741, located in the Roan Plateau, provided evidence that Middle Archaic McKean Complex groups were creating structures within rockshelters by constructing brush and/or pole walls around the perimeter of the overhang – essentially making sheltered houses. The interior exhibited a centrally located thermal feature, and lined and unlined storage pits. The evidence of these houses occurred in the two lowest stratigraphic units, which contained three occupation levels dating between ca. 4200-3000 BP. Winter occupation is surmised for these three habitations (Berry et al. 2013).

In the Southwest and portions of northwest Colorado, the Formative Era refers to a subsistence focus on corn between 400 BC and AD 1300. Formative groups constructed habitations that were permanently occupied during growing seasons, built granaries and utilized pottery. Reed and Metcalf indicate that, based on the OAHP site files, two major clusters of Formative-era structures are found in western Colorado, one in western Rio Blanco and Moffat counties, and the other in the lower San Miguel and Dolores river drainage in western Montrose County. A third "less distinct" cluster is referenced as located south of Grand Junction in the vicinity of Glade Park (ibid:98). For Mesa County , an "isolated anomaly" may be a more apt interpretation of the rare appearance of Fremont and Anasazi rock art styles, isolated occurrences of ceramics, and sheltered masonry structures. It is more likely that during this period in the Grand Valley, the canyons, surrounding mountains, and plateaus there was a continuation of the subsistence strategy of the Archaic era, mainly because the study area has a combination of environmental factors – highly productive vegetation communities, low rainfall and short growing season – that make farming to support large groups an unpredictable and uneconomical subsistence strategy.

Reed and Metcalf (1999:146) describe the Protohistoric Era as the "aboriginal occupation of western Colorado between the end of horticultural-based subsistence practices of the Formative era and the final expulsion of the Ute to reservations in AD 1881. ...AD 1300 will be used as the start of the Protohistoric era, because so few people appear to have attempted to maintain a horticultural lifeway between AD 1300 and 1500. Furthermore, there is evidence of the immigration of a new hunting and gathering group about AD 1300" (Reed 1994).

Sites from this period are suggested by the presence of Desert Side-notched and Cottonwood Triangular projectile points and Uncompahgre Brown Ware ceramics. Reed and Metcalf (1999:146) also suggest that "before extensive exposure to Euro-American culture, these people constructed wickiups for shelter." However, there is growing evidence – indicated by the presence of metal axe-cut wickiup poles and late dendrochronological dates – that the Utes continued to construct wickiups long after the presence of Euro-Americans in the region (Martin and Brown 2010).

4.2 RADIOCARBON DATA DERIVED FROM PREHISTORIC SITES ALONG THE EAST TRAIL

In direct relationship to the location of the East Trail, significant cultural resources were identified during the Archaeological Monitoring and Data Retrieval for the Collbran Pipeline Project (Conner et al. 2014), which occurred west and south of Battlement Mesa. Excavations yielded radiocarbon dates that span occupations from the Early Archaic through the Historic Ute. Fifty-three dates were obtained from 22 sites, and their conventional radiocarbon ages ranged from 5990±40 BP (5ME16789.F3, Beta-263486) to 370 BP (5ME16097.F4, Beta-248418). Substantial pithouses were found while monitoring the pipeline trench, dating approximately 2800 and 4600 years ago. That of the more recent age is directly associated with a cultural phenomenon first identified in the early 1980's during excavations within the Battlement Mesa Community (Conner and Langdon 1986).

Based on the carbon dates obtained during the Collbran Pipeline Project, the definable periods of occupation reach 6000 years into the past and represent occupations during the Archaic, Formative, Late Prehistoric and Historic periods. Diagnostic projectile points were sorely lacking from the surfaces of most of the sites and is attributed to collection by artifact hunters during modern times. Despite the lack of diagnostic artifacts, these investigations did result in a substantial account of the past six millennia, adding significantly new information to the known cultural sequence.

The earliest period of occupation that can be supported by radiocarbon dating falls within the Early Archaic period. Subsequent Middle and Late Archaic, Formative, Late Prehistoric, and Historic Ute occupations identified around the base of Battlement Mesa are likewise substantiated by radiocarbon data. All the dates were from charcoal samples which, of course, introduces the possibility of old wood use or built-in bias, both of which may yield dates older than the actual behavioral event. Nonetheless, the Collbran dates tend to cluster well, suggesting that these problems are not significantly skewing the actual temporal placements.

The temporal distribution of the Collbran dates is shown in Figure 4.4, a probability density histogram. The histogram is generated by summing the relative probabilities of the single and/or multiple intercepts of each calibration result on the y-axis with the x-axis increments set at 25 years. Calibration was accomplished with Calib.exe version 6.1.1 using the intcal09 calibration curve. The heaviest concentration occurs between 1500 BC and AD

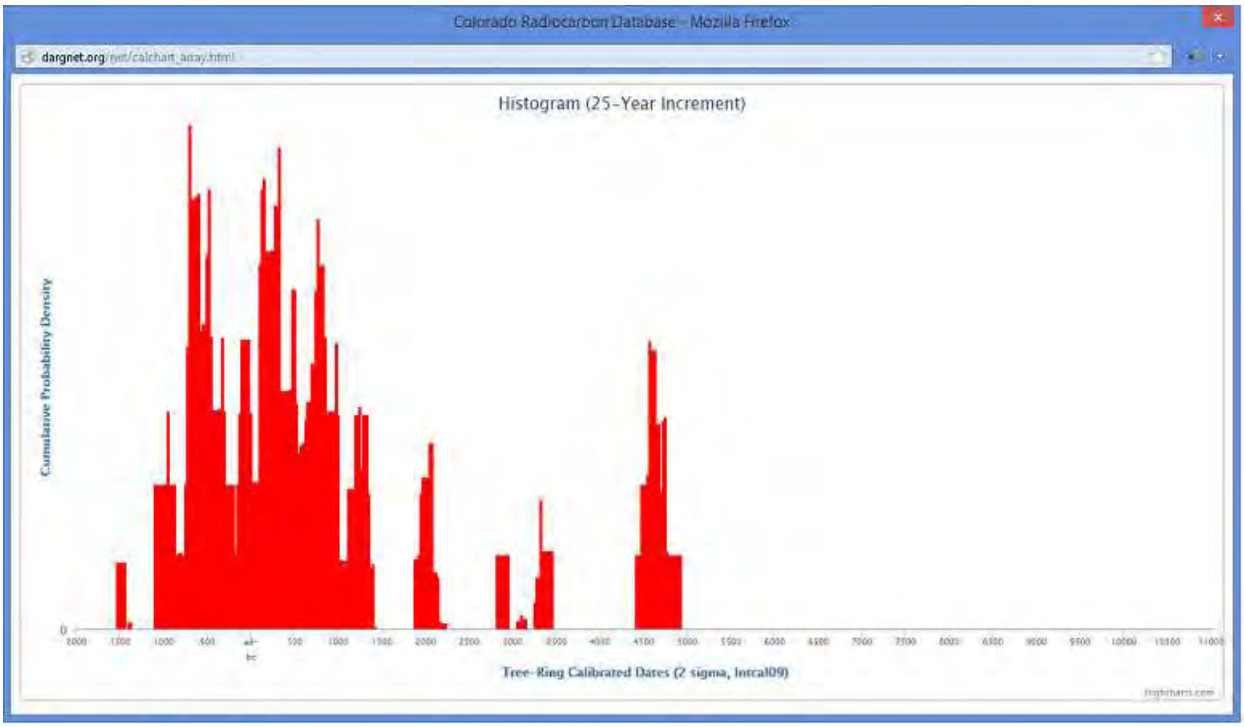


Figure 4.2. Probability density histogram of the Collbran Pipeline Project radiocarbon dates (Generated via the Colorado Radiocarbon Database Website).

1000 which is typical for the region, reflecting Late Archaic hunter-gatherer occupation lasting well into what is, in some portions of the state, the Formative period. Of special interest is the well-formed cluster between 4400 and 4900 BC which represents the Middle Archaic pithouse occupation at 5ME16789. The smaller more recent cluster at 3000 to 3500 BC represents pithouse construction at 5ME16786 and at 5GF126 at Battlement Mesa.

There are three aspects that need to be considered in the interpretation of the radiocarbon data presented above. First is the archaeological aspect which delimits cultural use of the area, second is the effect of episodic weathering (physical and chemical) in the late Holocene deposits, and third is the bias in discovery affected by pipeline construction. If the data were assumed to represent an unbiased cultural record, the data would point to heavy use between 1980 and 2790 RCYBP and somewhat sporadic use before and after.

However, considering the episodic deposition and erosion noted by Miller (1992) as well as Chen and Associates (Conner and Langdon 1987), after about 3000 years ago, combined with resultant chemical weathering, the latter part of the record is clearly biased. Numerous surface sites in the region are undated and consist of debitage and scattered heat altered rock that were formerly contained in unconsolidated loess. The increase of datable features associated with the first late Holocene loess is a result of more advanced in-place or syngenetic weathering that has cemented the deposits in place and retarded surface erosion due to deflation.

Another factor that biases discovery in a project is how the features are exposed. The initial removal of "topsoil" in the relatively broad swath across the right-of-way normally removes the upper loess deposits exclusively and enhances the discovery of the better preserved cultural deposits in the first late Holocene loess, but deposits older than about 3000 years are normally only exposed in the narrow confines of the trench. The middle Holocene loess was deposited during a prolonged cool/moist interval and oxidation has destroyed the most visible evidence of cultural horizons—dense charcoal and ash—except in large concentrations such as those found in pit houses. It is no accident that the five oldest ages come from confirmed or suspected pit houses (a younger pit house in the first late Holocene loess was also found in the trench).

The cultural implications of the radiocarbon aged features is elusive, but the frequency of ages in more restricted temporal periods is meaningful. The high frequency of ages from components in the first late Holocene loess is due largely to preservation of the loess due to geochemical processes and topsoil removal over the width of the right-of-way. Fewer features or datable horizons above the consolidated first late Holocene loess is due to recent deflation, which removes datable materials, as well as complete or partial removal with the topsoil – the combined deposit is normally less than 20cm thick. A Late Archaic projectile point found on the surface of 5ME16782 points to deflation of the upper two late Holocene loess deposits and part of the first late Holocene loess deposit as well, and is less than 2500 years old. A large lithic scatter on site 5ME16860, and a mix of lithic and historic materials at sites 5ME16790 and 5ME16133 probably all date to the last several centuries. These ten sites go a long way to

balance the apparent disparity in the frequency of aged cultural deposits in the first late Holocene loess and the later two loess deposits.

Fewer aged features older than about 3000 years ago are a reflection of near complete oxidation of charcoal and ash due to environmental conditions. The lack of Paleoindian sites in buried context results from the same difficulties, but is further complicated by Paleoindian land use patterns and smaller aboriginal populations and hence fewer sites altogether at the time. Surface finds of Paleoindian diagnostics are not uncommon, and some buried sites are known. The discovery of buried Paleoindian sites is also hampered by the simple fact that the pipeline trench in many areas was simply not deep enough to expose the critical deposits of that age.

It should be apparent that any blanket statement that the area was most heavily occupied between 1980 and 2790 RCYBP is not sustainable, not to mention misleading. Any assumption that the environment was better suited for cultural use only at that time is equally hazardous.

However, what the data indicate is interesting. As noted above, four of the eight oldest ages in the middle Holocene loess are from confirmed or suspected pit houses, and if the earliest part of the first late Holocene loess is compared, then three of the five oldest ages (2620 to 2790 RCYBP) are from a confirmed pit house. Confirmed house features are documented in sites 5ME16789 (with ages of 4600, 4610, 5810 and 5860 RCYBP) and 5ME16786 (2790, 2760 and 2620 RCYBP). At site 5ME16716 the field records indicate a small amount of jacal from a possible posthole, a charcoal deposit typical of pit house fill, and underlying oxidation which may indicate it was a pit house; the charcoal aged to 2970 RCYBP. It may not have been recognized as a house pit because blading removed critical evidence in the first pass; therefore, given the viewable evidence, it appeared to represent a hearth rather than anything larger.

The three gaps in the radiocarbon record between 3130-3680, 3750-4320, and 4610-5740 RCYBP are difficult to interpret in a cultural sense. They likely represent periods of erosion and not necessarily abandonment of the area by cultural groups. Three additional ^{14}C dates of 3070, 3130, and 3680 were collected from deposits of charcoal and/or ash derived from natural fires and redeposited via water transport; the former two were located within a poorly sorted deposit of slopewash, while the latter date was obtained from a lense of clay substrate. Chen and Associates (Conner and Langdon 1987) note a mudflow event in the Battlement Mesa area some time between about 2800-3200 years ago, followed by an extended period) of dry climate (ca. 1900-2800 years ago). The ash and charcoal that yielded the 3680 date was probably redeposited via a single event of heavy rainfall.

4.3 EURO-AMERICAN HISTORIC BACKGROUND

Historic use of the area by Euro-Americans started with the explorations by the Spanish beginning in 1540 with Don Francisco Vasquez de Coronado and continuing with Don Diego De Vargas in 1659, Juan de Rivera in 1761 to 1765, and finally Friars Dominguez and Escalante who traversed the Grand Valley in 1776. The Spanish explorers did not establish permanent settlements but were more interested in finding a new route to settlements and

missions in California or locating the legendary Cities of Cibola. Some trade was established with the natives in the area allowing the Ute to become one of the first tribes to acquire the horse (Mehls 1988:7). The acquisition of horses, guns and other trade goods gave the Ute the ability to greatly expand their territory and become more efficient in hunting and warfare.

Fur traders and trappers soon followed the explorers; in 1828 Antoine Robidoux who established a trading post at the confluence of the Uncompahgre and Gunnison Rivers near what is now Delta Colorado (ibid:19). Other mountain men who exploited the presence of good trapping in western Colorado included Kit Carson, Jim Bridger and Jedediah Smith. As the trappers penetrated the country so did the traders, resulting in the rendezvous system where the trappers gathered at a central location to trade for goods and supplies. Eventually the traders established a system of trading posts that often became the beginnings of towns. The fur trade collapsed in the 1840s when fashions changed in Europe and on the east coast, drastically reducing the market for beaver pelts.

Government exploration was the next stage in Euro-American involvement in western Colorado, starting with the Fremont expeditions of 1843, 1845, 1848 and 1853 and the Gunnison survey for a transcontinental railroad in 1853. These expeditions helped to open the country to settlement as new routes to western Colorado were established. The influx of people to western Colorado increased greatly with the 1859 gold rush, resulting in mounting friction and conflict between Euro-Americans and Utes. Additional pressure was asserted on the Ute with the discovery of rich deposits of gold and silver in the San Juan Mountains in the 1870's. Tensions reached a climax in 1879 with the Meeker Incident and associated Battle of Milk Creek in which eleven men at the White River Agency were killed by Utes following the plowing of their horse racing track. Outcry over the killings resulted in the "final removal" of the Utes from Colorado in 1881 (Silbernagel 2011). Recent studies, however, have demonstrated that significant numbers of Utes remained in west central and northwest Colorado into the early decades of the twentieth century (Martin et al. 2011).

The late 1800's saw the progressive opening of Colorado to homesteading, ranching, farming, and mineral exploration. Prospecting and mining in particular went through several boom and bust cycles in the coming years. The Gold Rush to Pikes Peak in 1859 was short lived but was followed in the 1870s by a boom in silver mining that continued until 1893 when the Sherman Silver Act was repealed resulting in a precipitous decline in silver prices. Mining continued to be a leading economic factor in Colorado, as by 1893 the State had become the nation's leading coal producer (Church et al. 2007:112). Other types of mining also occurred in western Colorado including copper, marble and lead. However, with the exception of marble (some of which was used for the Colorado State Capitol Building and the Lincoln Memorial in Washington, D.C.), the mining of other metals and minerals did not achieve the production levels of silver, gold and coal.

Important to the development of west-central Colorado was the passing of the Indian Lands Preemption Act by the Colorado Legislature. Whereby, the settlers coming into the area could purchase land previously assigned to the reservation in Western Colorado. The monies

secured from those sales funded the transfer of the Northern Utes to the reservation in Utah – with the caveat of any surplus going to the Indian Fund. Buyers of these lands paid a fixed price per acre and weren't required to live on the land or make improvements, as was required under the Homestead Acts. Consequently, the first cattle ranchers, farmers and miners came to the Grand Valley area in 1881 and settled it under exemptions (Moores 2000: ix).

5.0 RESEARCH DESIGN/STUDY OBJECTIVES

Our research strategy was focused on 1) intensive documentation of endangered and ephemeral archaeological resources and indigenous cultural landscapes, 2) poorly recorded and under-studied archaeological resources and neglected research themes, and 3) innovative cross-disciplinary studies which integrate and synthesize information from multiple perspectives, including those of Native Americans. Our preservation goals were targeted foremost on improving the scope and quality of archaeological data, and on development of state-of-the-art information systems that facilitate efficient communication among and between professional researchers, Native American stakeholders, and cultural resource managers. We proactively sought opportunities for collaborative public outreach and education, and established on-going working relationships with numerous local, regional, and state-wide organizations supporting preservation and appreciation of cultural resources and heritage landscapes.

Within the 20-acre study blocks, the objectives were to identify and newly record cultural sites and isolated finds, to investigate and record the general distribution of associated cultural resources, and to evaluate the significance of the cultural resources for inclusion on the NRHP. Outside the sampling blocks and within the BLM lands, selected, previously recorded sites were revisited.

5.1 CONSIDERATION OF THE ARCHAEOLOGICAL LANDSCAPE OF TRAILS

This study employed an archaeological perspective which examines how the prehistoric and historic Native Americans modified and utilized the natural environment within and surrounding the project area. When viewed in that light, the landscape itself becomes a cultural artifact. The interaction of human groups with their environment builds both real and imagined landscapes by everyday use and ceremonial activities. The development of a particular landscape is controlled by environmental factors including topography and water resources, and cultural factors such as the subsistence, mobility, kinship, and technology of a particular group. The literature of landscape archaeology is voluminous (e.g., Criado and Parcero 1997, Ashmore and Knapp 1999, Campana and Frankovich 2001, Bevan and Conolly 2004).

Routes of movement – paths, trails – are omnipresent in an aboriginal archaeological landscape. Paths are primarily of logistical functionality and are best characterized as local – serving everyday use. Their primary function was to provide access to required daily resources – such as water – or community activity areas and facilities. Archaeologically, the recognition

of paths is difficult because by definition they are without much physical modification or permanence. Trails, on the other hand, are regional, long-distanced, and marked by repeated use. Animals are often credited with creating many of the routes used by prehistoric people based on their choice for crossing broad terrain with the least effort, and even after humans appropriated such trails, wild animals continued to help keep them open.

The importance of trails depends on the mobility of a society. They are characteristically used for trade between resource differentiated regions, for seasonal movements, inter-group ceremonies, and sacred journeys. Aboriginal hunter-gatherers for example have extensive seasonal movements for changing food resources, but their choice of foot or horse affected the ways and modifications of the routes used. Important contrasts can be drawn between those created by aboriginal foot traffic and those utilized by horse traffic – especially in mountainous regions.

With historical maps (e.g. the Hayden surveys and GLO records), trails are accessible for detailed study, but the lack of construction often makes them difficult to document. In the field, archaeologically recognizable trail elements are stone cairns, rock art panels, entrenchment, and a linear spread of artifacts. "Trails," two-tracks, and "jeep trails" as indicated on USGS quadrangle maps are also potential indicators of prehistoric trails.

Probably the most important evidence of trails and their use are the density and distribution of sites and their types. Linear spreads of prehistoric cultural manifestations have been identified using the overwhelming amount of data in the archaeological record for Colorado, which is evident in the documentation of individual sites and isolated finds completed as part of the Section 106 process (Bureau of Land Management and the Office of Archaeology and Historic Preservation). From those records, it is apparent that lower site density occurs in areas of fewer resources, which are suspected "transit sections" of the trails, and a higher density of sites occurs in what the authors are terming "destination localities," which provide vital resources of shelter and water. Where broad concentrations of such resources are present, the density of sites spreads similarly.

The aboriginal lifeways of the Numic-speaking Utes were highly mobile, and only ephemeral and widely distributed traces of their continual seasonal migrations survive in the archaeological record. Early Numic and Historic Ute archaeology, consequently, has remained significantly under-studied and not well-understood (Baker et al. 2007; Baker 1995; Nickens 1988). A number of studies in recent years, however, have begun to reveal the breadth of the ancestral landscapes that provided material and spiritual sustenance to the Utes across a sweep of time reaching from prehistory to little more than one hundred years ago. It has become clear that the traditional cultural heritage of the Utes lies not only in their archaeological legacy, but in the aboriginal trails and natural landscapes of their ancestral homelands.

The Ute Trails Project builds on nearly a decade of research through DARG's efforts to document and preserve Ute heritage sites in western Colorado. The Colorado Wickiup Project has intensively documented hundreds of brush shelters and other aboriginal wooden features at

Ute sites throughout the state, significantly expanding baseline data for Late Historic Ute archaeology. The Ute Ethnohistory project, which DARG conducted during 2008-2009 in collaboration with the Ute Tribes and BLM field offices in west-central Colorado, added important indigenous perspectives on many long-standing archaeological and cultural resource management questions. Other research in recent years (Burns, 2004; Wroth, 2000; Simmons, 2000; McBeth, 2007; Goss, 1999; Baker et al., 2007; Conner et al., 2011) has also added significantly to our general understanding of the Ute's aboriginal lifeways, and their seasonal movements over the trails and landscapes of Western Colorado.

The trail locales selected for study in this project offer a rich and varied source of archaeological data. The study areas, moreover, present a wide range of topography, elevation and natural habitats, providing ample opportunities for integrating important aspects of the Ute's traditional ecological knowledge into the project's comprehensive synthesis. Results of this project will hopefully serve as an archaeological and ethnohistorical model through which important aspects of Early Numic and Historic Ute culture can be better understood and appreciated by contemporary Utes and the citizens of Colorado alike.

6.0 FIELD METHODS

A crew of one to four DARG archaeologists conducted the site revisits and re-recording of the selected sites in BLM land within the two trail corridors. The twenty 20-acre block areas were inventoried by DARG archaeologists and were assisted in the field by University of Utah field school students under the direction of Curtis Martin (Field Crew Chief). Martin was assisted by Darg archaeologists and Sally J. Cole. Sally Cole also intensively documented the rock art sites with the assistance of USU students; her report is presented in Appendix B.

Survey of the 20-acre inventory blocks was accomplished by DARG archaeologists and Utah State University students who walked N-S or E-W transects spaced at approximately 3-meters wide intervals. Limitations to the survey included steep and rugged topography (including slopes over 30 degrees, which were not surveyed), and dense vegetation.

The twenty 20-acre blocks were randomly selected by utilizing a computer generated formula and a grid system of 40-acre blocks laid over the trail corridors that were buffered to be 1-mile-wide. This resulted in 341 sample units for the West Trail area and 446 for East Trail area – a total of 787 units. Proportionately, this equates to 8.6 of the 20 sample units for McDonald and 11.3 for Grand Mesa (rounded to 9 and 11 respectively). The numbered grid units selected per sampling corridor is listed in Table 6.1.

Cultural resources were sought as surface exposures and were characterized as sites or isolated finds. A site is the locus of previous human activity (50 year minimum) at which the preponderance of evidence suggests either a one-time use or repeated use over time, or multiple classes of activities. For example: a) Isolated thermal features such as hearths are to be designated as sites, due to the interpretable function of such utilization and the potential for

Table. 6.1. List of the numbered, 40-acre blocks, randomly selected per sampling corridor.

Selected West Trail Sample Units	Selected East Trail Sample Units
40	39
105	86
118	101
123	104
195	150
214	153
255	161
302	181
307	250
	273
	436

chronometric and economic data of recovery, b) Single element rock art panels are to be designated as sites due to the interpretive nature of such an event and the potential diagnostic value of the motif, c) Similarly, isolated human burials are to be designated as sites, or d) Loci exhibiting ground stone and flake stone in association.

An isolate refers to one or more culturally modified objects not found in the context of a site as defined above. Note that this definition makes no reference to an absolute quantitative standard for the site/isolate distinction. For example: a) A discrete concentration of flakes from the same material regardless of the number of artifacts present likely represents a single, random event and is properly designated as an isolate, or b) Similarly, a ceramic pot bust is to be recorded as an isolate, regardless of the number of sherds that remain.

Cultural resources were recorded using the following methods of mapping and note taking. The basic approach to the data collection was the selective mapping of observed artifacts and features by recording UTM coordinates (NAD 83) using a Trimble Geo XT GPS device. The results were differentially corrected using real-time base station data for more accurate results and downloaded to create site maps using ArcMap software. Select project area photos as well as general site, feature and artifact detail photos were taken with film and digital cameras.

Photography for the project consisted entirely of digital images and ranged from low to medium resolution smart phone and point and shoot camera jpegs to professional quality high- and ultra-high resolution camera RAW images. Ultra-high resolution mosaics for viewing in

an online project data repository were produced for three rock art sites: 5ME163, 5ME164, and 5ME580. Additionally, a number of general landscape views from the two study areas were processed as high resolution Quicktime VR panoramas, also for inclusion in the online data repository. Images produced by several project photographers were digitally post-processed using decorrelation stretch and other colorspace manipulations to enhance relevant visual data, and a broad sampling of digital images produced or compiled for the project were selected for inclusion in a prototype digital archive for Ute Trails Project data.

The online project data repository is serving as a prototype information-sharing resource with the heuristic goal of mitigating the scheduling and other logistical challenges impacting the frequency, duration, and depth of Ute participation in DARG's Ute Trails Program. An overview of the information design of this project goal follows below in Appendix C. The online data repository will ultimately serve as a secure, dynamic, on-going clearinghouse for information relevant to Ute Tribal partners, federal and state management agency partners, and authorized researchers. At the close of this project it is being made available for Beta review by Ute participants, for evaluation and discussion of processes and protocols for review and agreement on sensitive and proprietary information, and intellectual properties. A complete set of unprocessed and original camera RAW images, work files, and image processing products are curated for further study with DARG.

6.1 Discussion of Artifact Categories

Field documentation of chipped and ground stone artifacts was undertaken at each of the prehistoric sites. Chipped stone was separated into tools and implements such as projectile points, other bifaces, unifaces, utilized flakes/blades, hammerstones, cores, and non-utilized flakes/blades, and debris. Functional names such as knife and scraper were used to denote refined lithic tools to distinguish them from general terms like biface or uniface.
Ground stone was categorized as manos (grinding stones), metates (nether milling stones), comals (griddle stones), and other ground stone.

Every surficial flake of a site cannot be examined during an inventory-level investigation. However, many were in order to provide information on dominant flake types. Accordingly, the size of a sampling of the debitage at each site is dependent upon the size of the site. If a site is small, all the visible debitage can be classified; if the site is large perhaps as much as half of the debris can be classified. The debitage was categorized according to the following reduction sequence, flake morphology, material type, nature, and general size classification. The reduction sequence taxa include categories such as primary (> 50% cortex), secondary (< 50% cortex), interior (no cortex), shatter (angular and blocky), blade (length equals three times the width), bifacial thinning (dorsal side of flake exhibits three or more negative flake scars), and microflakes. Thermal alteration, such as pot-lidding or crazing, was also noted.

Flake size was categorized based upon the maximum lengths: micro = 1 – 9 mm, small = 9 – 18 mm, medium = 18 – 25 mm, large = 25 – 35 mm, extra large = 35 – 50 mm, very large

= 50+ mm. Flakes that exhibit some attrition or retouch were characterized as utilized, although such characterization must be tempered with the understanding that flakes in surface contexts that have been stepped on by animals or humans, or redistributed by sheet wash or other post-depositional processes can exhibit similar characteristics as those that are categorized as "utilized." Documentation of such discrepancies is found in the analysis of flakes derived from excavations at Cedar Siding Shelter in Emery County, Utah. The results of that analysis documented that of the "92 utilized flakes collected, 43 flakes (47%) came from the surface collections, although only 3.6% of the debitage was from the surface." It was concluded that domestic sheep sheltering in the overhang had created the "utilized" flakes in surface contexts (Martin et al. 1983:106).

In-field identification of lithic material types and their colors is important for the preliminary assessment of procured local versus imported lithic material(s). Accurate description and identification of lithic materials adds significant data to site interpretations providing information concerning routes traveled or whether these lithic materials were obtained through trade. In some instances, prehistoric lithic material preferences may indicate the manufacture of certain artifact types. Misidentifications can seriously skew the interpretations. For example, non-volcanic glass, formed in burning coal seams is usually identified as obsidian; while the former is local, the latter is exotic. Accordingly, lithic material categories considered during this inventory include the following: opalitic chert (semi-translucent and non-translucent), quartzite, porcellanite (siltstone and claystone), basalt, crystalline quartz, obsidian, and non-volcanic glass. Color is also an important consideration. On lithic scatters where flakes are the only artifact type the combination of material type, size, and color may prove to be "diagnostic" of a particular culture or temporal period (notably Numic). A better approach to lithic material identification is based on geological features and fossil inclusions, and can frequently identify bedrock (primary) sources, and with an understanding of bedrock and Quaternary geology, define materials from diamictites and gravel sources (Miller 1992, 1996, 2010).

6.2 DOCUMENTATION OF FIRE-CRACKED ROCK

The documentation and distribution of fire-cracked rock (FCR) was also given due diligence. It is often one of the largest cultural object(s) on a site. Even so, they can be and often are easily redistributed by post-depositional processes. In an archaeological context FCR is defined as a rock that has been altered and/ or split as a result of deliberate heating. It is differentiated from thermally altered stone which generally exhibits little physical modification or discoloration (Rapp et al. 1999). In many cases, fire-cracked rock resulted when stones used to line hearths were heated to provide a longer-lasting heat-source. Boiling stones are fire-cracked rock resulting from stones used to heat or boil water; heated stones were dropped directly into water containers of skin, basketry, or pottery. Boiling stone remnants exhibit a particular kind of fracture called the "Hackley fracture" (also known as a jagged fracture), which is sharp-edged and uneven. They are most often found in thermal features termed "rock-filled hearths" because boiling stones were commonly placed back on hearths reheated and used again; or once used were placed on the thermal features to retain and radiate heat.

Due to various natural site formation processes, rock-filled thermal features can either be covered or deflated. If the matrix around a thermal feature is deflating, the fire-cracked rock can scatter to a point that can appear to double or triple the size of the original thermal feature. They are usually identified by the lack of *in situ* burning, suggesting the burned and fractured rock is a product of secondary deposition. These are often classified as thermal features, but may be the remnants of a variety of cultural processes, including not only re-use behaviors but also scavenging, maintenance, redistribution (through human or animal trampling), or by natural, site formation processes (Petraglia 2002).

Burned rock middens, which are piles – or deflated piles – of fire-cracked rock, often exceed several tons of material. Relatively little research has been devoted toward understanding the function of such features. These middens may represent the remains of roasting pits or earth ovens used in cooking bulbs and other plants (Doleman 1996).

Additionally, "archaeologists are beginning to do more with ethnographic descriptions and experimentation..." (Reed and Metcalf 1999:81, 82). For instance, Stiger (1998:65) experimented with the heat-output of four feature types at the Tenderfoot site and Francis (2000:5) went so far as to calculate the potential volume of camas and biscuitroot that could be processed in a large cobble filled feature at 48SU1002 in the Upper Green River Basin of Wyoming. Thompson and Pastor (1995:91) also experimented with volume calculations for slab-lined features in southwest Wyoming and determined that the vast majority ranged from 40 to 60 liters. This 40 to 60 liter subset contained features dating from the Great Divide (7750-5600 BC) through the Uinta (1-1400 AD) phases. A second cluster of features had calculated volumes ranging from 80-150 liters; the majority of these features dated to the Opal phase (5600-3400 BC). Two extremely large (268.6 and 285.6 liters) were noted both dating to the Pine Spring phase (3400-1450 BC).

Notably, over time, the surface and subsurface assemblages of sites are influenced by natural and human forces that alter the horizontal and vertical distribution of artifacts, change the frequency of artifact classes, affect the condition and preservation of the artifacts, and alter the form and content of features. As soon as a piece is discarded, it is influenced by compaction by the occupants of the site. In general, artifact assemblages are affected by post-depositional processes that tend to move larger pieces toward the surface while smaller pieces are sifted to the lower soil levels. Additionally, artifacts continue to be sorted differentially by erosional/depositional influences and animal/human disturbance acting on the soils. One of the most influential environmental forces is frost heave (Lewarch and O'Brien 1981:297, 308).

The amount of movement of an object affected by frost heave is contingent on interrelated soil-environmental factors (including soil texture, frequency and rate of frost penetration, soil moisture, overburden pressure, etc.), and the physical factors of the artifacts (geometric form, surface area, effective height, and density-thermal conductivity). Frost heave greatly affects objects that are buried near the surface when the soils are poorly drained, there is no cover (snow or vegetation), and the rate of frost penetration is slow. As a result, the actions of frost heave tend to sort – even stratify – artifacts (Hester, 1988).

7.0 STUDY FINDINGS

The nature of this study encompassed revisiting and reevaluating 34 selected sites and the recording of 15 sites and 78 isolates that were newly discovered within twenty 20-acre inventory blocks. Thus, a total of 400 acres of BLM land was newly inventoried and 127 resources were addressed.

This portion of the report presents a discussion of site significance evaluation and describes the newly and previously recorded cultural resources. Additional detailed analysis of the rock art sites (5ME163, 5ME164, 5ME529, 5ME538, 5ME540, 5ME580, 5ME1356, 5ME3768, 5ME5247, 5ME5259, and 5ME8047) is provided in Appendix B: Identifying Cultural Landscapes: Archaeological Documentation and Analysis of Native American Rock Art along Proposed Prehistoric-to Historic Trails in Mesa County, West Central Colorado (Cole 2015). Appendix C provides documentation of Ute interaction with the project. Site and Isolated Find forms are provided in Appendix D (BLM and OAHP copies only). The UTM data for the cultural resources is also found in Appendix D, Table D-1; and, Figures D-1 through D-11 are maps that show the locations of the resources considered by this study.

7.1 SITE SIGNIFICANCE

The National Historic Preservation Act of 1966 (NHPA) directs federal agencies to ensure that federally-initiated or authorized actions do not inadvertently disturb or destroy significant cultural resource values. Significance is a quality of cultural resource properties that qualifies them for inclusion in the NRHP. The statements of significance included in this report are field assessments to support recommendations to the BLM and State Historic Preservation Officer (SHPO). The final determination of site significance is made by the controlling agencies in consultation with the SHPO and the Keeper of the Register. The eligibility determination and consultation process is guided by Section 106 of the NHPA (36 CFR 60, 63, and 800). Inventory to identify, evaluate, and mitigate potential effects to cultural resources affected by an undertaking is the first step in the Section 106 process. Title 36 CFR 60.6 establishes the measure of significance that is critical to the determination of a site's NRHP eligibility, which is used to assess a site's research potential:

> *The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and* ***a)*** *that are associated with events that have made a significant contribution to the broad patterns of history; or* ***b)*** *that are associated with the lives of persons significant in our past; or* ***c)*** *that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or* ***d)*** *that have yielded, or may be likely to yield, information important in prehistory or history.*

7.2 SITE DESCRIPTIONS

Site **5ME163**, the Deer Creek Rock House, a prehistoric petroglyph panel and sheltered architectural site, is located at the mouth of Deer Creek near the Gunnison River. The site is located in a boulder field at the base of a hill and faces southwest. Elevation is approximately 4725 feet. Vegetation at the site includes rabbitbrush, four winged saltbush, greasewood, wheat grass, and ephedra. The soil is colluvial, eroding from a boulder rock outcrop. Deer Creek, the nearest temporary water source, is located 55 meters south. The Gunnison River is located 180m to the southwest. Ground visibility was between 90 and 95 percent.

The site was originally recorded in 1976 by Anne Saunders with the Historical Museum and Institute of Western Colorado. It was reevaluated in 2004 by Aline LaForge with the BLM-GJFO; and in 2012 by Nick Flores, Natasha Krasnow, Aly Gabrenya, and Kristen Hansen also with the BLM-GJFO.

The site measures 30m N-S by 40m E-W. It was most recently (2012 OAHP site form) described as follows: "The site is comprised of two main prehistoric rock art panels, three historic rock art panels, and one historic rock shelter....Artifacts previously found at the site include over a dozen manos and groundstone fragments and numerous flakes resulting from tool reduction. Many of these artifacts were unable to be relocated, probably associated with surface collection and vandalism at the site."

Although the site is in the vicinity of 5ME164 and 5ME580, it evinces prehistoric diversity not seen at the other sites and addresses the issue of interaction among societies with presumably distinct lifeways, worldviews, and iconographies. Prehistoric Archaic-based Uncompahgre style (~1000 BC–AD 1000) and Basketmaker II-III style (1000/400 BC–AD 600) petroglyphs appear with late historic Ute style petroglyphs (post 1825/1850) in Panels 1a and 1b (Buckles 1971; Cole 1990, 2009; Plate 7.1). Portions of the rock art panels are significantly impacted by graffiti (Cole 2015:90).

The current project revisited and photographed the site. No additional vandalism or changes to the site were noted.

Evaluation and Management Recommendation

The site was declared officially eligible for listing on the NRHP on 3 May 2005. The current project concurs with the previous official evaluation of eligible, under Criteria A, C and D. Protection and preservation are recommended.

Plate 7.1. Uncompahgre Style rock art with superimposed Ute figures.

Site **5ME164**, a prehistoric rock art panel and sheltered camp, is located on the south facing slope of a small finger ridge among a boulder field. Elevation is approximately 5040 feet. Vegetation in the area includes sage, juniper, Fremont barberry, galleta and shadscale. Soil at the site is a gravelly, sandy clay loam. Deer Creek, an intermittent drainage, is present on site. The Gunnison River, the nearest source of permanent water, is approximately 3km southwest of the site. Ground visibility was 90 to 95 percent.

The site was originally recorded in 1975 by Carl Conner with the Historical Museum and Institute of Western Colorado; and subsequently revisited by Conner and Weil with the Historical Museum and Institute in 1978; Ed Horton with BLM-UFO in 2004; Aline LaForge with BLM-GJFO in 2006; Alissa Leavitt-Reynolds, Aline LaForge, Joyce Frost, Ashley Wisehart, and Rachel Schlein with the BLM-GJFO in 2010; and Alissa Leavitt-Reynolds, Aline LaForge, Joyce Frost, Ashley Wisehart, Rachel Schlein and Kristen Hansen with the BLM-GJFO in 2012.

The site measured 140m NW-SE by 55m NE-SW at the time of the 2012 re-evaluation. It was described on the 2012 OAHP site form as consisting of three rock shelters (Shelter's A-C). Six total rock art panels are present on the site. Extensive vandalism was reported at that time:

> Shelter B is the area of the site that has been impacted heavily by vandalism in October 2010. Two areas within the rock shelter were almost completely destroyed by the construction of two "rooms." The northern "room" has been impacted by the creation of a large fire ring and an area covered by several flat stones of varying sizes to create a type of flooring area for the area east of the ring. There is a pile of juniper firewood next to the fire ring. There are also three juniper poles lying east of this 'room' that were once used to hold up a tarp. One small wall was built east of the flooring. Steps were cut out from the ground near this wall leading to the social trail. The southern 'room' of the rock shelter has had extensive damage done. The area under the overhang was dug out, creating a two level room. Three walls were built in this room to act as dividers and to hold the backfill taken from the room. An area roughly 5 meters east of the rock shelter is an area that has been built up to create a type of flat platform. The south end of this area has a small retaining wall approximately 5 courses high where the backfill dirt was placed. One of the rock art panels, Panel 4, has been the victim of vandalism; there are gunshot scars on the eastern side of the panel. These gunshots have destroyed some of the elements on this panel. The other panels at the site are still in good condition.

Sally J. Cole describes the images (1995:50, 52; 2015:76) as a pecked Abstract-Geometric and Uncompahgre style imagery exhibiting precisely made wheel-like forms with "spokes" and other embellishments including a central "sunburst"; lines (mostly curvilinear, some mazelike; some encircle or are appended to other motifs including the distinctive wheel-like forms); dots (large and small, individual and in rows); wicket or arch-like forms; netlike forms; straight, zigzag, and wavy lines; chains of circles; and triangles (Plate 7.2). Consistent with the style tradition, a few representational motifs including paw prints, a possible hand print, foot prints, and snakelike forms are juxtaposed with abstract-geometric motifs. Cole attributes various abstract designs to the Late Archaic - Formative Era, ca. 1000 BC to AD 1000.

The current project revisited and photographed the site. No additional vandalism or changes to the site were noted.

Evaluation and Management Recommendation

The site was declared officially eligible in 2006, 2012, and 2013. The current project concurs with the previous official evaluation of eligible, under Criteria A, C and D; it contributes to the broad pattern of history; embodies a distinctive type, period, method of construction; and will likely yield additional information important to the prehistory of the area. Protection and preservation are recommended.

Plate 7.2. Panel 1, 5ME164, color enhanced photo showing "wheels" and other abstract figures.

Site **5ME529**, a prehistoric rock art panel and sheltered camp, is located 340 meters northwest of the Colorado River at the confluence of the river with McDonald Creek. Elevation is 4480 feet. Vegetation consists of tamarisk, cottonwood, and juniper near the valley floor; however, no vegetation is present within the overhang. The floor of the overhang consists of rock fall from the roof of the shelter and sandy residuum. The nearest source of permanent water is the Colorado River.

The site was originally recorded in 1976 by Carl Conner with the Historical Museum and Institute of Western Colorado. It was described by Sally J. Cole in *Analysis of the Prehistoric and Historic Rock Art of West-Central Colorado* (BLM Cultural Resource Series No. 21). It was reevaluated in 2007 by Rich Ott and Nicole Darnell with Dominquez Archaeological Research Group.

The 2007 recording paraphrases Cole as follows:

> Rock paintings at 5ME529, north of the Colorado River, depict an upright white "bear," a red anthropomorph, an upright white horned snake and two faded white broad-shouldered anthropomorphs. The "bear" is painted with a combination of mud and white pigments and wears an armband suggesting that the figure represents a costumed figure or mythic personage. One of the

> latter has a headdress with three stick-like protrusions on either side; and the head of the second figure is no longer visible....On the floor of the rockshelter are fallen rock slabs which exhibit petroglyphs, six foot prints, which are across the top of slabs directly below the paintings.... One footprint at 5ME529 is tripartite and is similar to stylized bear paw prints...

The 2007 reevaluation recorded a vandal's hole within an area of a probable hearth feature. Downslope from the hearth, a quartzite cobble chopper and a chert microflake was noted. Lithics were sparse throughout the rest of the site.

Cole attributes the rock art to the Fremont culture (ca. AD 400 to 1500): "A white-painted "bear," standing upright, is exhibited at a site near the Colorado River in west central Colorado. The figure appears to wear an armband and may represent a human in ceremonial dress, although the body is not typically broad shouldered. Nearby images are broad-shouldered anthropomorphs (a white one wearing a head dress and a red one with a small rounded head), and a white horned "snake" (1995:192).

The current project relocated and photographed the rock art panels (Panels 1-3, Plate 7.3). An additional petroglyph, an abstract design was newly recorded and vandalism was more completely documented. In total, six figures were examined. Figures 1-5 consist of paw prints. The sixth is a geometric abstract design. A bedrock metate feature with pigment on the surface was also recorded (Feature 1). The vandalism consisted of ten instances of graffiti (G1-5, 7-10) on various boulders within the rock fall of the shelter, as well as one instance of white paint or chalk applied to the back wall of the overhang (G6). These include names and initials (G1 - *LANA*, 3 - *DAN*, 9 - *JJ WAS HERE*, 10 - *FJ*), a year (G5 - *87*), and scratches/abrasion (G2, 4, 7, and 8).

Plate 7.3. Pictographs in Panel 1 of 5ME529 (digitally enhanced).

Evaluation and Management Recommendation

The site was declared officially eligible on 18 July 2007. The current project concurs with the official determination of eligible for listing on the NRHP under Criteria A, C and D. Protection and preservation are recommended.

Site **5ME538**, a sheltered prehistoric pictograph panel and lithic scatter, is bisected by McDonald Creek, an intermittent tributary of the Colorado River. The site comprises a panel of red rock paintings on an overhanging sandstone cliff in a west-facing bend of lower McDonald Creek. Elevation is 4460 feet. Sparse vegetation on site includes annual and perennial grasses and forbs, big sagebrush, and sumac; juniper and cottonwood are in surrounding areas. Ground visibility is 60% on the terrace with less vegetation in the creek bottom and under the overhang. Soils are a mix of alluvial deposits from flooding, and residuum and colluvium originating from rock fall that has accumulated within the creek bottom located directly in front of the overhang. The nearest source of permanent water is the Colorado River, located approximately 1.3 miles downstream.

The site was originally recorded in 1976 by Carl Conner and Phil Born with the Historical Museum and Institute of Western Colorado and was described as follows:

> This site contains four zoomorphic pictograph elements of red paint in a 1m x 2m panel. They include two turtles and a long billed bird. The heron-like bird has a south pointing wing extended straight out. Its right wing is curved down. There is also a sun burst on the upper right side of the panel and the bird. Taken as a whole statement the panel might be a directional symbol. The site is 1.3 miles north of the River and the bird's wing is pointing in that direction. A high concentration of sites as well as shallow rapids and an access canyon to the higher elevations are all present to the south.
>
> On the west side of the creek is a fill area about 20m in diameter with a ground slope of about 10 degrees. It contains flakes of quartzite.

The current project revisited, mapped, and photographed the site. Two loci are present, the rock art panel (Locus 1), located in a west-facing bend of McDonald Creek, and a lithic scatter on the sandy terrace/bench across the creek to the west (Locus 2). The site boundary was revised and now measures 135m NE-SW by 40m NW-SE.

Locus 1 is comprised of one panel of rock paintings (Plate 7.4). Identifiable motifs include a wading bird (partial profile) embellished with rows of probable fingerprints (dots and figure-swipes), a possible turtle, a "sunburst" with probable fingerprint "rays," two possible insects ("water-bugs"), and the outline of a "bag" with possible legs or fringe below. Slight pecking is present that possibly represents motif guide outlines made prior to painting. Locus 2 is a sparse scatter of lithic debitage and tools. A quartzite biface, two quartzite flakes and three chert flakes were located. One of the chert flakes has been utilized.

Plate 7.4. Pictograph at 5ME538.

The rock paintings represent aesthetic and symbolic/iconographic values expressed in prehistoric Fremont rock art styles and affiliated material culture on the northern Colorado Plateau between approximately AD 600 and 1300, and the site retains integrity and a strong sense of place. It is one of a series of rock art sites that marked the McDonald Creek corridor (an easily traversed route to, from, and across the Colorado River) during prehistoric and historic times. The site enhances possibilities to interpret Fremont occupation of west central Colorado and neighboring Utah and the cultural origins and continuities, social relationships over time, and the nature and role of ancient communication systems. Locus 1 is in direct line-of-site when walking downstream on the canyon floor. The easily viewed rock paintings are trailside communication offering insights into Fremont activities, symbolism and iconography, and social organization.

The rock painting is in fair condition. The cliff surface is somewhat eroded, as is the terrace. The site record indicates vandalism (bullet holes) occurred between 1988 and 1993.

Evaluation and Management Recommendation

The site was field evaluated as eligible in 1976. The rock art site contributes to the broad pattern of history (Criterion A). It possesses high artistic value and is representative of the aesthetic values of a cultural group (Criterion C). The site has added to the known data of

the Fremont culture, as represented in their rock art style and affiliated material culture on the north Colorado Plateau between AD 600 and 1300, and possesses the potential to yield additional important information (Criterion D). Accordingly, the current project concurs with the previous findings. It is field evaluated as eligible for listing on the NRHP. Protection and preservation are recommended.

Site **5ME540**, prehistoric and historic rock art panels and prehistoric sheltered camp, is located in McDonald Creek at an elevation of 4420 feet. Vegetation is a mix of cottonwood trees, tamarisk and sparse grasses in the creek bottom and juniper trees above on the slopes and rim edge. Ground visibility is 60%. Soil is silty sand originating from alluvial deposits from flood conditions, and colluvium and residuum near the cliff walls. The nearest source of permanent water is 1800m downstream at the Colorado River.

The site was originally recorded in 1976 by Carl Conner, Phil Born and John Lindstrom with the Historical Museum and Institute of Western Colorado and was described as follows:

> The site consists of two petroglyph panels, one on either side of the stream; one pictograph panel above an east facing cliff overhang, and the cliff overhang itself. The cliff overhang is approximately 30m long by 4.3m high by 2.5m deep. It contains one vandalized ash deposit which revealed a stratigraphy over 60cm deep....On the north end is a petroglyph panel approximately 1m square. Three and half meters above the center of the overhang are two pictographs, one zoomorph and one anthropomorph. The panel is approximately 0.75m by 1m. Directly across the creek is a petroglyph panel containing zoomorphs, anthropomorphs and abstract symbols. This panel is 6m by 3.4m and is 1.2m off the ground level. North along this west facing cliff are numerous historical names and dates, the earliest being *King June 1879.*

According to Sally J. Cole (1987), the site is associated with the northern San Rafael Fremont culture, dating to AD 700 to 1200:

> At 5ME540, north of the Colorado River, rock art stylistically related to that at 5ME10 also occurs on two sides of a canyon. The rock art includes solid, stippled and incised petroglyphs, mud and red pigment paintings. Depicted are a number of quadrupeds, predominately rows of bighorn sheep, spirals, stylized bear paw prints, anthropomorphs and unidentified forms. Bodies of the quadrupeds range from rectangular in shape to boat-shaped. Abstracted ovate forms also occur. Some sheep appear to be in motion; some figures are crowded. Anthropomorphs include a solid-pecked broad-shouldered figure, two abstract outlined forms, a headless elongated painted figure and a small lizard-like figure. One abstract figure is formed of incised or scratched lines and dots of mud pigment. Mud pigment also occurs at 5DT1 and at 5ME529 which is approximately a mile from 5ME540. There are apparently three or four time

periods and/ or artists represented. Like rock art at 5ME10, the subject art is apparently related to that of the (northern) San Rafael Fremont.

This project added to the site documentation as follows. It measures 75m north-south by 38m east-west. A walking trail down McDonald Creek traverses along the canyon rim above the site, with a secondary trail that accesses the creek bottom below. The site has been divided into three loci areas, (Locus 1-3).

Locus 1 is located on the east side of the cliff adjacent to the McDonald Creek streambed. Panels 1, 2, and 3 are included in the locus. Within Panel 1, motifs include 2 circles, 1 dot, 4 paw prints, a possible cloven-hoof animal (indistinct); a human form wearing a tilted broad-brim hat and holding a possible gun or bladelike object with a sheep with curved horns (possible desert or mountain bighorn or domestic ram); daubs of grayish-white pigment/mud between the legs of the human form, between the sheep and human, and near the head and sheep horns. The prehistoric elements date from the Archaic period. The scratched and abraded forms are repatinated to a degree that suggests historical age and may be historic Ute in nature. Historic inscriptions are also present, including *I.H. King 1903*, *Geo Dineley 89(?) Colorado*, *1931*, and *Jas. F Kelle*. Modern graffiti is also present.

Locus 1, Panel 2 consists of human forms (stick and broad-shouldered); and gray painted forms (a possible animal and linear and linear and circular form). The prehistoric elements are likely relatively recent protohistoric or historic Ute. Historic inscriptions consist of *W.J. Peall 1899* with possible livestock brands, as well as modern graffiti. Panel 3 includes motifs with wavy and zigzag lines and arcs; complex linear geometric; pecked circles; solid circular forms (one with "appendages"); lines, circles, and other forms composed of dots; quadrupeds (some probably bighorn); possible "bighorn" (frontal view); crooked line; possible dart or arrow form; paw prints; spiral; birdlike form with stippled interior; 1 broad-shouldered anthropomorph with arms raised and "standing" on a reddish natural concretion; 2 possible anthropomorphs with slender/stick bodies; possible anthropomorph (lower body fragment?); sunflower/sunburst; projectile point/blade-like form; variety of straight lines and marks; and, black streaks/lines. The prehistoric elements in Panel 3 (on the east) represent possible affiliations with Basketmaker II-III (~1000/400 BC - AD 600) or Fremont (AD 400/600 - 1300/1500) style petroglyphs. The bear paw print motifs (segmented) may be of Basketmaker or Archaic origin and other elements in Panel 3 are probably associated with Fremont culture. Also included in the panel are inscriptions and graffiti.

Locus 2 is located on an overhanging cliff within a shallow recess, approximately 4-5m above the shelter floor. Located within Locus 2 are Panels 4 and 5. Panel 4 is a quadruped and a human form with no obvious head and raised arms. The panel is thought to be associated with Formative Era Fremont culture. Panel 5 is a vertical line (fragment), animals (4-6 fragments, one horned, a possible bighorn), scratched motifs/graffiti, a group of stipple and single pecks, and a row of pecked marks/dots. The petroglyphs are associated with Formative Era Fremont culture with historic/modern elements. The prehistoric elements evince medium to dark patination, while the more recent historic and modern items are lightly patinated.

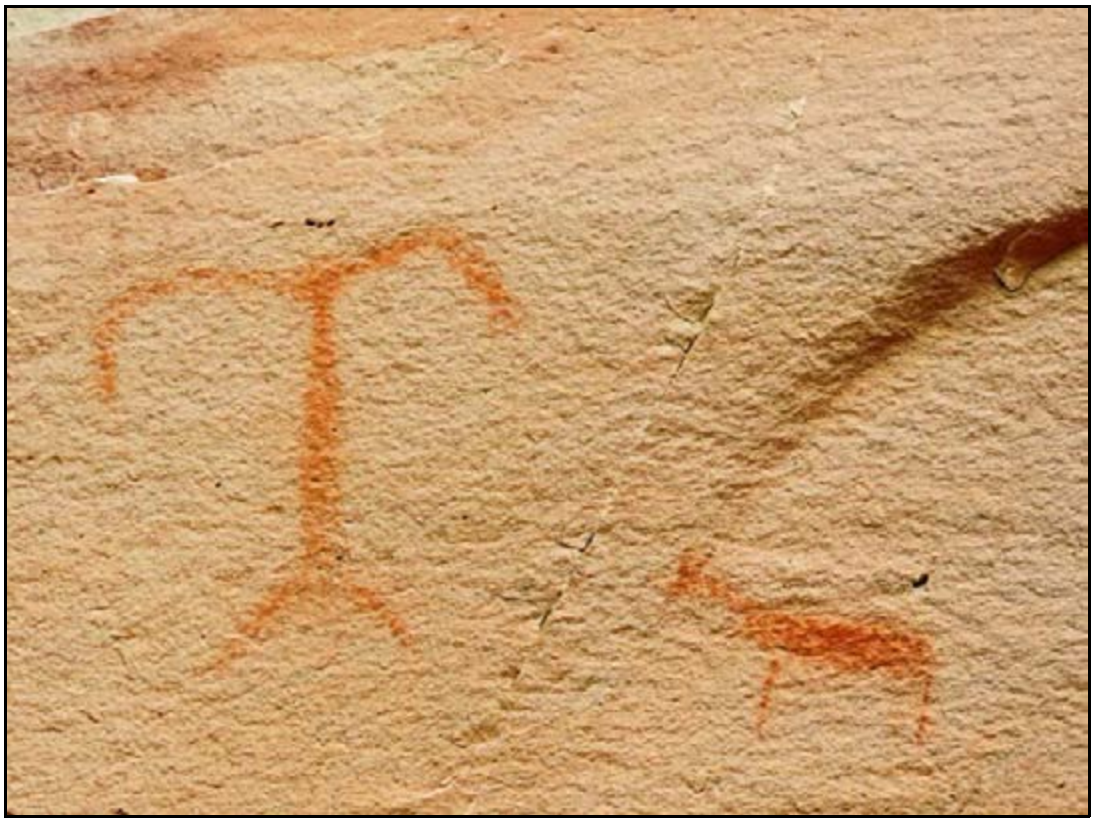


Plate 7.5. Pictograph in Locus 2, Panel 4, 5ME540.

Locus 3 is located on an overhanging cliff that borders a sandy terrace north of Locus 2. Panel 6 depicts an illustration of a human form with arms out to the sides wearing an animal-ear headdress (human face/head and neck are within a shallow recess); one animal (2 legs) with an upraised tail, two rectangular pecked areas, one circular pecked area, and two pecks. Again, these resemble Formative Era Fremont culture. Panel 7 shows seven animals (four with horns, one canine-like), four possible animals (eroded and spalled). These are similar in nature and style to some of the design themes of Panel 4. The small anthropomorph is Fremont in style. Other lithic artifacts observed during the current project include a scraper, ground stone, pecked rock, fire-cracked rock, a utilized flake and other chipped stone flakes. These are associated with Locus 2 and have been disturbed.

Previously located lithic artifacts (Conner et al. 1976) include a possible projectile point that may be similar in stye to the Sudden Side-notched dart point dating to the Middle to Late Archaic (ca. 4500-2000 BC) (Justice 2002:154, 162-164) and a projectile point that compares well to a Dolores Expanding Stem arrow point (Justice 2002:242-245). These generally agree with the estimated dates for the rock art at the site: Archaic Abstract-Geometric tradition (4000 BC TO AD 500/1000) and post AD 400/600 Fremont style of the Uintah Basin, Tavaputs, and Roan plateaus as well as the San Rafael region (Castleton 1978; Cole 2009; Creasman 1981: Schaafsma 1971; Spangler 2004). A petroglyph resembling a corner notched dart point of Middle to Late Archaic age may date form that period but it is less weathered than the geometric petroglyphs and may be more recent.

Future research analysis includes comparing the human/sheep forms and techniques to aspen art attributed to Basque and/or Mexican and Mexican-American livestock herders in Rocky Mountain area.

Evaluation and Management Recommendations

The site was field evaluated as eligible in 1976. The current project evaluates the site as eligible as well, for the NRHP under Criterion A (for its contribution to the broad pattern of history), Criterion C (it possesses high artistic value and is representative of the aesthetic values of a cultural group), and Criterion D (has added to the known data of the Archaic, Basketmaker II-III, and Fremont cultures as represented in their rock art style and affiliated material culture on the north Colorado Plateau and possesses the potential to yield additional important information). Protection and preservation are recommended.

Site **5ME545**, a prehistoric sheltered architectural, is located on the northwest side of McDonald Creek. It is a slight overhang formed by the cliff wall at the top of the talus slope along a sandstone bench. Elevation is approximately 4500 feet. No vegetation is present within the overhang. Pinyon and juniper trees and native grasses are sparsely scattered along the talus slope below. Soils within the overhang consist of sandy colluvium and a large deposit of colluvial mud that has hardened over time. The nearest source of permanent water is the Colorado River, located 520m to the south. Ground visibility within the overhang is 100%.

The site was originally recorded by Carl Conner with the Historical Museum and Institute in 1976. It was described as follows:

> The only remains in this 20m x 4m overhang are conical shaped holes dug into the hard dirt bench. A small wash cuts across the front of the overhang which leaves a dirt bench about 6m x 2m. At the point where the bench meets the wash, three semicircular depressions are exposed. One was tested and it revealed a cedar bark lining. The soil which was partially removed from the depression, is not hard packed which contacts with the walls of the hole. The hole is 20cm deep and 40cm in diameter.
>
> Another hole in the top of the bench had a 20cm opening. It was jar shaped and about 50cm deep and 40cm at its widest point.

The site was relocated, mapped, and photographed. Five cists were evident; however, only one (Cist 1) is still intact. In addition to the cists, an unshaped sandstone slab metate and a siltstone core were also recorded. Several unmodified sandstone slabs are present next to Cist 1, and may have served as a cover for storage. North of the overhang, the dead trunk of a small juniper tree has been placed next to the sandstone bench to serve as a step ladder. A hole in the sandstone is also present, although it is unknown whether it is natural or man-made. The juniper was likely placed in its current position historically. Pack rats are nesting in the back of the overhang. No evidence of ash or charcoal was noted with the exception of burnt sticks

observed in the pack rat nests. These could conceivably be prehistoric in origin based on the extremely dry conditions within the overhang.

Evaluation and Management Recommendation

The site was field evaluated as eligible in 1976. The *in situ* feature may yield information important to the prehistory of the area (Criterion D); accordingly, the current project concurs with the previous finding of eligible for listing on the NRHP. Protection and preservation are recommended.

Site **5ME580**, a prehistoric sheltered camp with rock art panels, is located on the northwest side of a seasonal, unnamed drainage. It is situated north of Deer Creek and northeast of the Gunnison River at an elevation of 5300 feet. Vegetation is sparse pinyon and juniper with four-wing saltbush, sagebrush, grasses, shadscale, snakeweed, and prickly pear cactus. Ground visibility was more than 80%. Soils are reddish brown sandy loam. The nearest source of permanent water is the Gunnison River, located 1200m to the southwest.

The sheltered camp was most recently recorded in 2010 by Kae McDonald, David Sabata and Katie Arntzen of Smith Environmental and Engineering. It was characterized by rock shelters (Shelters A, B, and C), petroglyphs and paintings (Panels 1 - 3), ash stained soils, and groundstone and lithic artifacts. As a result of the revisit to the site with the current project, a fourth rock art panel (Panel 4) and a projectile point were newly recorded.

The setting is similar to that of nearby 5ME164 but the rock art panels are generally small and less visible and the information was probably intended for occupants. Prehistoric (probably Uncompahgre style) and historic Ute styles are present (Buckles 1971; Cole 1990, 2009). The prehistoric elements are eroded and faint; historic Ute style images are relatively well preserved. A radiocarbon sample from a vandalized feature at the site has an uncalibrated date of 2040 ±70 RCYBP (McDonald et al. 2010) indicating the presence of Archaic-early Formative occupants (Conner et al. 2014) and correlating with the estimated age of Uncompahgre style (~1000 BC to AD 1000). The newly recorded projectile point (Plate 7.6) was found on the surface in the same shelter also supports a late Archaic occupation. It is an Uncompahgre Complex Horsefly Phase type dated ca. 500 BC-AD 1 (Buckles 1971:1220).

Plate 7.6. UC Horsefly Phase projectile point recorded at 5ME580.

The possible Uncompahgre style imagery occurs in Panel 2 and comprises an indistinct, eroded red painting of an animal (probable bighorn) that may have been pecked prior to painting or the motif is a combination of the two techniques. The curved horns appear pecked and painted over. Indistinct pecking suggestive of a human form is near the animal (a common theme of Uncompahgre style). Examples of pecked and painted imagery, including combination forms, occur at regional Uncompahgre style sites but are not common (Cole 1990, 2009).

Panels 1, 3, and 4 comprise early historic Ute style pecked and scratched petroglyphs estimated to date prior to 1850 (Buckles 1971; Cole 1988, 1990, 2013). Panel 1 at 5ME580 is a well preserved example of Ute scratched and scratched-abraded petroglyphs, a technique likely derived from the Great Basin and Intermountain-Plains regions and possibly an indication of relatively early Ute use of the site (Cole 2013). The panel shows a quadruped with very large ears and a long tail, possibly a mule or horse (somewhat consistent with petroglyphs in Panel 3) and two detailed tipis. Additional, indistinct scratches may show animals and possibly one or more human forms. The panel is an example of biographic type rock art described for the Intermountain-Plains and present study region (Keyser 2011; Keyser and Poetschat 2008).

Plate 7.7. Ute scratch rock art, Panel 1, 5ME580. (Digitally enhanced.)

In Panel 3, seven or eight pecked animals exhibit various antlers, horns, and/or upright ears. Four quadrupeds have long tails suggesting horses. For one of these, an indistinct, scratched or lightly pecked rider may be signified. A relatively large, unidentified scratched motif is juxtaposed with the animals. The ambiguity with regard to possible horses suggests the rock art was made prior to common use of horses by regional Ute in the 1700s (Baker 2013; Baker et al. 2009; Cole 2013).

Panel 4 shows a small black figure (charcoal/soot pigment?) that may represent a

shield-figure or shield-bearing-warrior of the type portrayed in Pueblo, Fremont, and Plains-Intermountain rock art styles from late prehistoric into early historic times (Keyser 1975, 2011; Cole 1999, 2009). The motif is closely associated with pre-horse and early-horse era warriors using large body shields as opposed to smaller shields later used by equestrians and also depicted in rock art. The possible body shield depiction at 5ME580 supports the impression of a relatively early Ute occupation.

Evaluation and Management Recommendations

The site was declared officially eligible in 2011. The current project concurs with that evaluation for the NRHP under Criterion A (for its contribution to the broad pattern of history), Criterion C (it possesses high artistic value and is representative of the aesthetic values of a cultural group), and Criterion D (has added to the known data of Archaic-early Formative occupants (~1000 BC TO AD 1000) and early, pre-horse Ute, ca. 1700s). Protection and preservation are recommended. Based on the presence of recurring vandalism, this site should be patrolled regularly to deter future vandalism and illegal excavation.

Site **5ME905**, a prehistoric rock shelter and pictograph panel, is a sheltered area formed by large boulders located in the bottom of Knowles Canyon. Elevation is 4960 feet. Vegetation consists of juniper, needleandthread, snakeweed and beeplant. Ground visibility is 80 percent. Soil is a pinkish tan, sandy loam. Exposures of black granite form a shelf along the west side of the site boundary. The nearest source of permanent water is the Colorado River, located 5 miles downstream.

The site was originally recorded in 1978 by Carl Conner with Grand River Institute as part of a cultural resource inventory of the Colorado River Corridor Tributaries. The site was described as follows:

> The site is another rockshelter provided by a boulder which rests on a Precambrian bench. This site provided the only pictograph found in Knowles Canyon. It was a horse and rider, a man on foot, and a riderless horse or some other large mammal. The site also contained a variety of lithic materials, chipped stone artifacts, and ground stone tools. The site was obviously late in origin. A minor excavation here would provide a great deal of information on the Ute occupation or use of this canyon.

Sally J. Cole (1987) describes it further: "Red rock paintings are exhibited at 5ME905, a small rockshelter beneath a boulder in the drainage of the Colorado River. The paintings occur with a variety of lithic materials. The rock paintings depict a horse and rider, an anthropomorph, a quadruped and possibly another horse in the Early Ute Style."

The current project relocated the site. The site was mapped and photographs were taken. The site measures 45m N-S by 25m E-W. The site consists of a small pictograph panel

depicting a horse and rider and a deer. The pictograph is rendered in a red paint, which has become very faint over time; however, using digital enhancement of the image, the horse and rider become much more apparent (Plate 7.8). In addition to the pictograph, a large ash stain was also recorded. A small drainage rill has exposed the thermal deposit. A social trail is presently utilized by recreationists, but may have been utilized prehistorically as well.

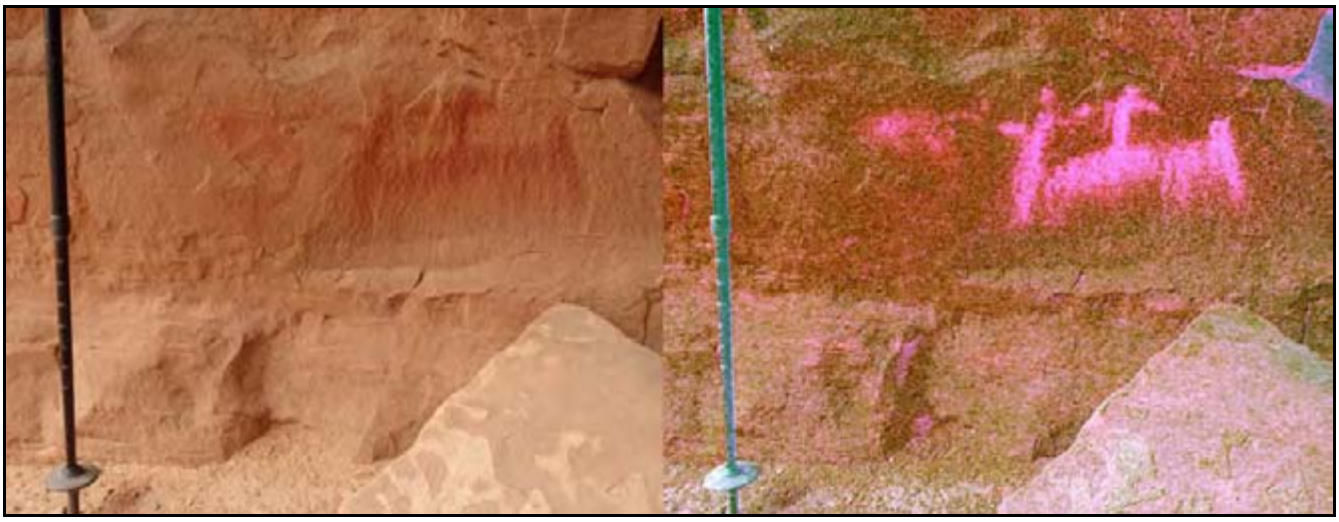


Plate 7.8. Pictograph at 5ME905, with (R) and (L) without digital enhancement.

Evaluation and Management Recommendation

The site was field evaluated as eligible in 1978. The site is eligible under Criterion A, as it is associated with the broad pattern of history. The rock art possesses high artistic value and is representative of the aesthetic values of a cultural group (Criterion C). The site has added data to the known prehistory of the area and possesses the potential to yield additional important information about Early Ute culture (Criterion D). Accordingly, the current project concurs with the previous findings. It is field evaluated as eligible for listing on the NRHP. Protection and preservation are recommended.

Site **5ME963**, a prehistoric open camp, is located 200m east of Jerry Gulch, at the north end of Place Mesa. Elevation is approximately 6000 feet. Vegetation is juniper, sagebrush, snakeweed, and grasses. Soils are a loam formed from mixed material eolian deposits. Sandstone is outcropping within portions of the site area. The nearest source of permanent water is Plateau Creek, located 3.7 miles south of the site. Ground visibility is 70 percent.

The site was originally recorded as an isolate in 1979 by Sarah M. Crum and Carl E. Conner with Grand River Institute. The isolate consisted of a single quartzite flake (Compass website). Upon revisiting the isolate location, a large, extensive site was located that encompasses the previous isolate location. As a result, the newly recorded artifacts will be added to the original site record.

The site measures 205m E-W by 100m N-S. Artifacts appear to cluster in two apparent work areas. Locus 1 is comprised of several pieces of burnt bone, two projectile points (FS1 and FS3), a disto-lateral scraper (FS2), approximately 40 chert, porcellanite, and quartzite flakes, an anthill with burnt bone and microflakes, and a collector's pile. The presence of the anthill may be indicative of buried cultural materials.

Locus 2 consists of a projectile point fragment (FS4), a crudely made chert biface, a heavily weathered quartzite hammerstone, and approximately 55 chert and quartzite flakes, and an anthill that contains microflakes. Out of nearly 100 flakes recorded on the site, only 10% were described as primary or secondary flaking stages. Sizes ranged from microflakes to large. Only two porcellanite and seven quartzite flakes were located; the remaining flakes are chert.

Projectile points consist of one from the Paleoindian Era, one from the Middle Archaic, and one that is possibly from the Formative Era (Plate 7.9). The first specimen (FS1) appears to be a base fragment of a Pryor Stemmed projectile based on the flaking technology. Pryor Stemmed points date to the Late Paleoindian period and have a postulated temporal range of 8300 to 7800 BP (Kornfeld, Frison and Larson 2010:102). Specimen 3 (FS3) is a projectile point comparable to Middle Plains Archaic types (dating ca. 5000 to 3000 BP, Kornfeld, Frison and Larson 2010:114-122). Specimen 4 (FS4) is an eclectic style that likely dates to the Formative Era. The eclectic style has not been clearly identified regionally, but this point's straight base and notching style are characteristic of Nawthis Side-notched (AD 950 to 1250, Holmer and Weder 1980:61). The blade edge may have been serrated; however, the apparent serration may have been deep enough to have served as additional notches. Not enough of the point is present to identify it conclusively

Evaluation and Management Recommendation

The resource was initially recorded as an isolated find and field evaluated as not eligible in 1979. Due to the presence of diagnostic artifacts, coincident faunal and cultural materials, and the potential for buried materials, the site has yielded, and may yield additional information important to the prehistory of the area (Criterion D). The site is re-evaluated as eligible and protection and preservation are recommended.

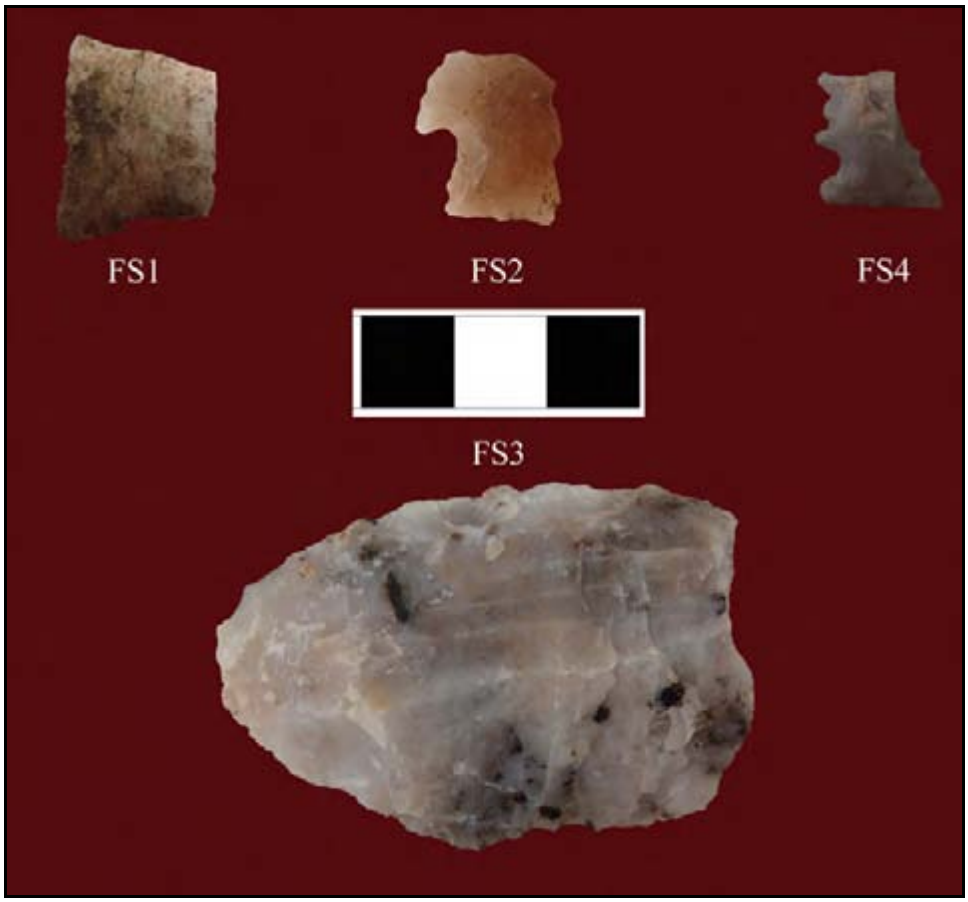


Plate 7.9. Artifacts from site 5ME963: FS1 - Pryor Stemmed base (Late Paleoindian), FS2 - Middle Plains Archaic stemmed, FS3 - biface, and FS4 - eclectic, possible Nawthis Side-notched. Scale: 3cm.

Isolated feature, **5ME973**, was reportedly located along Sunnyside Road on a ridge southeast of Shire Gulch. No environmental information was described; however, the area is generally covered with pinyon and juniper trees, sagebrush, and sparse grasses. Ground visibility is 70 percent. Soils are composed of a light brown loess. The nearest source of permanent water to the reported feature area is Plateau Creek, located 4 miles to the south.

The site was originally recorded in 1979 by Paul Roebuck with Grand River Institute. The feature was simply described as "smoke stain on sandstone boulder" (1979 OAHP site form). No other information was recorded for the feature. Currently, the site falls within the recently expanded boundary of 5ME974. It was searched for as a part of this project, but was not relocated.

Evaluation and Management Recommendation

The isolated feature was field evaluated as not eligible in 1979. The current project concurs with that assessment. The feature cannot be relocated and the reported location is now within 5ME974's boundary. Accordingly, the site number should be removed from the OAHP site database. No further work is recommended.

Site **5ME974** is a multi-component site containing the remains of a prehistoric open architectural site and several historic artifacts. It is located on a ridge southeast of Shire Gulch at an elevation of 6080 feet. The vegetation consists of pinyon and juniper forest with sagebrush and a sparse understory. Ground visibility is 70 percent. Soils are light brown and sandy. The nearest source of permanent water is Plateau Creek, located 4 miles to the south.

The site was originally recorded as an isolated find in 1979 by Carl Conner and Sally Crum with Grand River Institute. In 2007, Grand River Institute revisited the area and recorded features and artifacts in the vicinity of the previously recorded isolated find, thereby changing the character of the resource from an isolate to a site (Conner and Davenport 2007). At that time, artifacts were recovered dating from prehistoric and historic periods and were interpreted to represent a Ute occupation during the early 1900s (Plate 9: a, b, c). Grand River Institute returned to the site in 2009 as part of data recovery efforts and the site boundary was again greatly expanded (Conner et al. 2014). Artifacts from that investigation included two diagnostics dating to Paleoindian and Archaic Eras (Plate 9: d, e) as well as culturally modified trees dating to Historic Ute. It was at this point that the site boundary was expanded to encompass two more isolated finds, 5ME973 and 5ME976. Its original site number was retained for continuity.

Plate 7.10. Artifacts from 5ME974, 2007 (a-c), 2009 (d, e), and current project (FS1).

As part of the current project, the site was revisited. Two features (designated Features 10 and 11 to continue the previously adopted nomenclature) and a biface (FS1) that had not

been previously recorded were located within Locus 2. Feature 10 consists of FCR and ashy soils with associated burnt bone and flakes. Feature 11, located almost 20m northeast of Feature 10, consists of FCR and ashy soils. Burnt bone is also associated with this feature. The biface fragment (Plate 7.10) is similar to McKean Lanceolate, ca. 5000 - 3000 BP (Frison 1991:24).

Evaluation and Management Recommendation

The site was declared officially eligible for listing on the NRHP in 2008. The current project concurs with that official determination under Criterion D, the site may yield information important to the prehistory of the area. Protection and preservation are recommended.

Isolated feature, **5ME975**, was reportedly located along Sunnyside Road on a ridge southeast of Shire Gulch. No environmental information was described; however, the area is generally covered with pinyon and juniper trees, sagebrush, and sparse grasses. Ground visibility is 70 percent. Soils are composed of a light brown loess. The nearest source of permanent water to the reported feature area is Plateau Creek, located 4 miles to the south.

The isolated feature was originally recorded in 1979 by Paul Roebuck with Grand River Institute. The feature was described as "ash-stained soil in road and road-cut" (1979 OAHP site form). No other information was recorded for the feature. The present project revisited the feature's location using the available UTM data for the resource. Previous environmental descriptions regarding the feature's topography were also used as a guide. Despite intensive efforts, no artifactual evidence was found. Road upgrades may have destroyed the feature.

Evaluation and Management Recommendation

The site was field evaluated as not eligible in 1979. The current project concurs with that assessment. The feature could not be relocated and was likely destroyed. No further work is recommended.

Site **5ME1210**, a prehistoric open camp, is located on a southwest facing slope of Grand Mesa, near an intermittent drainage. Elevation is approximately 5920 feet. The site is located in an area that has had vegetation manipulation (chaining); however, the surrounding vegetation is juniper with a sparse understory. The chained area is primarily grasses and sagebrush. Ground visibility is 50 percent. Soils are a gravelly, sandy alluvium derived from basalt. The nearest source of permanent water is an unnamed spring located 1.2 miles south of the site.

The site was originally recorded in 1980 by A. Killpack with the Bureau of Land Management. It was originally recorded as an isolated find that consisted of a Rosegate projectile point (Plate 7.11). This type occurs throughout the Intermountain West after about AD 300, and may be associated with the spread of the bow and arrow. They are generally

replaced in the Intermountain area by side-notched styles about AD 1000 (Holmer 1986:107). An addendum to that report changed the description from an isolate to an extensive campsite with hearths, and chipped and ground stone artifacts. It was field evaluated as eligible due to a large amount of material not discovered during the original inventory. It was also noted that soils in the area are constantly covering and uncovering material due to runoff activity in the adjacent arroyos and drainages and additional buried materials were considered likely.

Plate 7.11. Artifact from 5ME1210 original recording (1980).

The site was reevaluated in 2007 by Matt Landt and Robert Flemington with Alpine Archaeological Consultants, Inc. At that time, it was noted that the juniper in the vicinity of the site had been chained, altering the site's characteristics and research potential. Only three pieces of lithic debitage and a scraper were relocated. The site was reevaluated as not eligible for listing on the NRHP due to the heavy disturbance and lack of potential to yield additional significant information. The disturbance consists of vegetation treatment.

Artifacts are currently dispersed in an area measuring 120m E-W by 85m N-S. A mano (FS1), a utilized flake, 16 flakes, a bi-directional chert core, and eight chert nodules were recorded, both within the disturbed area and within a remaining stand of juniper. The mano (Plate 7.12) is a bifacially ground basalt cobble with pecking along the lateral margins. Debitage consists exclusively of chert, the majority of which are interior flakes that are small to medium in size. One displays use-wear. A number of "nodules" were recorded that are primary or secondary in nature and medium to large in size. Those who occupied the site may have been testing naturally occurring lithic materials, in addition to apparent tool maintenance. No features were present on the surface.

Plate 7.12. Mano, FS1, from 5ME1210.

The previously recorded Rose Spring corner-notch (or Rosegate Series) projectile point is generally associated with the Fremont culture (Madsen 1980:58; Holmer 1986:106). Interestingly, at least two other sites associated with the Fremont culture are present in the vicinity, 5ME8047 and 5ME11675.

Evaluation and Management Recommendation

The site was deemed officially not eligible in 2009. The current project concurs with the previous finding of not eligible, due to a lack of integrity, as well as a lack of potential to

yield additional information important to the prehistory of the area. No further work is recommended.

Site **5ME1356**, a multicomponent prehistoric and historic rock art panel, is located in the bottom of McDonald Creek along an outcrop of sandstone adjacent to the creek. Elevation is 4560 feet. Vegetation is pinyon, sagebrush, rabbitbrush, and cactus. Ground visibility was nearly 100 percent. Soils are a sandy alluvial fill deposited from creek runoff. The nearest source of permanent water is the Colorado River, located 1.5 miles to the southeast of the site.

The site was originally recorded in 1988 by Barbara Blackshear, Jim Griest, and G.E. Stone with the Colorado Archaeological Society (CAS). Three pictograph panels were described with notations to two separate styles. Panel 1 is black lines with bullet holes present. Panel 2 is a black horse with rider and an anthropomorph with rifle, also with spalling and a bullet hole. Panel 3 is red and black vertical lines, corn symbols(?) and dots and was badly spalled. A map of the cliff face was made that included historic inscriptions as well as the prehistoric images.

The panel was revisited in 2000 by Aline LaForge with the Arizona BLM Lake Havasu Field Office (on detail with BLM-GJFO). The historic inscriptions were recorded as Panels 4-7. Corrections to the original recording include a notation that Panel 1, recorded as black lines, is actually a historic name and date probably done in axle grease. Panel 4 is incised with *L.A. Wilk?son FEB*. It was also noted that the name Wilkerson appears on a rock art panel at Castle Rock (5ME12319). Panel 5 is solid pecked and incised with three separate names, ?.?. *HALL DE.?, A E W* with a figure underneath and *S.J.* (inside a box). Panel 6 varies between monochrome black (possibly axle grease), incised, and scratched with three separate names: *S.H.D?NN* (N's are backward), *AS CRUM, I S SPIKER 00*. Panel 7 varies between monochrome black (possibly axle grease), incised, and pecked with *AM Stocks AP 12 88*; *J.W. Cowley 1905*, and several other elements too faded for interpretation.

The current project relocated, mapped, and photographed the site. The site boundary was expanded to the north to include additional panels. Three panels were newly discovered with the current project. Panel 8 is two historic inscriptions, mentioned in earlier recordings, but not recorded; Panel 9 is prehistoric pictograph lines and a historic inscription; and Panel 10 is a historic inscription. Panel 8 is located just east of Panel 2. It consists of two historic inscriptions, *R. ALBANY* and *B. SLOAN 1955*. Panel 9 is bright but areas of spall are evident near the paintings. They consist of parallel lines and/or finger "swipes" or "prints". The panel is located 43m north of Panel 4. Also at Panel 9 is a solid pecked historic inscription *PG* and the numbers *66*. The *P* and *G* are depicted as a single element. Panel 10 is a historic inscription, *C.H.E. 1896*. It is located 13.5m north of Panel 9.

Panels 3 and 9 correspond to the Abstract-Geometric style of tradition of Archaic origin on the Colorado Plateau (ca. 4000 BC to AD 500/1000). These panels were openly displayed and public with regard to downstream travelers, especially when the paint was fresh and bright.

They are natural "billboards." The now eroded and faint motifs may have been components of a continuous, colorful array that spanned 50m or more of the cliff above the stream. Surface spall is obvious and extensive on Panel 3 and erosion and mineral accretion and/or dust deposits have made the motifs faint. These contrast to the Ute work of Panel 2, a horse and rider theme. These relatively small, dark paintings are openly accessible and viewed from the terrace at the base of the cliff, but require close examination. In this sense, they are not public displays and are more likely to have communicated to a relatively small and select group of travelers, perhaps Ute bands that occupied the canyon and/or regularly passed through from downstream.

Panel 2 (visible from downstream) comprises eroded paintings showing a pedestrian with a possible backpack and rifle pointed toward an equestrian. These paintings are probably of Ute origin and may chronicle a shooting event in the area. The style of painting is consistent with late historic Ute expressions on the Uncompahgre Plateau and in eastern Utah and probably dates after 1750 (Baker 2013; Baker et al. 2009; Buckles 1971; Cole 1989, 1990, 2013). Ute paintings and petroglyphs commonly appear to represent encampments, individual accomplishments and characteristics; hunting events and raids and conflicts (Cole 1988, 1989, 1990, 2013; Keyser 2011; Keyser and Poetschat, eds. 2008).

A brief historic records search of was made with respect to the names given. Two individuals, Angus M. Stocks, Sr. (born April 12, 1844 and died April 9, 1920) and his son, Angus M. Stocks, Jr. (born November 28, 1866 and died December 31, 1930) were residents of Moab, Utah. Either one may have passed through western Colorado on or about April 12, 1888. Stocks, Sr. was commissioned to serve as a guard and scout during the Indians Wars in 1867. He was an esteemed pioneer in the Moab area and according to his obituary was "highly eulogized...for the sterling efforts he put forth to blaze the trail through Eastern Utah for the development and prosperity of today" (Times Independent, April 15, 1920). Interestingly, the inscription date may have marked Stocks Sr.'s birthday. According to the Times Independent from January 1, 1931, Angus M. Stocks, Jr. left Moab for Colorado and had resided at Dove Creek, Colorado for some time before his death.

The only other name that was legible enough to provide a reasonable inference was *AS CRUM*. There is an Arthur S. Crum, born in 1879 and died in 1927, buried in the Municipal Cemetery in Orchard Mesa, Colorado.

Panel No.	**Description of elements**	**Vandalism reported by year of revisit**
1	Black lines. Appear to be a name and/or date. Possibly depicted using axle grease	1988: Bullet holes 2014: *SL RL JP 2001*
2	Horse and Rider, Figure with gun	1988: Bullet hole 2014: *HK*
3	Vertical lines, plants, dots. 2014:	2014: Unknown when initials were added *RW, FW, HM, KM, DG, VH*

Panel No.	Description of elements	Vandalism reported by year of revisit
4	Historic inscriptions: L. A. Wilkison FEB	
5	Historic inscriptions: HALL, AEW, SJ	
6	Historic inscriptions: SH D?NN, AS CRUM, IS SPIKER	
7	Historic inscription, initials, names, dates: *AM STOCKS, AP 12 8?, COWLEY ?? 1905*	2014: *AJ WOOD 2013*; *J. WOOD #81 June 2013*
8	Historic inscription: *R ALBANY, B SLOAN*	
9	Parallel lines and/or finger "swipes" or "prints"	
10	Historic inscription: C.H.E. 1896	

Evaluation and Management Recommendation

The site was declared officially eligible in 2007. The current project concurs with that assessment under Criteria A, C, and D. The site is eligible under Criterion A, as it is associated with the broad pattern of history. The rock art possesses artistic value and is representative of the aesthetic values of a cultural group (Criterion C). The site has added data to the known prehistory of the area and possesses the potential to yield additional important information (Criterion D). Protection and preservation are recommended.

Site **5ME3768**, a petroglyph panel and prehistoric open camp is located on the north bank of Whitewater Creek. Elevation is 6160 feet. Vegetation is pinyon and juniper, spineless hedgehog cactus, yucca, sagebrush, oakbrush, mountain mahogany, and cheatgrass. Ground visibility is 60 percent. Soils are shallow, rocky, brown loamy sand with occasional cobbles. The basalt boulders and cobbles are heavily covered with lichens. Occasional river cobbles were also observed. The nearest source of permanent water is an unnamed spring, located 1.5 miles southwest of the site.

The site was originally recorded in 1981 by Carl Conner and Danni Langdon with Grand River Institute. It is described as follows (1981 OAHP site form):

> Moderately dense, extensive scatter of chipped and ground stone located among the pinyon-juniper forest bordering Whitewater Creek. Scatter is light over much of the alluvial fan to the north of the creek, but several concentrations were noticed, probably loci of the site. The main concentration surrounds three basalt boulders exhibiting well-preserved petroglyphs

(anthropomorphs, zoomorphs). Cultural material is chipped and ground stone; large basalt boulder covered (on facing side) with petroglyphs (anthropomorphic and zoomorphic figures); two smaller boulders, each with a petroglyph; possible wickiup.

The majority of components are Late Archaic - Formative Era Uncompahgre Style (1000 BC - AD 1000); however, some of the more lightly patinated elements may be Protohistoric/Historic Era, ca. AD 1250 - 1880s (Cole 1990:21; 2011:4-18).

The current project relocated, mapped, and photographed the site. The site is as previously described. The current site boundary measures approximately 100m E-W by 150 N-S, as previously reported on the original site form. A chopper, scraper and mano were recorded on the site. Approximately 60 flakes were observed. Changes to the site include the observation of a collector's pile atop of the boulder at rock art Panel 1. The collector's pile contains a mano, seven cobble fragments, and five flakes. The ax-cut poles were found on the ground south of Panel 1. These were determined to be fence posts upon close examination. A hiking trail is located about 90m from the rock art boulders.

Evaluation and Management Recommendation

The site was field evaluated as eligible in 1981. The current project concurs with that assessment. The site is eligible under Criterion A, as it contributes to the broad pattern of history; Criterion C, as it possesses high artistic value and is representative of the aesthetic values of a cultural group; and has added to the known prehistory of the area and possesses the potential to yield additional important information (Criterion D). Protection and preservation are recommended.

Site, **5ME5247**, a prehistoric pictograph and sheltered camp, located in a south facing overhang of a free standing boulder within McDonald Creek. Elevation is 4820 feet. Vegetation consists of cheatgrass, snakeweed, sagebrush, and prickly pear cactus. Ground visibility is 80 percent. Soils are light tan, clayey loam. The nearest source of permanent water is the Colorado River, located 3.7 miles south of the site.

The site was originally recorded in 1987 by Michael Piontkowski with the BLM. The site was reevaluated in 2006 by Nicole Darnell with Dominguez Archaeological Research Group and again in 2012 by Aline LaForge with the BLM. The site was originally described as follows (1987 OAHP site form): "Site has been vandalized within last year. Dug under overhang to approximately 3/4m deep. Fill contains approximately ½ roof fall and the eroded rock. Relatively few (about 20) flakes observed in backfill and on boulder. Fill not stained by charcoal/ash. Flakes are large (10-15cm) siltstone and quartzite primary flakes. No stratification of fill is evident." Estimated damage to cultural deposited was 40-50 percent; however, it was suspected that *in situ* deposits remain in the area in front of the overhang.

Plate 7.13. Pictograph element at site 5ME5247.

During the reevaluation in 2006, additional vandalism to the rock shelter was noted. At least 70 flakes were observed in and around the overhang, the majority of which were located in/on ash stained backfill from the vandal's hole. It appeared that the vandals did not contact bedrock and it was assumed at that time that undisturbed cultural materials may still be present, both within and outside of the shelter. No damage to the pictograph was evident; although charcoal lines, not noted in the original recording, were present during the (2006) reevaluation. The pictograph was described as a small anthropomorph (Plate 7.13), comparable to Uncompahgre Style as defined by Cole (1987:54), for which she assigns associated dates of ca. 1000 BC- AD 1000 (Late Archaic - Formative Era). Additional disturbance to the site described in 2006 includes grazing impacts and trampling of artifacts, both within and outside of the shelter. Rubbing against the pictograph was also a concern. The 2012 revisit reports that no new vandalism was present. Closer examination of the charcoal lines indicated that they are an illegible name and a date of 1914. Grazing was still impacting the site: "The general area is heavily used by cattle, most of the annual plant growth is not native, and the shelter has been used by cattle for shelter" (2012 OAHP site form).

The current project relocated, mapped, and photographed the site. The site boundary was expanded to include additional lithic materials and currently measures 55m in diameter. Newly recorded materials include a probable horn core fragment (possibly bison), three

scrapers, eleven flakes, and two cores. Ten of the flakes were located east of the site, centered on the south side of the boulder located there. No additional vandalism has occurred.

Evaluation and Management Recommendation

The site was declared officially eligible on 18 July 2007 and 27 September 2012. The current project concurs with the official determination of eligible for listing on the NRHP under Criteria A, C and D. The site contributes to the broad pattern of history. The rock art possesses artistic value and is representative of the aesthetic values of a cultural group (Criterion C). The site has added to the known prehistory of the area and possesses the potential to yield additional important information (Criterion D). Protection and preservation are recommended.

Site **5ME5259**, a prehistoric rock panel, is located on the outside bend of McDonald Creek in a canyon about 1 meter above the present streambed. The panel faces west at an elevation of 4440 feet. There is a cottonwood gallery here along with tamarisk and grasses. Ground visibility averages 90 percent. Soils are a light tan sandy loam decomposing from surrounding sandstone ledges and benches with poorly sorted rock, stone, sand, and silt in the stream bed. The nearest source of permanent water is the Colorado River, located 1.2 miles south of the site.

The site was originally recorded in 1987 by Piontkowski, Cole, and Weeth with the BLM. Designs included zoomorphs, concentric circles, curvilinear elements (possibly plants), and triangular men. Sally Cole sketched the site. It is believed that the triangular anthropomorphs appeared to be Barrier Canyon style. At the time of the initial recording the panel was already severely eroded, "Intense erosion makes this panel very difficult to see." The site had been vandalized by bullet holes.

The site was revisited in 2006 by Rich Ott with Dominquez Archaeological Research Group (DARG) and again in 2011 by Aline LaForge with the Bureau of Land Management, Grand Junction Field Office. In 2006 DARG described it as follows: "Repeated inundations from flash-flooding has severely weathered the pecked figures and has left heavy residues of fine sediment deposited on the panel surface" (2006 OAHP site form). In 2011, additional vandalism was noted:

> Vandalism consists of fine grained mud from the creek bed immediately below the panel which was applied by vandals with their fingers to panel 1. This attracts attention from the trail to an otherwise invisible site in a highly used recreation area. Mud was removed from the panel by carefully using a thin edge of plastic to lift the pieces of spalling mud. The remaining mud was washed from the panel using mist setting of a hand spray bottle and clean water. The panel dried for three days. The washing also removed the top layers of the silty wash that flashflood waters deposited on the panel. To visually blend the washed area silt from below panel 2 ground, placed on a clipboard and blown on

to the washed section to recreate the silt wash that covers the entire panel (2011 OAHP site form).

5ME5259 was surveyed and assessed for the present project. The site comprises three panels of petroglyphs and an area of indistinct abraded forms on an overhanging cliff directly above and on the east side of McDonald Creek. Panels 1 and 2 were thoroughly documented and described in 2006 and reevaluated in 2011. Panel 3 and the abraded forms were located during the present 2014 revisitation project.

Panels 1 and 2 were examined and compared to illustrations made in 2006. The illustration of Panel 1 (Group 1) was annotated and adapted to record a pecked motif resembling a paw print and two large peck marks (see attached illustration and photograph). These are weathered and have relatively dark repatination (not total as in the case of more eroded elements in the panel group) and are assumed to be prehistoric or early protohistoric.

Panel 3 is located ~13m north (upstream) from Panel 2 along the same cliff line. The panel comprises pecked petroglyphs of a small quadruped and human form with raised arms and miscellaneous scraped/scratched scratch marks. The elements are probably protohistoric/ historic but may be modern. Where visible, the pecking is lightly repatinated but this is not a meaningful measurement within the small cliff recess where they are located. The motifs are subject to intermittent flooding and are coated and stained by mud and mineral accretion.

Evaluation and Management Recommendation

The site was declared officially eligible in 2012. The current project concurs with that assessment. The site is eligible under Criterion A, as it contributes to the broad pattern of history; Criterion C, as it possesses high artistic value and is representative of the aesthetic values of a cultural group; and Criterion D, because it has added to the known prehistory of the area and possesses the potential to yield additional important information. Protection and preservation are recommended.

Site 5ME6387, a prehistoric open camp, is located on a northwest facing bench above Coon Creek. Elevation is 6120 feet. Vegetation is pinyon and juniper forest with sagebrush and sparse grasses. Ground visibility is 60 percent. Soils are residuum formed from weathered shale. The nearest source of permanent water is Coon Creek, located approximately 400m to the west of the site.

The site was originally recorded in 1990 by Carl Conner and Rebecca Hutchins with Grand River Institute. It was described as follows:

> Artifacts recorded here included 3 projectile points (collected), 1 uniface fragment (collected), 50+ pieces of debitage, and a mano fragment. Two areas of quartzite core reduction were identified. The projectiles include two Desert Side-notched points and a Cottonwood, thus dating the site to early Ute

occupation, ca. AD 1300-1700. The two Desert Side-notched points and the uniface fragment were found within a large ash stained area measuring about 3m in diameter. This feature may be the remains of a burned wickiup. Radiocarbon dates and other data about the early Ute occupation of the area may be obtained from this site; thus it is field evaluated as eligible to the NRHP.

Plate 7.14. Specimens from 5ME6387: a) Desert S-N recovered in 1990, b) newly recorded [fs3] Desert S-N, and c) butchering tool [fs5].

The current project relocated, mapped, and photographed the site. Additional artifacts were recorded and the site boundary was expanded. The current boundary measures 170m NW-SE by 75m NE-SW. As part of the revisit, one Desert Side-notched point of red chert (fs3) was newly recorded (Plate 7.14). Other artifacts that were mapped included: a pumpkin chert projectile point tip with parallel flaking (fs4), a gray chert projectile point tip fragment (fs1), a butchering tool formed from gray siltstone (fs5), a chert biface, a unifacially ground mano (fs2) formed from a quartzitic river cobble, a retouched quartzite flake, six concentrations of lithic debitage (Concentration 1-6), ~50 scattered flakes, and two uni-directional quartzite cores.

Concentration 1 is associated with what appears to be a butchering locality and likely represents the previously documented suspected burned wickiup location. It measures 6m by 4m and is comprised of burnt bone and charcoal, two projectile points (FS3 and FS4), a mano (FS2), butchering tool (FS5), and 26 interior quartzite flakes located in an area measuring less than 1m in diameter. A quartzite core is located nearby. Desert Side-notched points are commonly found on Numic sites in the Great Basin and Intermountain West, and date from about AD 1300 to 1750 (Reed and Metcalf 1999; Kornfeld et al. 2010:131, 135).

Concentration 2, measuring 4.5m by 5m, contains 30 quartzite and 5 chert interior flakes. A quartzite core is associated with the concentration, which was apparently used as a core reduction area. Concentration 3, measuring 4m by 7m, contains 20 quartzite and 10 chert flakes, 15% of which are secondary and 85% interior. This concentration is also associated with burnt bone and charcoal. Concentration 4, which measures 4.5m by 5.5m, contains approximately 65 flakes, almost all of which are quartzite, with the exception of one chert. The majority of these are interior with a small amount of secondary flakes. Concentration 5, measuring 6.5m by 3.5m, is more than 70 quartzite and 5 chert flakes; the majority are interior with approximately 5% secondary. Concentration 6 is a small area composed of 11 chert, 4 siltstone, and 2 quartzite flakes. They are small in size and of late stage flaking.

Evaluation and Management Recommendations

The site was declared officially eligible in 1990. The current project concurs with that assessment under Criterion D, the site may yield information important to the prehistory of the area. Protection and preservation are recommended.

Site **5ME6398**, a prehistoric open camp and historic trash dump, is located on a northwest facing bench east of Coon Creek. Elevation is approximately 5970 feet. Vegetation is pinyon and juniper with sagebrush and a sparse understory of grasses. Soils are a tan, sandy loam. The nearest permanent source of water is Coon Creek, located about 300m to the west. Ground visibility is 70 percent.

The site was originally recorded in 1990 by Carl Conner and Rebecca Hutchins with Grand River Institute. It is described as follows:

> Site 5ME6398 has three loci distributed within an area measuring about 140m by 40m. The remains of hearth features were identified within two of the loci, and thus the site is considered an open camp.... The site has characteristics of a typical Ute campsite, but the diagnostic projectile points are missing. (Locus 2 of the site was evidently used as a recent hunting camp and the points could have been picked up.) Locus 1 yielded an obsidian flake (collected), which is diagnostic of Ute occupation. Both L2 and L3 have clusters of tools and microflakes that are also characteristic of the other Ute sites in the vicinity.
>
> Artifacts collected from the site come from L3 and include one triangular-shaped point with a basal notch (it appears to have been a broken biface tip that was reworked into a projectile point), and a perforator/drill. The remaining cultural materials include fewer than 100 other artifacts. The site has been intensively mapped and recorded. It is unlikely that it will provide additional significant data because most of the cultural deposits appear to be surficial (OAHP site form).

The current project relocated, mapped and photographed Locus 1 and 2. Artifacts and features are currently located in an area measuring 90m by 60m. No cultural materials were located at Locus 3. A historic trash dump was located in the vicinity of the site and was fully documented. The previously mentioned modern hunter's camp was no longer extant.

Locus 1, measuring approximately 30m x 20m, is comprised of a thermal feature (Feature 6), a quartzite projectile point midsection, a chert uniface fragment, and twelve flakes. Feature 6, characterized as a deflated hearth feature, and, based on a surface examination, did not exhibit potential for radiocarbon dating. The projectile point appears to be from the Late Prehistoric Era, despite the missing hafting element (Plate 7.15). Half the flakes are chert (one primary, five interior), four are quartzite (all interior), one is siltstone (secondary), and one is

chalcedony (secondary). Most are medium in size, with the exception of the primary chert flake, which is large, and one of the interior quartzite flakes, which is small.

Plate 7.15. 5ME6398, artifact on left collected during 1990 site recording and artifact on right, recorded during current project.

Locus 2, which measures 15m in diameter, is composed of five thermal features (Features 1-5), eleven flakes, and three pieces of angular shatter (chert). The features are likely deflated hearth features, but may represent roasting pits. Based on surface examination, they do not appear to have potential for radiocarbon dating. All eleven flakes are chert and all but one, a secondary flake, are interior. Additionally, two are medium in size and the remainder are small. Based on their proximity, they may represent the final stages of tool manufacture or maintenance. One of the pieces of angular shatter was located within Feature 1 and exhibited signs of heat-treating; although it is not clear if the heat-treating was intentional.

The trash dump consisted of entirely of domestic items. Metal cans, broken bottles, and household items (many of which are attributed to a woman and child) were present. Noteworthy items include fragments from a porcelain gun and doll's face. A container likely used for talc, ladies insoles, and a possible piece of what appears to be a part of a lady's feminine hygiene product were also located, as were cooking supplies such as food and beverage containers, baking powder tins, canning jars/ lids and porcelain china fragments. Several diagnostic items were found. A Kerr lid was located, fashioned for their popular Kerr Economy jar, which date from around 1904 to ca. 1920 (Whitten 2005.). The wide-mouth lid is stamped with *ECONOMY JAR / KERR GLASS MFG CO.* Kerr was the first manufacturer to commercially produce wide mouth jars. Also located were baking powder lids embossed with *DR. PRICE'S PHOSPHATE BAKING POWDER / 12 OZ,* which was manufactured after 1919. Prior to 1917, the baking powder was sold under the name *Dr. Price's Cream Baking Powder* (White 1921:50–51). The last item is a porcelain plate back stamped with *Made in Japan*. This indicates the plate was likely manufactured between 1921-1941, as plates imported between 1891 and 1921 were stamped *Made in Nippon* and plates manufactured during WWII were stamped *Made in Occupied Japan*. There was no maker's mark present.

Evaluation and Management Recommendation

The site was declared officially eligible in 1990. The current project concurs with that evaluation under Criterion D, the site may yield information important to the history and/or prehistory of the area. Protection and preservation are recommended.

Site **5ME6795**, a prehistoric sheltered camp, is located in a narrow side canyon that leads north to Deer Creek. Elevation is 5040 feet. Vegetation is pinyon and juniper. Soils are a fine, sandy, tan loam. The nearest permanent source of water is the Gunnison River, located just over one mile southwest of the site. Ground visibility is 70 percent.

The site was originally recorded in 1991 by Michael Piontkowski with the Bureau of Land Management. The site consisted of a complete ceramic pot and a metate located and collected by local hikers. They took the artifacts to the Museum of Western Colorado. When Piontkowski visited the site, he did not locate any other artifacts, nor did he see potential for such in the shallow soils. Because artifacts were removed from the original location, the site was considered totally disturbed. The pot was identified as Uncompahgre brown ware.

The current project visited the site location and discovered that the original OAHP boundary is misplotted. Using photographs taken during the initial recording, the confirmed site location was replotted 100 meters north. There are no changes to the condition of the site and no artifacts or features were observed during an exhaustive search. Uncompahgre brown ware has been broadly dated between AD 1000 and AD 1880 (Reed 1995:120).

Evaluation and Management Recommendation

The site was field evaluated as not eligible in 1991. The site is lacking all aspects of integrity and possesses no recognizability as a prehistoric site. Accordingly, it is field evaluated as not eligible for listing on the NRHP. No further work is recommended.

Site **5ME7306** is a prehistoric open camp located on a series of rolling ridges that overlook Little Horsethief Creek, which is located 220m northeast of the site. Elevation is 5910 feet. The low ridges are sagebrush-covered and the intervening washes have pinyon-juniper woods. Ground visibility is 75 percent. Soils consist of rocky, sandy loam formed from residuum and colluvium derived from weathered sandstone and shale. The nearest source of permanent water is the Colorado River, located over 3.5 miles west of the site.

The site was originally recorded in 1994 by Carl Conner and Barbara Davenport with Grand River Institute. At that time the site measured 260m N-S by 200m E-W. It was originally described as follows (1994 OAHP site form):

> A relatively low density of chipped- and ground- stone artifacts extends over most of the site area, concentrations occur in areas with related fire-cracked rock. Three projectile points/fragments were recovered from the site: a Late Archaic corner-notched type, a round-based unnotched, and a late prehistoric corner-notched type (Figure 7.1). The Middle-Late Archaic point is stylistically similar to Buckles (1971:1220) Type 23 that he associated with the Roubideau Phase, dated 3000 to 500 BC. The other two points are apparently associated with the Protohistoric/Historic Ute occupation of the region. Found in association with these two were obsidian flakes and a biface fragment (that could have been a point fragment). Included in the site area is a rock-outcrop

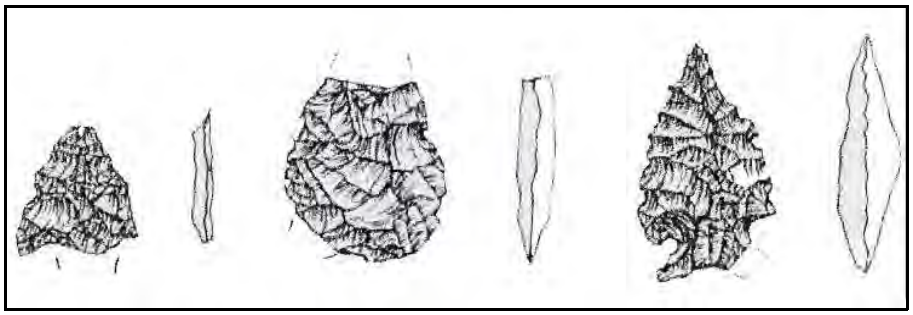


Figure 7.1. Projectile points from 5ME7306, original 1994 recording (.s1, .s2, and .s3, left to right).

locality that faces east. It consists of a low ledge against which is a concentration of fire-cracked rock, cobble fragments and debitage within a 3m diameter area. From the generally small size and number of the lithic debitage and the occurrence of a relatively high number of points and tools, the remains apparently represent habitation and workstation localities within a larger site area.

The current project revisited the site and confirmed the accuracy of the site boundary. The site was as previously described. A newly recorded diagnostic artifact (Plate 7.16) was recorded that is similar to others previously recorded on the site. The newly recorded point is possibly a preform and it is also similar to the Cottonwood Triangular type, which dates post AD 1300 in Numic sites (Holmer 1986:106).

Plate 7.16. Projectile point from 5ME7306.

Eligibility and Management Recommendation

The site was deemed officially eligible for listing on the NRHP on 27 March 1995. The site has added to the known prehistory of the area and possesses the potential to yield additional important information (Criterion D). Accordingly, the current project concurs with the official determination of eligible for listing on the NRHP. Protection and preservation are recommended.

Site **5ME8047**, a prehistoric rock art panels and sheltered architectural, is located on a west facing slope of Long Mesa. Elevation is approximately 5640 feet. Vegetation is juniper, cheatgrass, and snakeweed. Soils are light brown, silty sand. The nearest water is an unnamed intermittent drainage located 30m to the southeast. The nearest permanent water is a spring located 1220m to the southeast. Ground visibility was 90 percent.

The site measures 40m east-west by 55m north-south and was originally recorded in 1995 by C. Graham, N. Woelfel, and R.A. Varney with Metcalf Archaeological Consultants. It was originally described as follows (1995 OAHP site form): “This particular site consists of three elements: 1. Feature 1, a four meter diameter area cleared of basalt boulders; 2 Two large

1 meter diameter basalt boulders containing abstract petroglyphs on multiple facets; 3, a scatter of lithic artifacts."

Feature 1 consists of a circle formed of basalt rocks that measures roughly 4-5m in diameter and appears to be the collapsed walls of a structure. The interior of the feature is cleared of all rocks and contains only a concentration of lithic debitage and a projectile point.

Approximately 125 flakes were observed, primarily chert. Quartzite, porcellanite, and chalcedony were also present. All of the flakes were micro to medium in size. Additionally, most flakes were interior; however, primary and secondary flakes were also recorded. Within the concentration was a uniface, formed from a large, chert, interior flake. The projectile point is a small side-notched point, made of chalcedony, that has a slightly convex basal shape (Plate 7.17). It compares well with the Bear River Side-notched type, a Fremont type found mainly in Northwest Utah and having associated dates of AD 750-1350 (Holmer and Weder 1980:57-60). Feature 2 is a circle formed with basalt rocks that measures roughly 8m in diameter. It contains larger basalt rocks than in Feature 1, and there is roughly a 2m open area in the center. These features are likely the remnants of Formative Era structures.

Plate 7.17. Projectile Point from 5ME8047.

Flakes are scattered throughout the site area, but mainly on the bench to the north and west of the two rock features. Two cobbles were located that may have been used as rubbing stones. The first is formed from green fine-grained quartzite, and has worn surfaces and edges. The second is formed from dark gray fine-grained quartzite, and shows obvious utilization with a flake scar and an abraded surface.

The rock art is found on boulders to the south of the rock circles and consists of geometric petroglyphs associated with Archaic - Formative Era Abstract/ Geometric Tradition (dating 4000 BC to AD 1000). It is possible the petroglyphs may be very old despite light patination color (Cole: 2011:4-19). For the present report Cole describes the site as:

> Panel 1 comprises exposed facets (top and sides) of a boulder on the south slope of a low ridge in piñon-juniper forest. Two petroglyph boulders (Panel 2 reported in 1995 and Panel 3 reported 2014-2015) lie above and below Panel 1, respectively. The three boulders are situated along a 340° line (10° compass declination). Features 1 and 2 (boulder/rock structures, lithic concentration, and surrounding lithic scatter) are on the ridge above, approximately 8m N of Panel 2 and within the same general alignment. Dots and interconnected linear motifs composed of straight and curved lines including circles (one with a dot in the center); figure-8s; vertical, parallel lines attached to a horizontal "edge" line; and a circle with radiating lines.
>
> Panel 2 petroglyphs are on the top and side facets of a basalt boulder lying below the rim of a low ridge in piñon-juniper forest. Two petroglyph boulders (Panel 1

reported in 1995 and Panel 3 reported 2014-2015) are south of Panel 2. The three boulders are situated along a 340° line (10° compass declination). Features 1 and 2 (rock structures, lithic concentration, and surrounding lithic scatter) are on the ridge above, approximately 8m N of Panel 2 and within the same general alignment. A complex of interconnected linear-circular motifs and isolated motifs composed of straight and curved lines; circular form with dot in center (similar to motif in Panel 1).

Panel 3 petroglyphs are on exposed, upper facets of a boulder near the southern base of a low ridge in piñon-juniper forest. The grade of slope at the north end is 16°; 12° at the south end. Two boulders with previously recorded petroglyph Panels 1 and 2 lie north of Panel 3. The three boulders are situated along a 340° line (10° compass declination) at distances of approximately 4m and 6m, respectively, from Panel 3. Feature 1 and Feature 2 (rock structures, lithic concentration, surrounding lithic scatter) are on the ridge above and within the same general alignment. A two-track road is approximately 15m south of Panel 3 (see site plan and photographs). Interconnected linear motifs/designs; a rayed-circle, "chains" of connected circular/rectangular forms with attached lines.

Panel 1 (and Panels 2 and 3) are stylistically attributed to the Abstract-Geometric rock art tradition closely associated with Archaic hunter-gatherers of the Great Basin and attributed to regional Archaic of the Uncompahgre Plateau and Rocky Mountains. Similar and presumably related expressions continued into the Formative era (Cole 1999, 2009; Schaafsma 1971).

It is not clear that all petroglyphs in the three panels are culturally contemporaneous but most elements probably originated during the Archaic. Some relatively lightly-repatinated petroglyphs in Panels 1 and 2 may date from the Formative period. The north-south boulder/petroglyph alignment and more general alignment with Features 1-2 probably developed over time and were traditionally and ritually significant. Prehistoric alignments with proposed cosmological/calendric functions occur at a range of Pueblo II-Pueblo III sites (Lekson 2008; Williamson 1987) and a possibly related rock construct exists at the contemporaneous Turner-Look Fremont site (Wormington 1955).

Stylistic-cultural and landscape relationships for 5ME8047 indicated by sites with obviously similar petroglyphs elsewhere in the Gunnison River drainage (5DT355, 5ME164, 5ME217, 5ME27), along the Colorado River to the east (5GF311), and in the Uncompahgre River drainage to the south (5MN5, 5MN7). Further work includes test site for chronology and cultural affiliations of Panels 1-3 and Features 1-2.

Evaluation and Management Recommendation

The site was declared officially eligible in 1999. The current project concurs and reevaluates the site as eligible for the NRHP under Criterion A (for its contribution to the broad pattern of history), Criterion C (it possesses high artistic value and is representative of the

aesthetic values of a cultural group), and Criterion D (has added to known styles of rock art designed by Archaic Era cultures). Protection and preservation are recommended.

Site **5ME11675** is a prehistoric open camp situated on a south facing slope within a dense stand of juniper. Elevation is 6380 feet. Vegetation on the site is comprised of juniper, cheatgrass, cactus, and bunch grasses. The nearest water is an intermittent drainage, Sink Creek, located 10m west of the site. Soils are a light brown, silty, sandy soil.

The site was originally recorded in 1998 by Jack Pfertsh, L. Morlock, and E. Carlson with Alpine Archaeological Consultants, Inc. It measured 47m E-W by 35m N-S and was originally described as follows (1998 OAHP site form):

> The site consists of a scatter of lithic artifacts consisting of a total of 43 pieces of debitage, a utilized flake, and a Desert Side-notched projectile point (Figure 7.2) ....No cultural features were identified within the boundaries of the site, but the debitage and stone tools suggest the site may have functioned as a faunal processing area. The two concentrations recorded on the site (Concentrations 1 and 2) are located in the areas naturally devoid of vegetation.

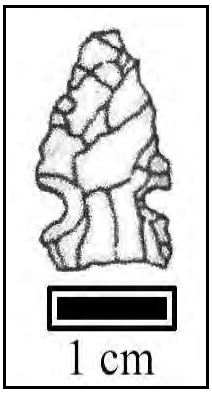


Figure 7.2 5ME11675, Small side-notched recorded in 1998.

The site was revisited in 2007 by Matt Landt and Robert Flemington with Alpine Archaeological Consultants, Inc. No flakes were relocated within Concentration 1. Five flakes were relocated within Concentration 2.

The current project relocated the original site datum and although no artifacts were located within the previous site boundary, artifacts were located in close proximity, but in a separate locus and apparently (based on diagnostic artifacts) an earlier occupation. The site currently measures 120m SE-NW by 75m SW-NE. The artifacts newly recorded consist of a concentration of ceramics, two concentrations of flakes, two hammerstones, and seven flakes mapped separately from the concentrations.

Twenty-four ceramic sherds were found in a concentration (#1) in Locus 2 as well as three others (#2) in a separate portion of that locus (Plate 7.18, Figure 7.3). Rim and body sherds of the larger concentration compared well with the neckbanded Mancos Corrugated ceramics, which date ca. AD 850 - 975 (Wilson and Blinman 1995: 42, 69). This is the basis of the assumption that the site contains two cultural horizons: a Late Prehistoric (Early Numic) represented by the small side-notched projectile point in Locus I, and a late Pueblo I - early Pueblo II occupation indicated by the Anasazi ceramics in Locus II.

Next to the larger concentration of ceramics are approximately 40 small, chert, interior flakes, in an area measuring 5m in diameter. Directly associated with the ceramics and flakes

are two quartzite hammerstones, both battered on one end and three chert interior flakes located separate from the concentration.

Four flakes are located southeast of the road. These consist of a large, utilized, primary flake; a large, siltstone, core rejuvenation flake, a medium sized piece of chert angular shatter, and a medium sized, chert secondary flake.

Plate 7.18. Sample (FS1) of ceramic sherds from 5ME11675.

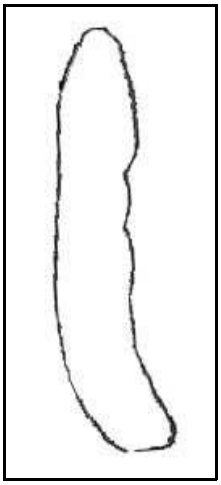


Figure 7.3 Rim profile of ceramic sherd, 5ME11675 (not to scale).

Eligibility and Management Recommendation

The site was deemed officially not eligible on 24 June 1998. The site has yielded information and may yield additional information regarding the Late Formative period (Criterion D); and therefore, is field reevaluated as eligible for listing on the NRHP. Thermoluminescence dating of ceramics should be conducted to add to our knowledge of the Formative Period. Protection and preservation are recommended.

Site **5ME12819**, a multicomponent prehistoric open camp and historic trash scatter, is located on a hill slope on the west side of Alkali Creek. Elevation is approximately 5760 feet. Vegetation has been altered recently due to wildfire and presently consists of dead pinyon and juniper trees, greasewood, and cheatgrass. Ground visibility is 20 percent due to dense grasses. Soils are a rocky, light gray-brown silty clay. The nearest source of permanent water is Alkali Creek spring, located 0.5 miles northwest of the site in Alkali Creek.

The site was originally recorded in 2001 by Robert Dello-Russo and Patricia Walker-Buchanan with Grand River Institute. It was originally described as follows:

> Prehistoric artifacts are dominated by lithic reduction flakes including retouched flakes, biface flakes, sharpening flakes, cores, and tools....Although limited numbers of artifacts were found, reduction stages present suggest that both tool manufacture and maintenance activities occurred at the site. One Cottonwood Triangular projectile point indicates a Late Prehistoric-to Historic period occupation. The historic component is limited to a sparse trash scatter including a solder-dot can, a lard bucket, a one pound coffee can, and possibly a baking powder can which has a key opener type, press-on lid....Because there are juniper stumps in the area, it is suggested that the historic trash was left at this site during a wood-cutting episode.

The site was relocated, mapped, and photographed. The only prehistoric artifact relocated is a sandstone cobble mano fragment exhibiting unifacial grinding and pecking. None of the previously recorded lithics were visible. Many of the historic materials were still present. One of the bean cans was opened with a geared (rotary) opener. Geared openers were commonly used after 1925.

During the original documentation, recorders noted that the artifacts were mostly buried and suspected that additional buried materials were likely present. Since that recording, a wildfire has burned through the area. This has apparently exacerbated the soil movement and may explain why no artifacts, with the exception of a single mano, were currently visible on the surface. It is presumed they are now buried within the soil matrix.

Evaluation and Management Recommendation

The site was declared officially needs data in 2001. Buried cultural materials could be present which may add to the prehistory of the area. Accordingly, the site remains evaluated as needs data under Criterion D; more information is needed before a final determination of eligibility for listing on the NRHP can be made. Testing could determine if there is additional information potential. Until evaluative testing can be conducted, the site should be avoided and protected.

Site **5ME12820**, a prehistoric open camp, is located on a small ridge above and to the south of Alkali Creek. Elevation is approximately 5750 feet. Vegetation is pinyon and juniper with a sagebrush understory. Ground visibility is 65 percent. Soils are a rocky, light tan, silty loam. The nearest source of permanent water is 0.4 miles northwest of the site at the Alkali Creek spring.

The site was originally recorded in 2001 by Robert Dello-Russo and James M. Conner with Grand River Institute. It was originally described as follows:

The site consists of two relatively distinct scatters of flaked stone artifacts, where the northern scatter also includes one ground stone mano fragment and the southeastern scatter also includes one possible hide polishing stone, a cluster of 10 gray ware ceramic jar sherds (which were collected, Plate 7.19), and a small cluster of fire-cracked rock which may represent the remains of a hearth feature. The artifact assemblage suggests that the site functioned as an open camp where lithic reduction, lithic tool manufacture, and/or maintenance, possible hide preparation, and possible vegetal processing occurred. The gray ware ceramic sherds compare favorably to Emery Gray (ca. AD 700-1200; Brunswig et al. 1995:92).

Plate 7.19. Previously collected ceramic sherds from 5ME12820.

The current project relocated, mapped, and photographed the site. It is in the same condition as originally reported. Additional Emery Gray ware ceramics were also recorded. In addition to the sherds, a cobble sandstone mano fragment was located exhibiting unifacial pecking and grinding; a maroon quartzite hammerstone; a large, Missippian chert scraper, and fifteen flakes were recorded. Eight of those are chert (five small to medium interior, two secondary, and one large secondary); four porcellanite (two medium and large primary, one large secondary, and one small interior); and three quartzite (one large primary, one extra large interior, and one small interior).

Evaluation and Management Recommendation

The site was declared officially needs data in 2001. The site has yielded information and may yield additional information regarding the Late Formative period (Criterion D); and therefore, is field reevaluated as eligible for listing on the NRHP. Thermoluminescence dating of the ceramics should be conducted to add to our knowledge of the Formative Period and Fremont people. Additionally, protection and preservation are recommended.

Site **5ME12821** is a prehistoric open camp and recent historic post procurement area. It is located on a small ridge above and to the south of Alkali Creek. Elevation is approximately 5750 feet. Vegetation is pinyon and juniper with a sagebrush understory. Ground visibility is 65 percent. Soils are a rocky, light tan, silty loam. The nearest source of permanent water is the Alkali Creek spring, located approximately 300m north of the site.

The site was originally recorded in 2001 by Robert Dello-Russo and James Conner with Grand River Institute. The resource was characterized as two prehistoric open flaked stone artifact scatters on two small benches along the northeast slope of a tree-covered hill and a series of ax-cut fenceposts stacked against living juniper trees on a steep north-facing slope. The fencepost stacks were associated with many ax-cut stumps, partially ax-cut living trees, and piles of slash (trimmed branches).

The current project relocated the site to investigate the poles and confirm that they were historic in nature. The original characterization appears correct, and the posts were being cut and utilized as fence posts. No prehistoric or historic Ute affiliation to the posts is evident. Although the prehistoric component was not revisited with this project, the OAHP site boundary was observed to be incorrect and has been updated to encompass the entirety of the site based on the 2001 recording.

Evaluation and Management Recommendation

The site was declared officially not eligible in 2001. The current project concurs with the previous evaluation of not eligible. No further work is necessary.

Site **5ME13959**, a prehistoric open architectural, is situated on the crest of a broad, eroded, northwest facing ride which extends from the western flank of Horsethief Mountain. The north boundary of the ridge is defined by the incised drainage basin of the headwaters of Little Horsethief Creek. Elevation is 5880 feet. Vegetation is a juniper forest with a sparse understory of sage, grasses (mostly cheatgrass) and prickly pear cacti, with sego lilies and wild onion along the edge of a sage park. Ground visibility is 75 percent. Soils are gray-brown, silty sands with sandstone clasts. The nearest source of permanent water is the Colorado River, located nearly 4.0 miles west of the site.

The site was originally recorded in 2003 by Patricia Walker-Buchanan and Robert Dello-Russo with Escondida Research Group, LLC. In 2003, the site was described as 60 lithic reduction flakes, four fragments of groundstone, a possible hammerstone, and a possible wickiup pole. It was reevaluated in 2006 by S. DiCenso, C. Story, and A. Nelson with Metcalf Archaeological Consultants, Inc. It was reevaluated again in 2007 by James Conner with Grand River Institute. The reevaluation conducted in 2007 recorded a concentration of fire-cracked rock with associated burnt faunal remains.

The site was relocated and photographed. The site boundary was expanded to the west and remapped due to the extensive amount of new materials located. The current boundary measures 115m E-W by 100m N-S. Currently, the site is described as having three features. Feature A, which was previously recorded, is a collapsed utility pole. A unifacially ground sandstone metate, a tested fine-grained quartz cobble, a tested coarse-grained quartzite cobble and eleven chert interior flakes (micro to medium in size) were located within close proximity to Feature A. Feature B is a slab lined feature composed of five upright slabs in an area measuring approximately four meters in diameter. Feature C is a hearth feature consisting of

fire-cracked rock and associated burnt bone. A flat quartzite pebble exhibiting edge battering, four micro to small sized chert interior flakes and a piece of angular shatter were associated with the thermal feature.

Scattered throughout the remainder of the site are the following artifacts: a Desert Side-notched chert projectile point (FS3), a chalcedony projectile point tip (FS1), a brown chert biface that may represent a Paleoindian era lance point fragment (FS2), a quartzitic basin metate with unifacial grinding, approximately 30 flakes, two pieces of angular shatter, and a hole-in-cap can (Plate 7.20). Desert Side-notched points are commonly found on Numic sites in the Great Basin and Intermountain West, and date from about AD 1300 to 1750 (Reed and Metcalf 1999; Kornfeld et al. 2010:131, 135). The blade of a likely a Pryor Stemmed (8300-7800 BP, Kornfeld et al. 2010:102), a Late Paleoindian point type; however, Paleoindian points have been found on Historic Ute sites throughout western Colorado and were apparently being curated and used as knives (Conner et al. 2011). The hole-in-cap can appeared to have uneven solder along the can seam, which indicates it may have been produced prior to 1880 (Horn 2005). The flakes are chert (23), porcellanite (2), quartzite (2), and chalcedony (1). Two anthills were also recorded, both of which contained chert microflakes. Activities at the site likely consisted of short term camping and food preparation, and final stage lithic reduction and/or tool sharpening activities.

Plate 7.20. Site 5ME13959 diagnostics: projectile point tip (FS1), Pryor Stemmed blade/tip section (FS2), Desert Side-notched point (FS3).

Eligibility and Management Recommendation

The site was deemed officially eligible for listing on the NRHP on 23 June 2008. The site is not associated with a person or event important to history (Criteria A and B) nor does it embody a distinctive type, period, or method of construction (Criterion C). The site has added

to the known prehistory of the area and possesses the potential to yield additional important information (Criterion D). The current project concurs with the determination of eligible for listing on the NRHP. Protection and preservation are recommended.

Site **5ME15003**, the Little Alkali Creek Wickiups, is located on a southeast facing bench off the nose of Creek Mesa, east of Alkali Creek and west of Little Alkali Creek. Elevation is 5980 feet. Vegetation is juniper forest with an understory of sparse grasses. Soils are residual loam and estimated to measure 20 to 30cm. The nearest source of permanent water is an unnamed spring located in Alkali Creek, a half a mile west of the site. Ground visibility is 90 percent.

The site was originally recorded in 2006 by Andrea Brogan with the White River Forest Service. It was described as three wickiup structures, two hearths, and one flake concentration located within a 15m square area. The wickiups exhibited ax-cuts, indicating use of post-contact metal tools.

The wickiups were revisited as part of this project to check on their condition. No changes from the previous recording were noted.

Evaluation and Management Recommendation

The site was declared officially eligible in 2007. The current project concurs with the previous evaluation. Protection and preservation are recommended.

Site **5ME16103** is a small prehistoric open camp located on a bench above an unnamed drainage approximately one third mile east of Shire Gulch and north of the Sunny Side Road. The site is at an elevation of 6040 feet and the vegetation is old growth pinyon/juniper forest. The residual soils within the site are a light tan, silty sand with scattered small slabs and chunks of sandstone and pockets of duff surrounding the trunks of trees.

The site was originally recorded in August 2007 by Carl Conner with Grand River Institute. It was originally described as follows (OAHP site form):

> A total of six flakes are scatted in a north-south line in a clearing between a large juniper tree on the north and several slightly less mature juniper and pinyon trees to the west along the edge of the bench. These consist of five small tertiary flakes of opalitic chert and one medium secondary flake of porcellanite. No thermal or architectural features were observed. From the material recorded the site was likely of short-term use, and functioned as a tool or projectile point sharpening locality. Its location in the mature forest and adjacent to and above a drainage makes for an ideal setting for hunting activities.

The current project revisited the previous site area and observed two thermal features located within a disturbed area adjacent to this site. These were likely uncovered due to prior energy work along the roadway (pipeline construction). Due to the proximity of the newly recorded cultural manifestations to the previously recorded site, the site boundary was expanded to the southeast to encompass those features. The new boundary measures 20m E-W by 10m N-S. Feature 1 consists of charcoal, FCR, and ashy soils. It measures 1m x 0.5m. Feature 2 consists of charcoal, FCR, and ashy soils and measures 1.5m by 1m. A medium-sized, chert interior flake was found associated with Feature 2.

Evaluation and Management Recommendations

The site was deemed officially not eligible on 23 June 2008. Data from the features may be salvaged and may yield additional information regarding the prehistory of the area. Accordingly, it is field reevaluated as needs data under Criterion D; more information is needed before a final determination of eligibility for listing on the NRHP can be made. Testing could determine if there is additional information potential. In consideration of future surface disturbing activities, should the integrity of the site be threatened by a federal undertaking additional measures should be taken to test the site and make a final determination of eligibility.

Site **5ME16783**, a prehistoric sheltered camp, is located on a ridge to the east of Shire Gulch. Elevation is approximately 6040 feet. Vegetation consists of a pinyon and juniper woodland and a sparse understory of sagebrush and grasses. Soils are colluvial and residual deriving from sandstone, shale, limestone, or siltstone and consist of tan/gray, sandy loam with small rocks. The nearest source of permanent water is Plateau Creek, located 4 miles south of the site. Ground visibility was 40 percent.

The site was originally recorded as an isolated feature in June 2009 by Jim Miller, Dakota Smith and Dana Archuleta with Grand River Institute. The feature was described as follows (OAHP site form):

> The isolated thermal feature was exposed eroding from the shoulder of Sunny Side Road. A 1 x 2 meter grid was laid out over the feature and a plan view was drawn. Collected from the surface, prior to excavation of the feature were two pieces of lithic debitage; a gray opalitic chert utilized flake and a pink opalitic chert tested shatter flake.
>
> The feature consisted of an amorphous ash stain measuring approximately 2 meters east-west by 1 meter north-south. A few fragments of oxidized sandstone were observed in association with the deflated ashy deposits. Thirteen thinning flakes, all opalitic chert and ranging in size from medium (1) to small to micro (12) were discovered in screened feature fill from 20 to 30cm below present ground surface. The feature fill was salvaged and site boundaries were estimated to cover an area measuring approximately 10 meters in diameter. The collected feature fill was sent to Beta

Analytic for processing; the fill produced a conventional date of 2130 ± 90 BP, Cal 390 BC to AD 60 (Beta #267650).

The current project located additional artifacts and features within close proximity to the salvaged feature, and as a result, expanded the site boundary to 30m E-W by 17m N-S. Cultural materials are located on a sandstone boulder outcrop. Feature 1 is a small (0.5m by 0.5m) area of ash stained soil with an associated mano fragment. The mano is a shaped cobble with bifacial grinding. No charcoal was evident on the surface. Feature 2 is also a small (20cm by 30cm) area of ashy soils and small pieces of FCR. Charcoal is present and it appears to have good potential for radiocarbon dating. Additional artifacts include a basalt mano with bifacial grinding, two small, chert interior flakes and a single small, quartzite secondary flake. The three flakes are in close proximity to Feature 2.

Evaluation and Management Recommendation

The resource was initially recorded as an isolated feature and field evaluated as not eligible. It is uncertain whether the newly recorded features contain data that could provide a radiocarbon date. If so, it may have the potential to add significant information regarding the prehistory of the area. Accordingly, it is field reevaluated as needs data under Criterion D; more information is needed before a final determination of eligibility for listing on the NRHP can be made. Testing could determine if there is additional information potential. Until evaluative testing can be conducted, the site should be avoided and protected.

Site **5ME17115**, a multicomponent prehistoric sheltered camp and historic hand-toe-holds, is located in a south facing drainage area surrounded by sandstone slickrock cliffs. Elevation is approximately 4560 feet. Vegetation is juniper, snakeweed, and various forbs and grasses. Soil is a fine, sandy loam consisting of alluvium and colluvium derived from sandstone. McDonald Creek, an intermittent drainage of the Colorado River, is located 20m south of the site. Ground visibility is 90 percent.

The site was originally recorded in 2010 by B. Shanks, A. Bredthauer, and M. Brown with Woods Canyon Archaeological Consultants, Inc. It was originally described as follows:

> The site is a series of steps cut or chiseled into a sloping sandstone cliff to allow access up the slickrock face. Feature 1 is a 20' tall x 0.5' wide series of 8 or 9 chiseled or cut 6" x 6" x 3" deep steps in the slickrock cliff. The steps are almost exactly in a vertical line and are generally spaced 2' apart. No historic artifacts were observed near the site. Axe-cut limbs and charcoal are at the base of the cliff but this appears to be a heavily used contemporary camping location. These steps date to the Unknown Historic period. The steps are heavily patinated and eroded. The graffiti at the base of the cliff is also heavily eroded suggesting rock spalling and that the steps are unlikely to be prehistoric based on the degree of stone erosion. It is possible that the steps date to a more recent period, within the last 50 years.

The site form indicates that the site was field evaluated as not eligible for listing because "it lacks integrity, chronometric controls, and data likely to contribute information important to our understanding of regional prehistory. Recordation has exhausted the site's data potential."

The current project relocated, mapped and photographed the site. New artifacts and features were located and as a result, the boundary was expanded to 100m NW-SE by 35m NE-SW. The previously recorded hand-toe-holds and rock art are designated Feature A. These are in the same condition as previously recorded. Prehistoric features and artifacts include a hearth (Feature B), a pot drop (Concentration A), and two concentrations of flakes (Concentrations B and C).

Feature B, a hearth eroding from a two-track cutbank, is located just west of Feature A (the hand and toe holds). It is 36cm below the present ground surface (bpgs) and may indicate the presence of stratigraphic separation of cultural layers. Pieces of thin sandstone slabs and other rocks are present, as are charcoal and ashy soils. Concentration A, a ceramic pot-drop consisting of 17 sherds, is southeast of Features 1 and 2. The sherds are consistent with Uncompahgre Brown Ware (Plates 7.21 and 7.22), dating to as early as AD 1000 (Reed 1995:120). This style of pottery is generally attributed to the early Ute culture.

Plate 7.21. Sample of pottery sherds from 5ME17115.

Plate 7.22. Profile view of pottery sherd from 5ME17115.

Concentration B is comprised of 60 flakes, 55 are chert and 5 are quartzite. The majority of the flakes are interior (75%) and secondary (25%). No primary flakes were noted. Concentration C is ten interior chert flakes. Located outside of the concentration areas are two small-sized chert interior flakes, one medium-sized chert primary flake, one medium-sized basalt interior flake, and three small-sized quartzite interior flakes.

Evaluation and Management Recommendation

The site was deemed officially needs data on 26 April 2011. Newly discovered findings have contributed to data regarding the Ute culture and the site may yield additional data

important to the prehistory and history of the area (Criterion D). Accordingly, it is field reevaluated as eligible for listing on the NRHP. Thermoluminescence dating of ceramics should be conducted to add to our knowledge of the Early Ute Period. Protection and preservation are recommended.

Isolated feature, **5ME17944**, is located on the edge of a flat area in the Salt Wash Member of the Morrison formation. There is a small, intermittent, drainage that runs at the bottom of the cliff to the south. It is a tributary of McDonald Creek, located 390m to the southeast. McDonald Creek in turn drains into the Colorado River, 3 miles downstream. Vegetation on the site is sparse juniper and some desert scrub plants, sagebrush, and buckwheat. There are some native grasses, Indian rice grass, and galleta grass. Soils are thin, sandy aeolian and residual materials with bedrock sandstone exposed; the soils are mostly pink sandy silt.

The feature was originally recorded in 2010 by Aline LaForge and Alissa Leavitt-Reynolds with the BLM. It was described as follows: "Rock pile #1 is ~22 sandstone rocks piled 3 courses high, the dimension of the pile is 1.36m x 1.2m diameter. Rock pile #2 is approximately 10 meters north of #1 and is nine rocks in a pile 0.98m x 0.77m diameter. These rocks are more slab shaped than the rocks at #1. There is no evidence of thermal use or other materials (wood or wire) associated with the piles."

The current project relocated, mapped, and photographed the feature. Rock Pile #1 could not be relocated. Rock Pile #2 appears as previously reported. There were no other changes to the site.

Evaluation and Management Recommendations

The site was field evaluated as not eligible in 2010. The current project concurs with that assessment and no further work is recommended.

Site **5ME17948**, a historic habitation/temporary camp, is located on the edge of a flat area where a rock outcrop creates a break in a slope overlooking McDonald Creek. Elevation is 4980 feet. Vegetation includes juniper, rabbitbrush, sagebrush, snakeweed, buckwheat, and Mormon tea. Soils are shallow (0-10cm) in the immediate area of the feature. McDonald Creek, an intermittent drainage, is located approximately 350m east of the site. When present, water flows from McDonald Creek, into the canyon and to the Colorado River, located almost 3 miles downstream. Ground visibility was 60 percent.

The site was originally recorded in 2010 by Aline LaForge and Alissa Leavitt-Reynolds with the BLM. It was described as follows:

...an isolated stone feature that was likely the base of a temporary shelter,

perhaps a canvas tent. The shape is a rounded square 10 feet by 11.5 feet. Age and cultural affiliation are unknown as the site has attributes of early tent bases but there are no historic artifacts associated. Previous surveys in the area have resulted in recording this same type of feature but all of them have had artifacts associated, the interpretation being that going to the trouble of establishing a semi-permanent shelter results in the loss, breakage or use and discard of an historic artifact. Limestone rocks were pulled from the slope below. The rocks generally sit on the surface but a few of the rocks have become imbedded in the ground. Shrubbery has grown through and over the rocks and based on the slow growth rate of desert shrubs and the lack of any historic artifacts that are always found with historic camps it could be posited that this site is protohistoric. The linear nature of the east wall of the feature however is unlike any Ute stone feature recorded in the project area. The only artifact located in the vicinity is a single secondary flake of red chert 2 meters to the southwest; there is no indication that it is associated with the feature.

The current project relocated, mapped, and photographed the feature. Since the 2010 recording, a campground has been established in the vicinity of the isolated feature. A gravel road passes within 32" of the northeast corner of the feature. The previously recorded flake could not be relocated, otherwise, the feature is as described in 2010.

During the revisit, a BLM employee was surveying locations for fence posts for a proposed fence around the campground location. The proposed post locations were mapped onto the newly created site map.

Evaluation and Management Recommendation

The site was declared officially not eligible on 16 March 2011. The current project concurs with that assessment. No further work is recommended.

Site **5ME19064**, an open architectural site, is located on a southwest-facing bench overlooking Alkali Creek. Elevation is approximately 5940 feet. Vegetation is pinyon and juniper trees with an understory of sparse grasses and prickly pear cactus. Ground visibility is 95 percent. Soils are a tan, stony loam composed of glacial till. The nearest source of permanent water is the Colorado River, located over 2.5 miles northwest of the site.

The site was originally recorded in 2012 by Curtis Martin and George Decker with Dominquez Archaeological Research Group. It was described as follows:

> The site consists of a single, standing wickiup (Feature 1) consisting of a total of eight freestanding juniper poles. Feature 1 was completely collapsed into a wheel spoke pattern on the ground surface when originally found by a non-archaeologist in the mid-1960s, but was reconstructed, *in situ*, from the

> collapsed poles to its current freestanding position. Although the format of the current structure is likely a close approximation of the original shelter, its particulars cannot be considered authentic. No axe or saw cut elements are in evidence.... An interior hearth is present in what is now the extreme south end of the floor, which consists of a 42 x 60cm ring of approximately 17 angular basalt fragments and several small fragments of surficial charcoal. An unmodified river cobble rests within the hearth. The hearth was trowel tested in two locations which produced a depth of approximately 10cm; no additional charcoal or ash, however, one small fragment of burnt bone and one highly deteriorated, un-burnt, epiphysial end of a mammal long bone were found immediately outside of the rock concentration on the east side. Several flakes were noted within the wickiup and a sparse to moderately dense flake scatter of chert and quartzite extends primarily to the west of the wickiup for an undetermined distance, concentrated mainly in a 20m diameter clearing to the northwest of the wickiup. An anthill containing microflakes and burnt bone fragments was noted approximately 23m to the northeast of Feature 1, near the center of the clearing. Several collectors' piles of debitage and burnt bone were noted atop rocks and fallen tree trunks on the site indicating that surface collecting has occurred in the past. No diagnostic artifacts were found, however, George Decker's son found a "small bird point" just to the west of the hearth at Feature 1 in 1992; presumably a Desert Side-notched point (personal communication). The entire area was metal detected with negative results (OAHP site form, 2012).

The current project relocated, mapped, and photographed the site. The wickiup and associated artifacts and feature were found in the same condition as originally recorded. The extent of the lithic scatter was mapped, increasing the site boundary to 120m by 70m. Lithics were sparse with approximately 20 flakes noted. The majority consisted of white orthoquartzite. Two were of chert. One newly recorded artifact, a bullet lead, was recorded less than 15 meters from the feature.

Evaluation and Management Recommendations

The site was field evaluated eligible in 2012. It is directly associated with the Ute culture and migration pathways through western Colorado (Criterion A), and embodies distinctive characteristics of the type, period, and method of construction of aboriginal wickiups (Criterion C). Additionally, the site contains *in situ* thermal features, faunal materials found in a cultural context, and the potential for subsurface cultural materials that may yield additional significant information to the prehistory of the region (Criterion D). It is for these criteria that the current project concurs with the previous findings.

Site **5ME19869**, a prehistoric open camp, is located south of the main drainage of Horsethief Creek and just west of a secondary tributary. The site area is located within a small

saddle at an approximate elevation of 5560 feet. Vegetation is mixed, with stands of Utah juniper, pinyon, and various grasses mixed with open sagebrush parks consisting of big sagebrush, black sagebrush, galleta, and blue grama. Ground visibility is 70 percent. Soil is a very fine, sandy loam formed from mixed eolian deposits. The nearest source of permanent water is the Colorado River, located 3.1 miles northwest of the site.

The site measures 290m E-W by 175m N-S. It is situated in a saddle area with a small prominence and an area of outcropping sandstone that forms a small rim edge. Artifacts are concentrated both above and below the rim, with a sparse scatter dispersed throughout the rest of the site. Chipped stone tools include seven projectile points (five of which are diagnostic), two unhafted bifaces, a butchering tool, two choppers and a retouched flake. Ground stone tools include eight manos/mano fragments. Debitage numbers 165. The majority of those flakes are tertiary (81%) and are composed of chert (52%). Porcellanite (29%), quartzite (14%), basalt (4%), and chalcedony (<1%) are also present. Small to medium flakes dominate, making up 79% of the assemblage. Concentrations of lithics were identified. Flake concentration (FC) 1 is the largest, measuring approximately 30m N-S by 15m E-W. Thirty-five flakes of chert, porcellanite, quartzite and basalt were recorded. Two manos (FS9 and FS10) and a biface (FS11) are associated with this concentration. FC 2-4 are much smaller in size,measuring less than 2m in diameter and consisting of fewer than 10 flakes each. A chopper is associated with FC 2.

A number of diagnostic projectile points were located (Plate 7.23). Specimen 3 (FS3) is a possible Foothill-Mountain projectile point dating ca. 7700-5400BP (Kornfeld et al. 2010:109-113). These points have been found on Historic Ute sites throughout western Colorado and were apparently being curated and used as knives (Conner et al. 2011). Specimen 12 is a large corner-notched type that compares well with Early Plains Archaic types found at the Looking Bill Site, dating ca. 7300-6400 BP (Kornfeld et al. 2010:84). Specimen 2 (FS2) compares well with points Buckles characterized as Horsefly Phase, dating to ca. 500 BC to AD 1 (1971:1220). Specimen 7 is a Uinta Side-notched point, dating AD 800 to 1200 (Holmer and Weder 1980:60). Specimen 8 is similar to Anasazi style Subtype S-41ca. AD 600 to 1250 (Blinman et al. 1988:74).

Two complete manos and six mano fragments were recorded on the site (Plate 7.24). Historic artifacts are also present at the site. These were concentrated in two trash scatters (TS). Trash scatter 1 consists of 8 can fragments and a green glass fragment embossed with the letter *A*. A collector's pile consisting of 20 flakes of a variety of materials was located at FC 1.

Evaluation and Management Recommendations

The site has yielded diagnostic artifacts from Paleoindian, Archaic, and Formative Eras. Additionally, the site may be likely to yield additional information regarding the prehistory of the area (Criterion D). It is field evaluated as eligible for listing on the NRHP. Protection and preservation are recommended.

Plate 7.23. Diagnostic artifacts from 5ME19869.

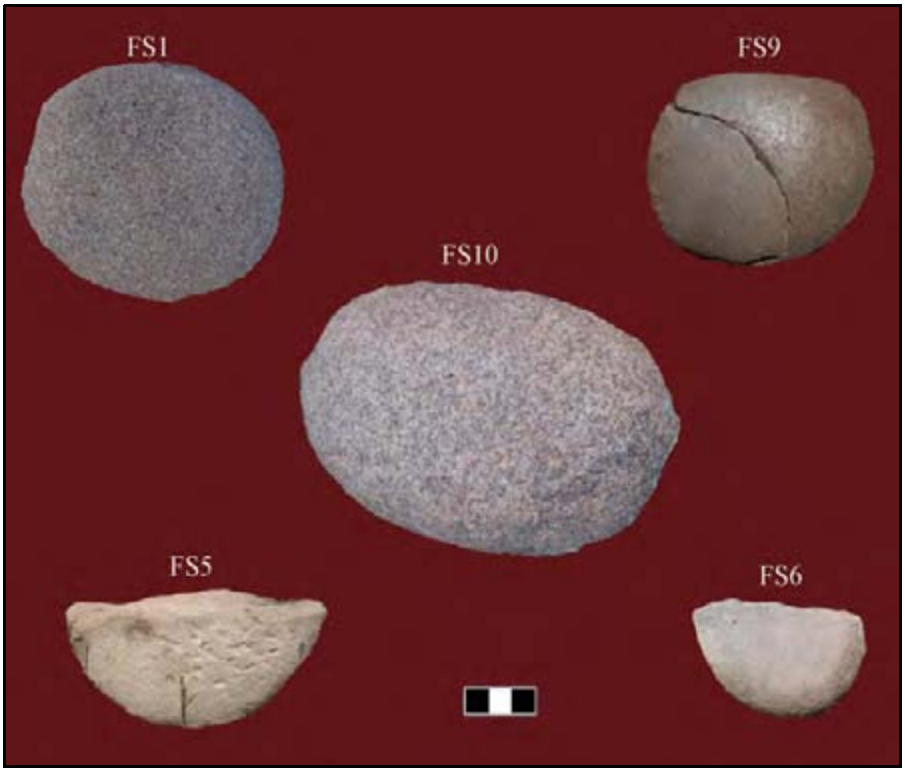


Plate 7.24. Examples of manos recorded at 5ME19869.

Site **5ME19870**, a prehistoric open camp, is located on a northwest facing slope of Grand Mesa. Elevation is approximately 5640 feet. An intermittent drainage tributary of Horsethief Creek is located adjacent to the south boundary of the site. Vegetation is pinyon and juniper trees with yucca, cactus, saltbrush, greasewood, and grasses. Ground visibility is 70 percent. Sandstone boulders are found outcropping on site. Soils are colluvium and residuum derived from sandstone and shale. Weathered bedrock is found within 20" of the surface. The nearest source of permanent water is the Colorado River, located 3.8 miles to the northwest.

Artifacts and features are sparsely dispersed in an area measuring 60m E-W by 105mN-S. A thermal feature (Feature A) was recorded on the south side of a large sandstone boulder. It consists of a basin shaped hearth. Charcoal is present and there is good potential for obtaining a radiocarbon date. Associated with the feature is a quartzite mano (FS1) and four flakes. Two additional manos were located north of the boulder area (Plate 7.25). These were formed from sandstone cobbles and exhibit bifacial grinding and pecking. A total of seven flakes were recorded and are composed of basalt, chert, quartzite, and porcellanite. All but one is a tertiary flake and all of them are small to medium in size.

A historic isolated find consisting of an 8" diameter section of stove pipe, was located in the vicinity of the site as well.

Plate 7.25. Ground stone at site 5ME19870.

Evaluation and Management Recommendations

The site is not associated with a person or event significant in history (Criteria A and B), nor does it embody distinctive characteristics of a type, period, or method of construction (Criterion C). Due to the presence of an *in situ* thermal feature which may yield additional

significant information regarding the prehistory of the area, the site is field evaluated as eligible for listing on the NRHP. Protection and preservation are recommended.

Site **5ME19871**, a prehistoric open lithic, is located on a toeslope between two tributaries of Horsethief Creek. Elevation is approximately 5640 feet. Vegetation is an open sagebrush park with a grassy understory. Stands of juniper and pinyon are visible surrounding the site. Ground visibility is 60 percent. Soils are clayey alluvium and residuum formed from Wasatch formation shales. Piute reservoir is located west of the site area. The nearest source of permanent water is the Colorado River, located 3.8 miles west-northwest of the site.

Artifacts are sparsely scattered in an area measuring 35m E-W by 75m N-S. They consist of two, small, chert biface fragments (Plate 7.25; FS1, FS2), three utilized flakes, eleven flakes, and two pieces of angular shatter. The flakes are all micro to medium in size and are primarily interior in reduction stage. Twelve of the flakes are chert, the other two are porcellanite.

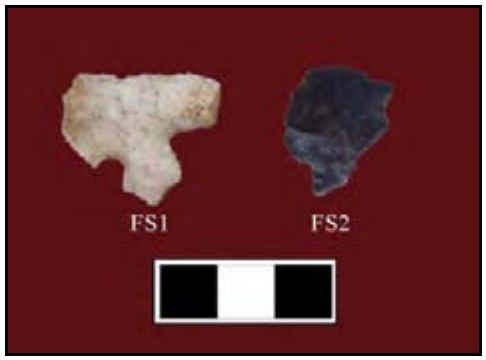


Plate 7.26. Projectile point fragments from 5ME19871.

Evaluation and Management Recommendation

The site is not likely to contribute additional information to the prehistory of the area (Criterion D). Accordingly, it is field evaluated as not eligible for listing on the NRHP. No further work is necessary.

Site **5ME19872,** a prehistoric open camp, is located on the southeast facing slope of Atwell Gulch. Elevation is approximately 6200 feet. Vegetation is pinyon and juniper forest with sagebrush and small bunch grasses. Ground visibility is 75 percent. Soils are shallow in areas of outcropping boulders and bedrock. Within the sagebrush park, soils are dissected, but may have accumulated by virtue of vegetal cover. Sage increases surface roughness and causes turbulent air flow; turbulent flow cannot maintain sediment in suspension. The result is broad scale, laminar deposition. Vegetal cover and depth of the deposits are important factors in the

continued aggradation of the deposits. The nearest source of permanent water is Plateau Creek, 3.8 miles south of the site.

Artifacts are sparsely scattered in an area measuring 140m E-W by 85m N-S. Formal tools include three chert projectile points (Plate 7.27), one unhafted chert biface, one chert drill fragment, three basalt manos, one quartzitic mano, approximately 20 flakes (three of which are biface thinning flakes), and three pieces of angular shatter. Specimen 4 (FS4) is a nearly complete, translucent chert, Desert Side-notched point, which are commonly found on Numic

Plate 7.27. Projectile points photographed at 5ME19872.

sites in the Great Basin and Intermountain West, and date from about AD 1300 to 1750 (Reed and Metcalf 1999; Kornfeld et al. 2010:131, 135). Specimen 5 (FS5) is similar to a Rose Spring Corner-notched, dating ca. AD 300 to 950 (Holmer and Weder 1980:60), but may be categorized as a Late Archaic stemmed. Specimen 6 (FS6) is a fragment of an undetermined type. The three basalt manos are bifacially ground and quartzitic one is unifacially ground (Plate 7.28).

Plate 7.28. Ground stone manos at 5ME19872.

Evaluation and Management Recommendation

The site is field evaluated as eligible for inclusion on the NRHP under Criterion D. It has yielded information important in prehistory, and it may possess the potential to yield additional significant information. Protection and preservation are recommended.

Site **5ME19873**, a prehistoric petroglyph panel, is located on the west bank of Atwell Gulch on a large sandstone boulder from the Wasatch formation. Elevation is approximately 6320 feet. Vegetation is pinyon, juniper, sagebrush, rabbitbrush, and grasses. Ground visibility is 90 percent. Soils are relatively shallow (4-20 inches to bedrock) and are composed of fine sandy residuum weathered from sandstone. The panel faces to the east. The nearest permanent water source is Plateau Creek, located 3.9 miles south of the site.

The site consists of a single element rock art panel located on the east face of a sandstone boulder. The site measures 20m in diameter and encompasses the boulder features and an area directly in front of the panel. The solid-pecked panel consists of six vertical lines, two diagonal lines, and one horizontal line. Similar motifs have been attributed to the Late Archaic - Formative Eras (1000 BC to AD 1000; Cole 1995:50).

Evaluation and Management Recommendation

The site is field evaluated as eligible for inclusion on the NRHP under Criterion A (for its contribution to the broad pattern of history), Criterion C (it possesses high artistic value and is representative of the aesthetic values of a cultural group, and Criterion D (it has yielded information about the Late Archaic - Formative Era, and it may possess the potential to yield additional significant information). Protection and preservation are recommended.

Site **5ME19874.1**, a historic fence, is located on the southeast facing slope of Atwell Gulch. Elevation is approximately 6240 feet. Vegetation is pinyon and juniper forest with sagebrush and small bunch grasses and cheat grass. Ground visibility is 75 percent. Soils are shallow in areas of outcropping boulders and bedrock. The nearest source of permanent water is Plateau Creek, 3.8 miles south of the site.

A boundary was established around the fence that measures 215m long and 7m wide. The eastern extent was fully mapped; however, the western extent continued on for an unknown distance. The fence varies in composition. The eastern half of the fence consists of three strand barbed wire that makes use of juniper trees and metal fence posts. The barbed wire is a typical style still in use today and no other diagnostic materials were located. No land patents were filed within the Section. Cultural affiliation is unknown but likely relates to historic sheep or cattle ranching. Numerous groups are known to have utilized the area for ranching, including Euro-American, Hispanic, Spanish and Basque.

Evaluation and Management Recommendation

The site has not been fully documented. The fence continues westward for an unknown extent. Additional portions of the fence may yield information important to the history of the area (Criterion D). In keeping with current Section 106 guidelines, the site is field evaluated as need data and the segment recorded herein is field evaluated as supporting of the overall eligibility of the site. Protection and preservation are recommended.

Site **5ME19875**, a prehistoric open camp, is located 350m west of Jerry Gulch, at the north end of Place Mesa. Elevation is approximately 6040 feet. Vegetation is juniper, sagebrush, and sparse grasses. Ground visibility is 70%. Soils are a loam formed from mixed eolian deposits. The nearest source of permanent water is Plateau Creek, located over 3.5 miles south of the site.

Artifacts and features are located in an area measuring 150m E-W by 50m N-S. The west side of the site, Locus 1, appears to have been an intensively utilized activity area, containing a thermal feature (Feature A), three concentrations of lithic debitage (Concentrations A-C) and areas of associated tools, ground stone, and lithic debris. The east side of the site, Locus 2, consists of a sparse scatter of tools and flakes.

Plate 7.29. Diagnostic artifacts from 5ME19875. FS1, a Desert Side-notched (bottom) and FS4, an Oxbow Complex (top).

Thermal Feature 1 is a hearth feature measuring less than 1m in diameter. Charcoal was present on the surface and it appears to have good potential for radiocarbon dating. Found near the feature is a projectile point (FS1, Plate 7.29), a mano fragment, and 12 interior flakes. The projectile point is a Late Prehistoric Desert Side-notched type, which are commonly found on Numic sites in the Great Basin and Intermountain West, and date from about AD 1300 to 1750 (Reed and Metcalf 1999; Kornfeld et al. 2010:131, 135). Of the flakes, one is a medium-sized, obsidian blade flake. Another obsidian flake was recorded as well.

Concentration A measures 8m x 4m. It contains 20 chert flakes, 30% of which are secondary and 70% tertiary. Associated with the concentration are burnt bone and a collector's pile with a quartzitic cobble mano (FS2, Plate 7.30). Concentration B measures 5m in diameter. It contains 10+ chert microflakes, two oxidized mano fragments, and a piece of fire cracked basalt rock. Concentration C measures 6m by 2.5m. It contains 10 flakes (four chert and six quartzite). Within Locus 1, but outside of the aforementioned concentrations, is a heavily ground and pecked sandstone cobble mano (FS3, Plate 28). The grinding is unifacial.

Locus 2 contains a projectile point (FS4, Plate 7.29), a mano fragment, and 28+ flakes. The projectile point is similar in style to Oxbow complex, dating to the Middle Archaic Era ca. 4500 - 3000 BP (Frison 1991:88). The mano is pecked and bifacially ground. One large obsidian flake and one small chert flake were utilized. The remainder of the flakes are chert (18), obsidian (2), porcellanite (3), and quartzite (3), and range from large to micro in size. All of the flakes are interior with the exception of one large porcellanite flake, which is primary.

The site has been disturbed by illicit collection. A collector's pile containing eight flakes and a quartzitic mano exhibiting bifacial pecking was recorded.

Evaluation and Management Recommendation

The site is field evaluated as eligible for inclusion on the NRHP under Criterion D. It has yielded information important in prehistory, and it may possess the potential to yield additional significant information due to the presence of diagnostic artifacts associated with the Middle Archaic period and the Numic culture, and by the presence of *in situ* thermal features. Sourcing the obsidian will likely add significant information relating to cultural movement and/or extra-regional relationships. Protection and preservation are recommended.

Plate 7.30. Complete ground stone manos, FS2 (top) and FS3 (bottom), at 5ME19875.

Site **5ME19876**, a prehistoric open lithic, is located along the slopes of Grand Mesa, south of Kannah Creek and east of Indian Creek. Elevation is approximately 5340 feet. Vegetation consists of greasewood, shadscale, and Indian ricegrass. Ground visibility is 60%. Soils are very stony, light tan colluvium. The nearest permanent water source, Kannah Creek, is located almost 2.5 miles northwest of the site.

Artifacts are located in an area measuring 50m E-W by 60m N-W. A concentration measuring 2m in diameter was recorded. It contained 9 interior chert flakes. Two utilized flakes were recorded: one small interior chert flake located within the concentration and one medium interior chert flake. Seven scattered flakes were also recorded. All of them are chert. Two are small secondary flakes and the others are small to medium tertiary flakes. Two anthills containing chert microflakes were also documented.

Evaluation and Management Recommendation

The site is field evaluated as not eligible for inclusion on the NRHP. The site possesses limited research potential based on the lack of diagnostic artifacts and features. In addition, the potential for buried cultural material is poor due to the shallow character of the natural deposits at the site. Accordingly, no further work is recommended.

Site **5ME19877**, a prehistoric open lithic, is located along the slopes of Grand Mesa, south of Kannah Creek and east of Indian Creek. Elevation is approximately 5340 feet. Vegetation consists of greasewood, shadscale, and Indian ricegrass. Ground visibility is 60%.

Soils are very stony, light tan colluvium. The nearest permanent water source, Kannah Creek, is located almost 2.5 miles northwest of the site.

Artifacts are located in an area measuring 20m in diameter. A concentration 40+ small, chert flakes was recorded in the center of the site in an area measuring 2.5m by 1.5m. Outside of the concentration a leaf-shaped biface was located (FS1, Plate 7.31). The biface exhibits heavy patination, which resembles iron or manganese varnish that forms over a long period and temporally places this artifact in the Archaic Era or potentially earlier. A deflated anthill with microflakes is also present on the site.

Plate 7.31. Biface from site 5ME19877.

Evaluation and Management Recommendation

The site is field evaluated as need data as it may possess the potential to yield additional significant information (Criterion D). Testing is recommended for a final evaluation.

Site **5ME19878**, a prehistoric open lithic, is located between two unnamed ephemeral drainages that flow north to Deer Creek, which in turn, drains west to the Gunnison River. Elevation is 5280 feet. Vegetation is shadscale, saltbrush, snakeweed, yucca, ricegrass, prickly pear cactus, and short sagebrush. Soils are a light brown, gravelly and rocky loam. Visual inspection indicates soil depth is less than 40cm. Ground visibility is 65 percent. The nearest source of permanent water is the Gunnison River, located 1.2 miles southwest of the site.

Materials are located in an area measuring 45m E-W by 80m N-S. Artifacts consist of three chert projectile points (Plate 7.32), a utilized quartzite flake, 38 flakes, and one piece of quartzite angular shatter. Specimen 1 (FS1) is the tip of a point and unidentifiable. Specimen 2 (FS2) is a Goshen Complex point type confirmed as a distinct Early Paleoindian type at the Mill Iron site (Frison 1988), that dates to ca. 11,000 BP (Kornfeld et al. 2010:77). Specimen 3 (FS3) is a Narrow Point Series type as identified by Metcalf and Reed (2011:133) and dating ca.7100-5900 cal BP. Lithic debitage consists entirely of quartzite flakes, nearly all of which are tertiary in the reduction sequence. They are primarily small to medium in size. It is likely that they represent the final stages of tool manufacture and/or repair, all of which were, in all likelihood, carried off with the occupants.

A two track forms the northwest border of the site. It does not appear historic in nature and does not appear on any historic maps of the area.

Evaluation and Management Recommendation

This site has added to our knowledge of the Paleoindian and Archaic Eras. Based on the presence of these artifacts the site is field evaluated as need data. Testing is recommended for a final evaluation.

Plate 7.32. Diagnostic artifacts from 5ME19878.

Site **5ME19879**, a prehistoric open lithic, is located on a south-facing rim edge overlooking McDonald Creek. Elevation is approximately 4600 feet. Vegetation is occasional pinyon and juniper, shadscale, ricegrass, cheat grass, snakeweed, Mormon tea, prickly pear and hedgehog cactus. Soils are reddish tan, sandy loam composed of colluvium derived from sandstone and/or residuum weathered from sandstone. Depth is restricted to an average of 60cm to bedrock. Ground visibility is 90 percent. The nearest permanent water source, the Colorado River, is located 2 miles southeast of the site.

Artifacts are located in an area measuring 40m E-W by 70m N-S. The area was apparently being utilized as a lithic procurement location. Approximately 200 flakes are scattered throughout the site area, with more than 50 located in an area of naturally outcropping green siltstone. The lithics can be characterized as follows: 70% are pale green to dark green siltstone, 20% are pale green to light gray orthoquartzite and large in size, and 10% are chert. The siltstone is generally extra large to medium in size, with a reduction sequence consisting of 20% primary, 70% secondary, and 10% tertiary. Naturally occurring unmodified rock is found throughout the concentration. The chert flakes are almost entirely small to medium in size and flakes are 95% interior in nature. For the most part, the chert was found outside of the procurement area. Based on the assemblage, the area was being used for procurement, wherein the flakes were being reduced to a manageable size and carried to another location for tool manufacture. Additionally, maintenance of previously procured/ manufactured tools was also occurring with regard to the chert.

The site has been disturbed by a two track road and off-road vehicles. The road appears modern and was not present on GLO maps of the area. Additionally, the roadway located in McDonald Creek was apparently the preferred travel route, historically.

Evaluation and Management Recommendation

This site does not appear to have the potential to yield information important to history (Criterion D). Accordingly, it is field evaluated as not eligible for listing on the NRHP. No further work is necessary.

Site **5ME19880**, a prehistoric sheltered overhang, is located in the bottom of Knowles Canyon, which runs northwest to the Colorado River. Elevation is 5160 feet. Vegetation is pinyon and juniper trees with snakeweed, Mormon tea, and sparse grasses. Soils are a reddish tan alluvium and colluvium deposited in areas of outcropping sandstone. Ground visibility is 90%. The nearest permanent source of water is the Colorado River, located 6.5 miles northwest of the site; however, unmapped springs were noted within the canyon during the survey. The nearest spring is located in the canyon bottom, 4 miles to the northwest.

Cultural materials are located in an area measuring 50m E-W by 140m N-S. These include three features (Features 1-3), a chopper, a metate, and a flake concentration. Feature 1, eroding from under the overhang, is an ash stain measuring 120cm in diameter. Large chunks of charcoal are present in the matrix and depth of cultural fill is estimated to be at least 30cm. Feature 2, a broad area of ash and FCR, is located within the flake concentration. The feature presents in an area measuring 4.7m^2. It is at least 30cm in depth. The metate was also associated with the feature. It is a sandstone slab with unifacial grinding. It is being disturbed by an erosional rill. Feature 3 is a hearth feature located in a drainage area and measures approximately 65cm in diameter. Charcoal is present and erosion has disturbed the feature. Depth is estimated to be 40+cm, based on the erosional rill. There is good potential for radiocarbon dating with all three of the features. The flake concentration consists of a total of 60 flakes, 50 of which are quartzite and remainder are porcellanite. It measures 7m by 18m. The reduction sequence is 15% primary, 25% secondary and 60% tertiary. A tested cobble of white quartzite was also located within the concentration. In addition to the aforementioned artifacts and features, a chopper, crafted from a black siltstone cobble fragment and a large, utilized biface thinning flake were recorded.

A trail was recorded just southwest of the flake concentration. It is currently utilized by recreationists hiking up the canyon and by animals as a game trail. It is uncertain if it was utilized prehistorically; however, it is the easiest path up the canyon and provides access from the river to the north rim of the Uncompahgre Plateau.

Evaluation and Management Recommendation

Due to the presence of *in situ* thermal features, the site will likely yield information important to the prehistory of the area. It is field evaluated as eligible, under Criterion D, for listing on the NRHP. Protection and preservation are recommended. Additionally, stabilization or data recovery is suggested for Feature 2.

Site **5ME19881**, a prehistoric isolated feature, is located on a narrow, east facing bench in Knowles Canyon. Elevation is approximately 4680 feet. Vegetation is Mormon tea, snakeweed, and sparse grasses. On the surrounding slopes juniper is present while in the canyon bottom, riparian habitats reside. Soils are residual, colluvial and aeolian deposits from the decomposing sandstone. They are red and sandy and thin (less than 5cm deep). The nearest source of permanent water is an unmapped spring, located 60m to the east in the canyon bottom. Based on the vegetation, it appears to flow year round. Ground visibility is 100%.

The feature is located on a bench area measuring 18m E-W by 35m N-S. The feature consists of a hearth area containing a dozen pieces of fire-cracked rock and a juniper branch that either fell or was broken off the primary tree and moved to its current location. The scatter of FCR measures approximately 1m in diameter. The juniper branch measures 170cm in length and exhibits lengthways separation of the wood grain. Based on the surface evaluation, there does not appear to be any potential for radiocarbon dating.

Evaluation and Management Recommendation

The site does not appear likely to yield additional information important to the prehistory of the area (Criterion D). Accordingly, it is field evaluated as not eligible for listing on the NRHP. No further work is recommended.

Site **5ME19882,** a prehistoric open lithic, is located along the slopes of Grand Mesa, on the northwest side of Sink Creek. It has a southeast aspect. Elevation varies between 6200 to 6360 feet. Vegetation is pinyon and juniper trees with a sparse understory of short bunch grasses. Ground visibility is 90-100%. Soil is tan, sandy loam with areas of scattered rocks. The nearest source of permanent water is Kruzen Spring, located two miles northeast, at the rim of the Grand Mesa.

Artifacts are sparsely scattered in an area measuring 165m E-W by 300m N-S. The site is characterized by a large, sparse scatter of flakes concentrated within the main site area with several tools and random flakes located outside of the main site area. Three chert biface/ biface fragments, a green mudstone butchering tool and two chert cores were recorded.

The lithic scatter area consists consisting of three concentrations of lithics. Concentration 1 is 22 flakes (21 chert and 1 chalcedony). All of these are interior flakes and they range from small to medium in size. Concentration 2 is 27 flakes (24 chert, 2 quartzite, and 1 siltstone) most of which are interior reduction stage (95%). Concentration 3 has medium-sized chert flakes, 90% of which are interior reduction stage. Both 2 and 3 appear to have been a single core reductions. Five flakes were observed outside of the main site area. These are chert and are medium to large in size. Two are primary, two are secondary and one is tertiary in reduction stage. The distribution of artifacts at this site suggests it is a lithic reduction locality potentially related to butchering activities.

Evaluation and Management Recommendation

No temporally diagnostic artifacts and no features were found, therefore the site is unlikely to yield additional information important in the prehistory of the region (Criterion D). Accordingly, it is field evaluated as not eligible. No further work is recommended.

Site **5ME19883**, a prehistoric lithic procurement area, is located on a south facing rim edge at the head of Knowles Canyon. Elevation is approximately 6000 feet. Vegetation is pinyon and juniper trees with a sparse understory of short bunch grasses and occasional sagebrush. Ground visibility is 90%. Soils are a reddish tan sandy loam with areas of outcropping sandstone bedrock. The nearest source of mapped permanent water is over nine miles west of the site at the Colorado River.

Artifacts are located in an area measuring 90m E-W by 35m N-S. This area was being utilized as a lithic procurement area. More than 300 flakes and at least 60 tested cobbles were observed. Flaking stages consist of 10% primary, 70% secondary and 20% tertiary. A single medium sized, chert, interior flake was also present.

Evaluation and Management Recommendation

The site does not appear likely to yield additional information important to the prehistory of the area (Criterion D). Accordingly, it is field evaluated as not eligible for listing on the NRHP. No further work is recommended.

7.3 ISOLATED FINDS

One aspect of the Ute Trails Project was to perform an intensive sample survey of isolated finds (IFs) in the two study areas; McDonald Creek and Grand Mesa. Funding was allocated to survey a total of 400 acres. The Principal Investigators opted to employ 20-acre quadrats for a total of 20 survey units. A 20-acre grid was overlain on a map of the two study areas. After eliminating high slope regions and units that fell more than 50% outside the defined areas we defined 341 quadrats for the McDonald Creek survey and 446 quadrats for Grand Mesa yielding a total of 787 quadrats for the project as a whole. They chose to apportion the 20 survey quadrats proportionately, allocating 9 units to McDonald Creek and 11 to Grand Mesa. These were then selected from the totals with a random numbers table (see maps in Appendix A).

The quadrats were surveyed intensively by field crews using a ten-meter pedestrian interval. As IFs were encountered locations were recorded with Trimble GPS units [need model number] and IF types were recorded using a pre-defined data dictionary. The results are shown in Table 7.1. Q01 through Q11 represent Grand Mesa. Q12 through Q20 refer to McDonald Creek. The distribution of IFs documented in the current project is shown in Figure 7.4.

Table 7.1. Isolated finds located within the current project areas.

IF #	Isolate Type	Quadrat
5ME19982	Bifacially ground quartzitic mano	Q01
5ME19937	One secondary gray chert retouched flake	Q02
5ME19938	One interior gray chert flake	Q02
5ME19934	Bifacially pecked and ground quartzitic mano	Q03
5ME19935	Two secondary basalt flakes	Q03
5ME19936	One gray chert interior flake	Q03
5ME19927	One secondary porcellanite flake	Q04
5ME19928	One interior chert flake	Q04
5ME19929	One dark red chert projectile point (Gatecliff Contracting Stem [Middle-Late Archaic; Holmer1986:107]); 1 microflake	Q04
5ME19930	Green quartzite chopper	Q04
5ME19931	Corner-notched projectile point (Pelican Lake [Late Archaic; Frison 1991:101]); two interior flakes: one quartzite, one chert	Q04
5ME19932	Chert end scraper	Q04
5ME19933	Historic stove pipe	Q04
5ME19921	One interior porcellanite flake	Q05
5ME19922	One interior chert flake	Q05
5ME19923	One secondary quartzite flake, one piece of chert angular shatter	Q05
5ME19924	One bi-directional chert core	Q05
5ME19925	One multi-directional quartzite core	Q05
5ME19926	One interior chert microflake	Q05
5ME19919	One interior porcellanite flake	Q06
5ME19920	One interior chert flake	Q06
5ME19913	Five interior chert flakes	Q07
5ME19914	One interior chert flake	Q07
5ME19915	One primary chert flake	Q07
5ME19916	Uni-directional modified chert core	Q07

IF #	Isolate Type	Quadrat
5ME19917	Three interior porcellanite flakes	Q07
5ME19918	Historic gas can, 5 gallon	Q07
5ME19905	Two interior chert flakes	Q08
5ME19906	Two interior chert flakes	Q08
5ME19907	One interior chert flake	Q08
5ME19908	One secondary chert flake	Q08
5ME19909	One interior chert flake	Q08
5ME19910	One interior chert microflake	Q08
5ME19911	One extra-large interior chert flake	Q08
5ME19912	Two historic artifacts, possible lard and bucket	Q08
5ME19979	One tested chert cobble	Q10
5ME19980	One tested chert cobble	Q10
5ME19981	Projectile point fragment	Q10
5ME19968	Two cairns	Q11
5ME19969	Chert biface	Q11
5ME19970	One interior chert flake	Q11
5ME19971	One secondary quartzite flake	Q11
5ME19972	One interior quartzite flake	Q11
5ME19973	One interior chert flake	Q11
5ME19974	Side-notched projectile point (Narrow Point Series [Early Archaic; Metcalf and Reed 2011:133])	Q11
5ME19975	Historic cairn	Q11
5ME19976	One interior quartzite flake	Q11
5ME19977	One interior quartzite flake	Q11
5ME19978	One tobacco can	Q11
5ME19959	One interior quartzite flake	Q12
5ME19960	One chert blade flake, one unifacially retouched chert flake, and two interior flakes (porcellanite and chert)	Q12
5ME19961	Bifacially flaked quartzite chopper	Q12

IF #	Isolate Type	Quadrat
5ME19962	One interior quartzite flake	Q12
5ME19963	Unifacially flaked quartzite chopper	Q12
5ME19964	One interior porcellanite flake	Q12
5ME19965	One interior quartzite flake	Q12
5ME19966	Two historic cans	Q12
5ME19967	Historic can	Q12
5ME19957	One interior chert flake	Q13
5ME19958	Three chert flakes (2 secondary, 1 interior)	Q13
5ME19946	Four quartzite flakes (3 primary, 1 secondary)	Q14
5ME19947	One primary quartzite flake	Q14
5ME19948	One interior quartzite flake	Q14
5ME19949	One interior chert flake	Q14
5ME19950	One secondary quartzite flake	Q14
5ME19951	One interior quartzite flake	Q14
5ME19952	10 porcellanite (primary and secondary) flakes; one unifacially retouched	Q14
5ME19953	Historic cairn	Q14
5ME19954	Tested porcellanite cobble	Q14
5ME19955	One secondary quartzite flake	Q14
5ME19956	Historic trash scatter	Q14
5ME19942	One multi-directional quartzite core	Q15
5ME19943	One secondary quartzite flake	Q15
5ME19944	One multi-directional quartzite core	Q15
5ME19945	Tobacco can, indiscernible closure	Q15
5ME19940	Six flakes: two primary (small chert and extra large porcellanite) and four interior (one extra-large chert, three porcellanite-small, medium, and large)	Q16
5ME19941	One secondary chert flake (possible scraper)	Q16
5ME19939	One interior quartz flake	Q17

IF #	Isolate Type	Quadrat
5ME19899	Light gray quartzite biface	Q20
5ME19900	Two interior chert flakes, one interior chert flake	Q20
5ME19901	One interior quartzite flake	Q20
5ME19902	One secondary quartzite flake	Q20
5ME19903	One interior quartzite flake	Q20
5ME19904	One secondary chert flake	Q20

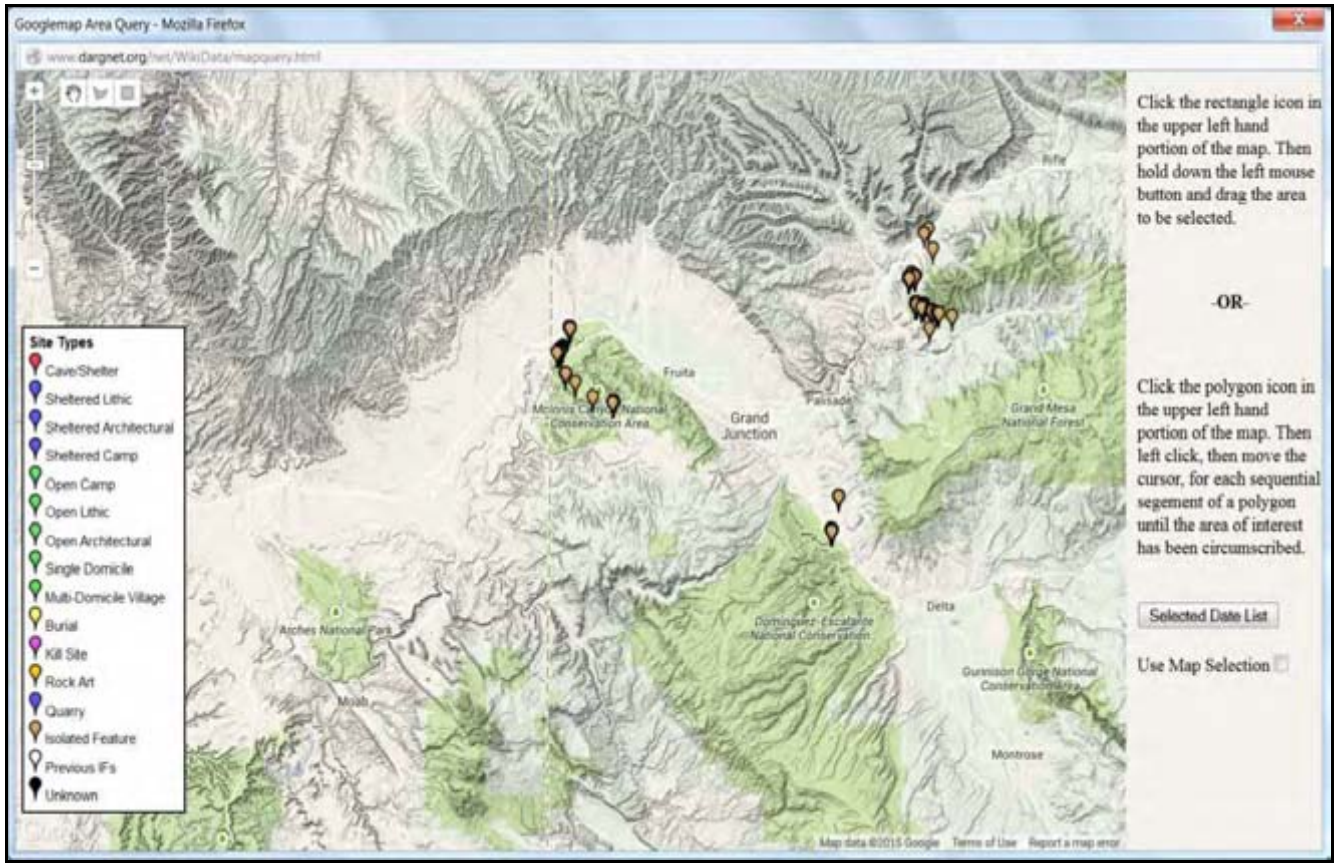


Figure 7.4. Distribution of the IFs Listed in Table 7.1.

7.3.1. STATISTICAL ESTIMATES

The object of random sampling surveys is to provide an unbiased estimate of population means and totals: in this case the expected mean and 95% confidence limits for unsurveyed 20-acre quadrats as well as the expected total and 95% confidence limits for the study area as a whole. Because we used proportionate allocation of quadrats for the McDonald Creek and Grand Mesa portions of the study area it is necessary to use stratified sampling procedures as

versus simple random sampling. The data required for calculations are summarized in Table 7.4.

Table 7.2. Stratified Sample Statistics.

Statistic	McDonald Creek	Grand Mesa
Sample Quadrats	$n_1 = 9$	$n_2 = 11$
Mean IFs Per Quadrat	$\bar{y}_1 = 3.89$	$\bar{y}_2 = 3.90$
Sample Variance	$s_1^2 = 14.86$	$s_2^2 = 6.89$
Population Quadrats	$N_1 = 341$	$N_2 = 446$

The formula used for calculating sample variances (Mendenhall, Ott and Sheaffer 1971:56) was:

$$S_i^2 = \frac{\sum_{J=1}^{n_i} (y_{ij} - y_i)^2}{n_i - 1}, \quad i = 1,2$$

where y_{ij} is the number of IFs in each particular sample quadrat, y_i is the mean number of IFs in each stratum, and *ni* is the number of sample quadrats in each stratum. While the mean values are essentially identical for the two strata (3.89 and 3.90), the variances differ significantly for McDonald Creek and Grand Mesa with values of 14.86 and 6.89 respectively. The formula for calculating the estimator of quadrat mean and the 95% confidence limits (Mendenhall, Ott and Sheaffer 1971:57) is:

Estimator of the population mean μ:

$$\bar{y}_{st} = \frac{1}{N}[N_1\bar{y}_1 + N_2\bar{y}_2 + \cdots + N_L\bar{y}_L] = \frac{1}{N}\sum_{i=1}^{L} N_i\bar{y}_i.$$

Estimated variance of $\bar{y}_{st}$:

$$\hat{V}(\bar{y}_{st}) = \frac{1}{N^2}[N_1^2\hat{V}(\bar{y}_1) + N_2^2\hat{V}(\bar{y}_2) + \cdots + N_L^2\hat{V}(\bar{y}_L)]$$

$$= \frac{1}{N^2}\left[N_1^2\left(\frac{N_1 - n_1}{N_1}\right)\frac{s_1^2}{n_1} + \cdots + N_L^2\left(\frac{N_L - n_L}{N_L}\right)\frac{s_L^2}{n_L}\right]$$

$$= \frac{1}{N^2}\sum_{i=1}^{L} N_i^2\left(\frac{N_i - n_i}{N_i}\right)\frac{s_i^2}{n_i}.$$

Round on the error of estimation:

$$2\sqrt{\hat{V}(\bar{y}_{st})} = 2\sqrt{\frac{1}{N^2}\sum_{i=1}^{L} N_i^2\left(\frac{N_i - n_i}{N_i}\right)\frac{s_i^2}{n_i}}.$$

This yields an estimated mean number of IFs per quadrat, *?st*, of 3.90 ± 1.39 for the population as a whole. Similarly, the estimator of the population total (Mendenhall, Ott and Sheaffer 1971:59) is given by:

Estimator of the population total τ:

$$N\bar{y}_{st} = N_1\bar{y}_1 + N_2\bar{y}_2 + \cdots + N_L\bar{y}_L = \sum_{i=1}^{L} N_i\bar{y}_i.$$

Estimated variance of $N\bar{y}_{st}$:

$$\hat{V}(N\bar{y}_{st}) = N^2\hat{V}(\bar{y}_{st}) = \sum_{i=1}^{L} N_i^2\left(\frac{N_i - n_i}{N_i}\right)\frac{s_i^2}{n_i}.$$

Bound on the error of estimation:

$$2\sqrt{\hat{V}(N\bar{y}_{st})} = 2\sqrt{\sum_{i=1}^{L} N_i^2\left(\frac{N_i - n_i}{N_i}\right)\frac{s_i^2}{n_i}}.$$

This yields and estimated total number of IFs for the study area of 3069±1092.

7.3.2 Comparison of Intensive IF Survey with Past Recording

It is interest to compare the results of the current project with the recordation rate of IFs during previous surveys. We examined a corridor of surveyed areas containing the current study area. The McDonald Creek corridor consisted of 6284 acres and the Grand Mesa corridor of 21,947 acres for a total of 28, 231 acres. For comparison with the Ute Trails Project this would constitute approximately 1412 20-acre quadrats. The OAHP records indicate that 189 IFs had been previously recorded. The distribution of these IFs is shown in Figure 7.5. This results in an IF density of 0.134 per quadrat as versus our estimate of 3.90±1.39 per quadrat for the Ute Trails Project. The conclusion seems inescapable that IF recordation during typical CRM surveys significantly underestimates the true IF density. This is understandable given that allocation of time and effort for CRM surveys is heavily weighted toward recordation of sites with IFs as a secondary priority, recorded as time allows.

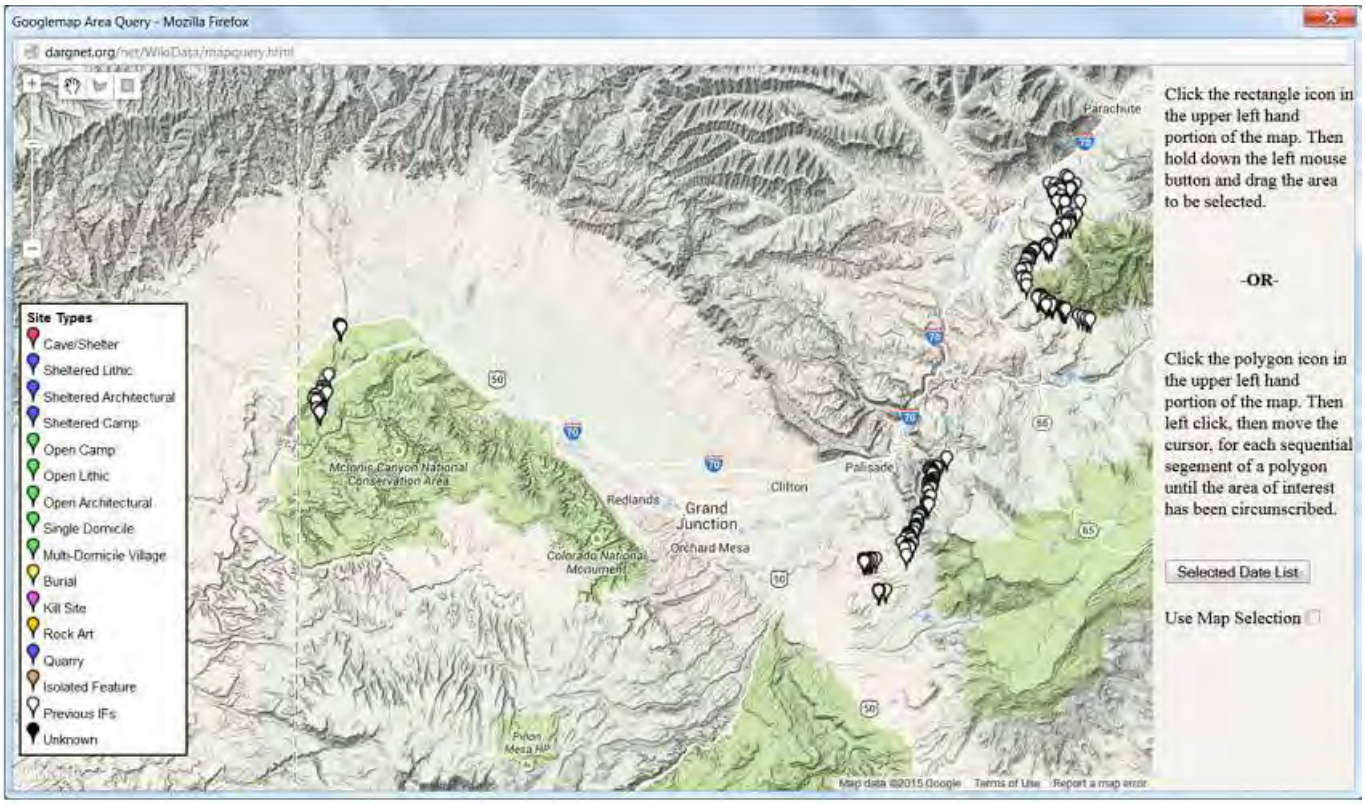


Figure 7.5. Previously Recorded IFs in the McDonald Creek and Grand Mesa Corridors.

7.3.3 Isolated Find Diagnostics

Fragments of three culturally diagnostic projectile points were recorded by the inventory: 5ME19929.IF, 5ME19931.IF, and 5ME19974.IF. These are shown is Plate 7.1.

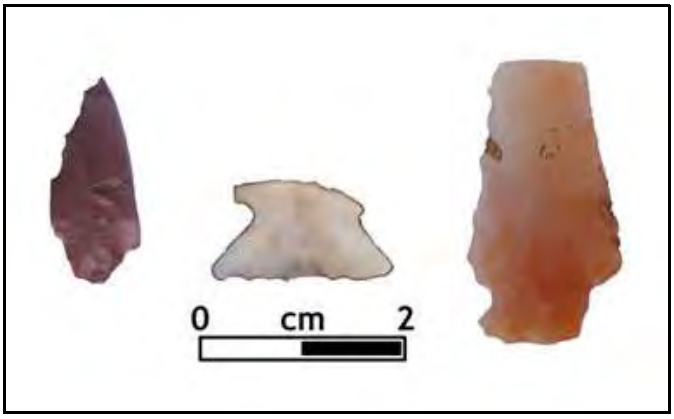


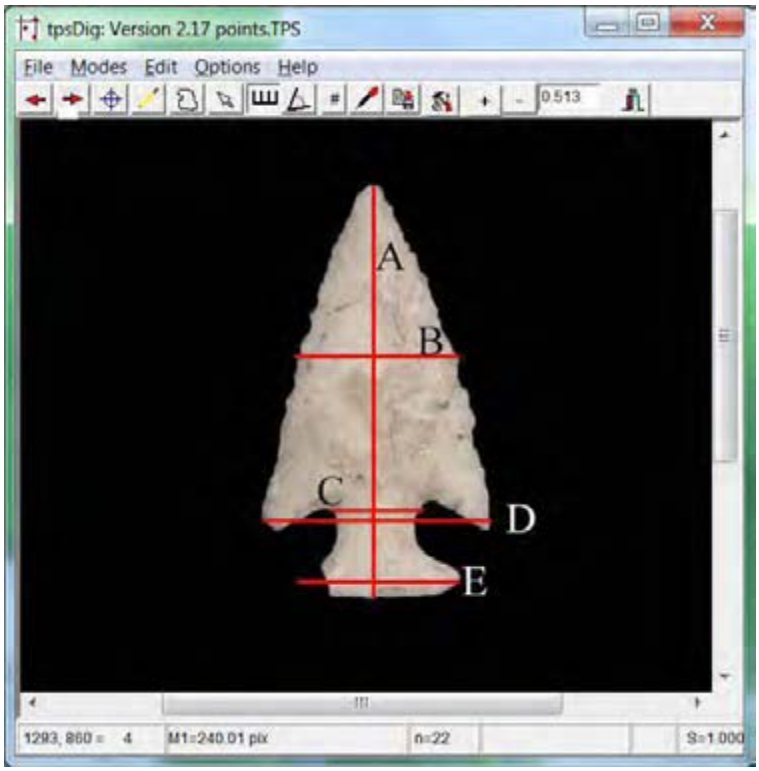
Plate 7.33. Diagnostic projectile points: 5ME19929.IF (Gypsum or Gatecliff Contracting Stem [Middle-Late Archaic; Holmer1986:107]), 5ME19931.IF (Pelican Lake [Late Archaic; Frison 1991:101]), and 5ME19974.IF (Narrow Point Series [Early Archaic; Metcalf and Reed 2011:133]).

8.0 UTE TRAILS MULTIVARIATE PROJECTILE POINT TYPOLOGY

It was initially proposed to employ geomorphic morphometrics (Zelditch et al. 2004) to the analysis of project area projectile points. However, once we reviewed the available collection is was determined the range of variability (morphologically and temporally) was too great to obtain meaningful results. As a consequence we decided to conduct an initial typological analysis that will be useful in future studies of this type. We recognized that no formal projectile point typology for the Ute Trails study area had ever been developed. Intuitive type have long been used based on perceived similarities to points defined in adjacent areas (e.g., the Great Basin, Plains, Western Colorado Plateau, etc.). However, such intuitive assignments lack statistical rigor and may well not reflect the true range of variability that exists in the Ute Trails region. We therefore sought to develop a multivariate typology based on the currently available projectile point collection.

Photographs were available for 29 points recovered during previous surveys, 20 of which had undamaged portions suitable for measurement. The variables were measured using tpsDig Version 2.17 as shown in Figure 8.1. The variables are: a) length, b) mid-blade width, c) neck width, d) maximum width and e) base width. The resultant measurements are shown in Table 8.1.

Figure 8.1. Measured Projectile Point Variables



8.1 CLUSTER ANALYSIS

Cluster analysis (Anderberg 1973, Everitt, Landau and Leese 2001) was used to generate a dendrogram (Figure 2) of the available sample based on standardized variables, a Euclidean-squared distance matrix and the average linkage clustering method (Anderberg 1973:139). The program used was Mclus Version 3.0 developed in-house by DARG and checked for accuracy against the clustering algorithm in SPSS Version 14.0 (Landau and Everitt 2004).

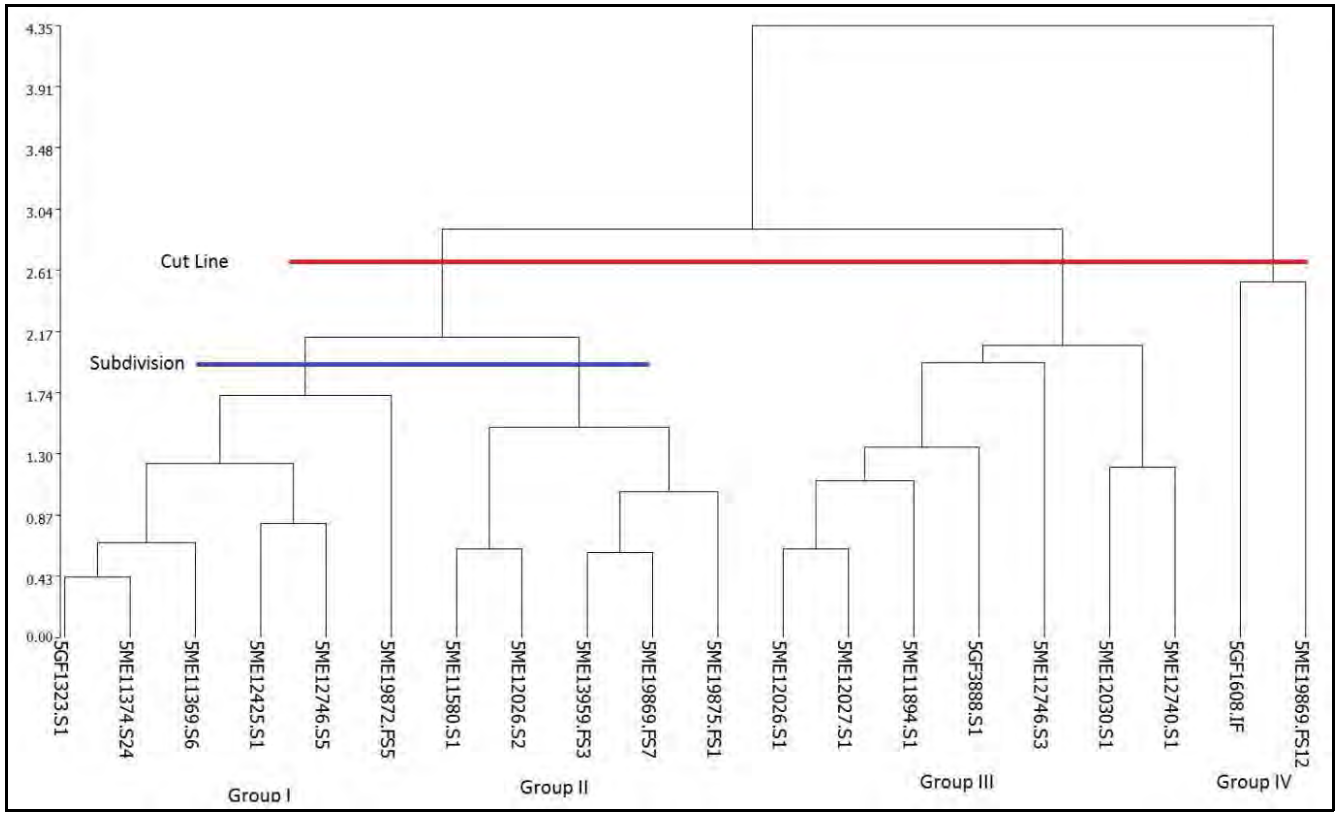
Table 8.1. Projectile Point Variables (measurements in cm.)

Point No.	Point Label	Length	Mid-Blade Width	Max Width	Neck Width	Base Width
1	5GF1323.S1	2.21	1.18	1.37	0.54	0.73
2	5GF1608.IF	3.51	1.49	2.25	1.72	2.38
3	5GF3888.S1B	3.91	1.58	1.82	1.09	1.62
4	5ME11369.S6	2.52	1.01	1.51	0.65	0.79
5	5ME11374.S24	2.22	1.03	1.37	0.52	0.75
6	5ME11580.S1	2.26	1.10	1.48	0.94	1.39
7	5ME11894.S1	4.23	1.71	2.25	1.19	1.75
8	5ME12026.S1	4.42	1.33	2.35	1.30	1.89
9	5ME12026.S2	2.09	0.89	1.44	0.99	1.42
10	5ME12027.S1	4.19	1.35	2.36	1.30	1.62
11	5ME12030.S1	4.07	0.93	1.70	1.05	1.52
12	5ME12425.S1	2.91	1.06	1.58	0.55	1.08
13	5ME12740.S1B	4.26	1.13	1.85	0.95	1.06
14	5ME12746.S3	2.46	1.32	2.00	1.00	1.62
15	5ME12746.S5	2.77	1.05	1.59	0.67	1.41
16	5ME13959.FS3	1.76	0.74	1.12	0.66	1.12
17	5ME19869.FS12	4.04	2.23	2.64	1.39	2.00
18	5ME19869.FS7	1.54	0.61	1.02	0.66	0.95
19	5ME19872.FS5	3.06	0.84	1.14	0.54	0.43
20	5ME19875.FS1	1.41	0.74	1.27	0.87	1.30

Table 8.2. Standardized, Euclidian-Squared Distance Matrix

Point No.	Matrix									
5GF1323.S1	0.000									
5GF1608.IF	50.342	0.000								
5GF3888.S1	19.979	18.614	0.000							
5ME11369.S6	33.240	32.274	22.304	0.000						
5ME11374.S24	32.895	37.024	25.004	0.338	0.000					
5ME11580.S1	37.796	21.169	18.301	33.454	3.400	0.000				
5ME11894.S1	52.085	11.333	10.242	46.303	36.073	10.193	0.000			
5ME12026.S1	23.268	40.884	21.807	22.696	29.376	23.846	42.613	0.000		
5ME12026.S2	7.493	53.361	26.590	9.331	12.713	13.573	54.292	12.258	0.000	
5ME12027.S1	20.096	41.926	21.300	20.669	26.296	22.224	6.605	41.717	10.689	0.000
5ME12030.S1	12.363	48.229	18.328	13.413	31.956	12.501	19.182	9.762	45.617	3.807
5ME12425.S1	3.129	60.277	22.219	7.780	24.142	10.902	16.500	26.453	8.644	52.558
5ME12740.S1	8.998	52.108	18.305	11.869	30.274	14.901	9.861	12.936	19.586	9.425
5ME12746.S3	11.012	32.604	16.012	7.181	28.161	20.588	13.386	9.381	13.903	10.763
5ME12746.S5	6.520	41.622	18.458	3.146	23.027	19.706	18.543	14.285	12.545	15.436
5ME13959.FS3	6.344	53.407	27.594	3.634	22.279	21.460	31.052	26.911	12.979	26.506
5ME19869.FS12	35.496	30.275	20.645	32.912	35.271	41.850	21.931	14.773	29.957	17.273
5ME19869.FS7	7.562	58.688	31.719	6.765	3.975	25.095	47.330	44.886	12.120	28.903
5ME19872.FS5	6.129	61.226	28.538	5.284	3.505	27.416	43.096	25.277	25.003	29.557
5ME19875.FS1	8.353	47.940	26.506	7.030	5.526	22.333	40.228	20.707	18.611	26.251
5ME12030.S1	0.000									
5ME12425.S1	4.555	0.000								
5ME12740.S1	42.752	3.589	0.000							
5ME12746.S3	5.119	39.598	11.926	0.000						
5ME12746.S5	4.199	35.702	10.783	2.516	0.000					
5ME13959.FS3	12.442	4.129	45.498	15.432	3.032	0.000				
5ME19869.FS12	24.029	28.994	17.705	47.065	29.270	38.912	0.000			
5ME19869.FS7	22.765	11.261	16.459	12.648	40.294	7.353	45.549	0.000		
5ME19872.FS5	14.334	13.934	13.889	16.568	6.585	38.983	48.372	3.988	0.000	
5ME19875.FS1	13.050	15.378	17.310	9.769	4.112	35.844	36.421	8.351	7.021	0.000

Figure 8.2. Dendrogram of the Projectile point Sample



Examination of the dendrogram (Figure 8.2) leads to a three-cluster solution (as indicated by the cut line) with the largest cluster (n=11) further subdivided into Groups I (n=6) and II (n=5). Group III contains 7 points and Group 4 (the most divergent cluster) contains only 2. The photographs of points assigned to the four groups are shown in Figure 8.3 (a-d). The subdivision below the three cluster cut line was made to equalize (as much as possible) group sizes for subsequent discriminant function analysis. It makes sense for the additional reason that Group I appears to represent corner-notched points while Group II consists of side-notched points.

Figure 8.3a. Group I

Figure 8.3b. Group II

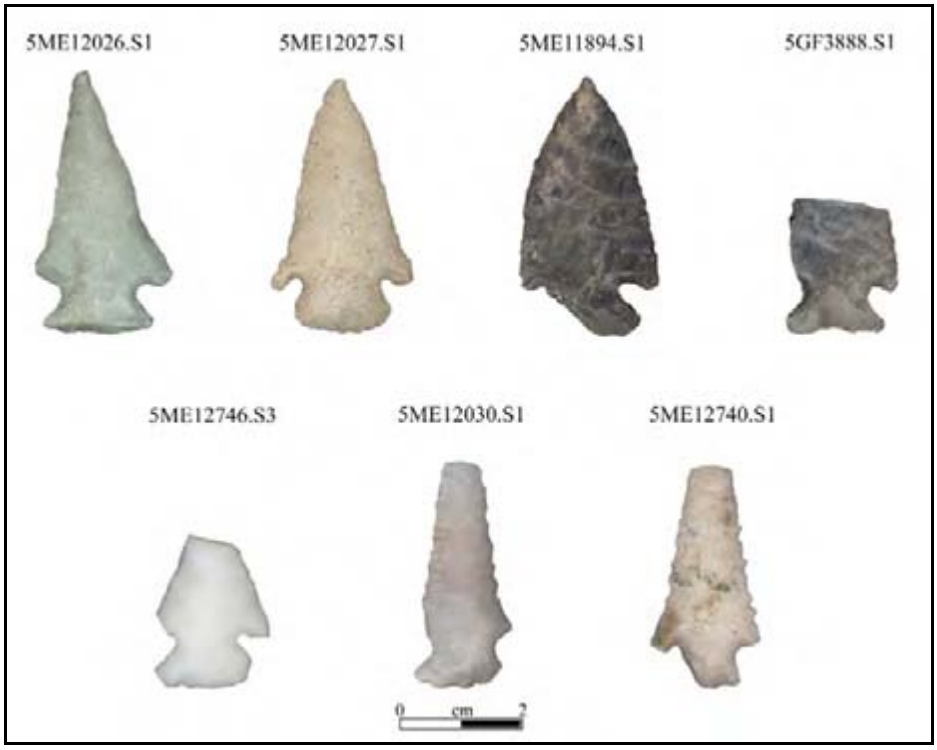


Figure 8.3c. Group III

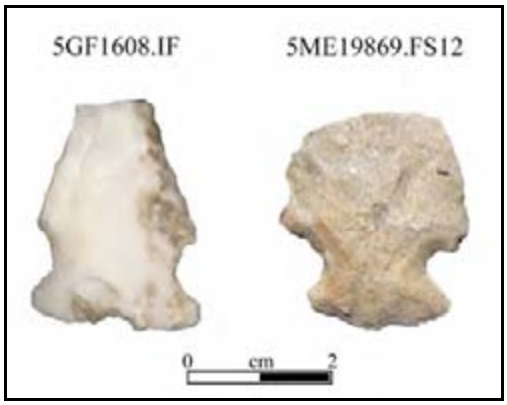


Figure 8.3d. Group IV

8.2 DISCRIMINANT ANALYSIS

Following the cluster analysis which defined four distinct groups, discriminant analysis is here employed to: 1) assess the quantitative robustness of the groups, and 2) provide a means of classifying addition points that may be recorded during future investigations. The program used was the discriminant classification algorithm in SPSS Version 14.0 (Landau and Everitt 2004:311-318). The method employed was Fisher's linear discriminant function with Wilk's Lambda and Box's M statistical tests and prior probabilities based group size. Group statistics are shown in Table 8.3.

Table 8.3. Group Statistics

Group		Mean	Std. Deviation	Valid N (listwise) Unweighted	Weighted
I	BaseWidth	0.865	0.33751	6	6.000
	Length	2.615	0.35725	6	6.000
	MaxWidth	0.5783	0.06432	6	6.000
	MidBlade	1.0283	0.1098	6	6.000
	NeckWidth	1.4267	0.17072	6	6.000
II	BaseWidth	1.236	0.19807	5	5.000
	Length	1.812	0.35926	5	5.000
	MaxWidth	0.824	0.15566	5	5.000
	MidBlade	0.816	0.18716	5	5.000
	NeckWidth	1.266	0.1987	5	5.000
III	BaseWidth	1.5829	0.2594	7	7.000
	Length	3.9343	0.66925	7	7.000
	MaxWidth	1.1257	0.14058	7	7.000
	MidBlade	1.3357	0.2605	7	7.000
	NeckWidth	2.0471	0.27201	7	7.000
IV	BaseWidth	2.19	0.2687	2	2.000
	Length	3.775	0.37477	2	2.000
	MaxWidth	1.555	0.23335	2	2.000
	MidBlade	1.86	0.52326	2	2.000
	NeckWidth	2.445	0.27577	2	2.000
Total	BaseWidth	1.3415	0.48493	20	20.000
	Length	2.992	1.00626	20	20.000
	MaxWidth	0.929	0.33546	20	20.000
	MidBlade	1.166	0.38199	20	20.000
	NeckWidth	1.7055	0.46829	20	20.000

Table 8.4 displays the Wilk's Lambda result which is "... a test for assessing the null hypothesis that ... the vectors of means of the five measurements are the same in the..." four groups (Landau and Everitt 2004:316). The results confirm that five variables differ significantly among the four groups.

Table 8.4. Wilk's Lambda

Test of Function(s)	Wilk's Lambda	Chi-square	df	Sig.
1 through 3	0.022	55.327	15	0.000
2 through 3	0.197	23.541	8	0.003
3	0.758	4.013	3	0.260

Table 8.5 displays the results of Box's M test statistic which is a test for equality of within groups covariance. The statistic shows that the differences are not significant (F(15, 454.572) = 1.613, p = .067).

Table 8.5. Box's M Test Results

Box's M		50.736
F	Approx.	1.613
	df1	15
	df2	454.573
	Sig.	0.067

The results of these two statistics indicate that the requirements for discriminant function analysis have been met:

a) Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
b) 100.0% of original grouped cases correctly classified.
c) 80.0% of cross-validated grouped cases correctly classified.

The upper portion of Table 8.6 displays the self classification results which is an indication of the robustness of the discriminant function analysis and, thus, an indicator of probable success in classifying additional projectile points. The reclassification of 100 percent of the original points indicates that a useful typology has been developed. However, this procedure may produce results that are "overly optimistic" (Landau and Everitt 2004:317). The lower portion of Table 6 displays the classification results using the *leaving one out method*;

"... in which the discriminant function is first derived from only *n* - 1 sample members, and then used to classify the observation left out. The procedure is repeated *n* times, each time omitting a different observation (Landau and Everitt 2004:317-318)."

As shown, only 80% of the cross-validated cases are correctly classified. One hundred percent of Groups I and II were classified correctly as were five of the seven Group III members. However, both Group IV examples were mis-classified.

Table 8.6. Classification Results for b and c.

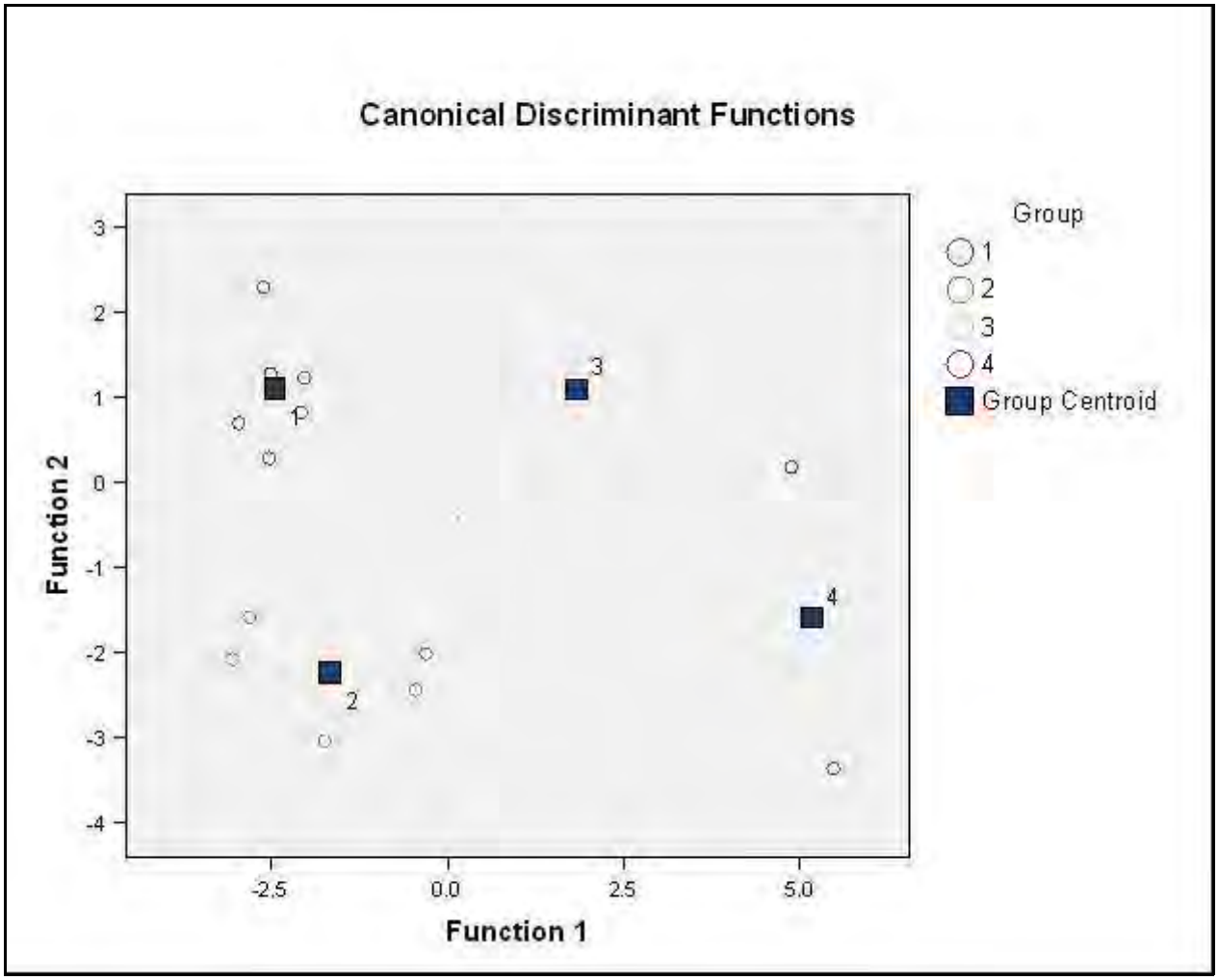
		Group	Predicted Group Membership				Total
			1	2	3	4	
Original	Count	I	6	0	0	0	6
		II	0	5	0	0	5
		III	0	0	7	0	7
		IV	0	0	0	2	2
	%	I	100.0	0	0	0	100.0
		II	0	100.0	0	0	100.0
		III	0	0	100.0	0	100.0
		IV	0	0	0	100.0	100.0
Cross-validated(a)	Count	I	6	0	0	0	6
		II	0	5	0	0	5
		III	0	1	5	1	7
		IV	0	1	1	0	2
	%	I	100.0	0	0	0	100.0
		II	0	100.0	0	0	100.0
		III	0	14.3	71.4	14.3	100.0
		IV	0	50.0	50.0	0	100.0

Figure 8.4 shows the distribution of the group members about the group centroids based on the first and second Canonical functions. Group IV displays the greatest dispersion from the group centroid which probably explains the misclassification by the cross-validation method. Groups I and II show the tightest clustering with Group III somewhat more dispersed.

Summary

It would probably be premature to use the discriminant statistics to classify additional, unknown examples at this point. Groups I and II represent fairly convincing types but Group III and especially Group IV may or may not constitute useful types. The next step should be to acquire a much larger sample of points and repeat both the cluster an discriminant analyses.

Figure 8.4. Group Member Distribution about the Group Centroids



9.0 DISCUSSION AND INTERPRETATIONS

The East Trail was a major route connecting historically known river crossings on the Colorado and lower Gunnison Rivers. The West Trail was a likely connection between the Book Cliffs and the Glade Park area on the northern Uncompahgre Plateau. Both trails, as indicated by early maps and ethnohistories of the region (Chavez and Warner 1976; Hayden 1877), were undoubtedly key routes which connected Utes living in west central Colorado with their relatives living along the White, Yampa, and Little Snake Rivers to the north. In 1776 Ute guides led Dominguez and Escalante along the northern portion of the East Trail during their seminal exploration of western Colorado. The trail was mapped by the Hayden expedition during 1874-1876, and it continued to serve as a major transportation corridor during the late nineteenth century settlement period, linking early Grand Junction with pioneer communities in the Plateau Creek Valley and eastward along the upper Colorado River. Both trails are historically significant to the living descendants of the Utes that traveled them, and to the diverse professional and public communities that value and study Ute heritage and early western Colorado history.

The presence of cultural resources, including the linear sites, within the project areas is directly related to the nature of the terrain as well as resource pull – the productivity of an area. Productivity is weighed in terms of edible and non-edible resources. Four plant communities (ecotones) are present and easily accessible. These create an "edge-effect" which is a phenomenon of increased variety of plants as well as animals at the community junction due to a locally broader range of suitable environmental conditions or ecological niches. In addition, water is in relative abundance and provided by springs, catchments in washes, and local creeks and rivers. Shelter was often provided by large boulders, overhangs and alcoves. Also, the abundance of wood and brush would have provided the necessary elements for the construction of pit and surface houses in open camps, as well as fuel for fire. Material for tools, especially perishable material, would have been locally abundant. Lithic materials would have been supplied by the nearby Wasatch, Morrison, Dakota and Burro Canyon Formations, and by the gravels of the Colorado and Gunnison Rivers.

9.1 DIAGNOSTICS ARTIFACTS AND FEATURES

Archaeological investigations for this project were guided by a framework of research questions that were drawn from the known cultural background and applied to specific sites and to the inter-relationship of sites within the geographically defined area of Northwest Colorado. One of the primary concerns during the data retrieval phase was the development of a cultural chronology. Despite the low sample number of diagnostic artifacts, when compared with regional references, the ones recorded produced temporal associations relative to the known temporal distribution of types.

9.1.1 Projectile Points

Diagnostic projectile points were lacking from the surfaces of many of the sites, which

is likely attributable to lay person collections made during modern times. Despite the lack of diagnostic artifacts, these investigations did result in a substantial account of the past ten millennia, adding significantly new information to the known cultural sequence. Definable periods of the diagnostics represent occupations during the Paleoindian Era, Archaic Era, Formative Era, and the Late Prehistoric/Historic period. References that best provided comparable projectile point types included: *The Uncompahgre Complex: Historic Ute Archaeology and Prehistoric Archaeology on the Uncompahgre Plateau in West Central Colorado* (Buckles 1971); *Prehistoric Hunters of the High Plains* (Frison 1991); *Prehistoric Hunter-Gatherers of the High Plains and Rockies* (Kornfeld et al. 2010); *Synthesis of Archaeological Data Compiled for the Piceance Basin Expansion, Rockies Express Pipeline, and Uinta Basin Lateral Projects Moffat and Rio Blanco Counties, Colorado, and Sweetwater County, Wyoming, Volume 2*, (Metcalf and Reed 2011); and, *Archaeological Monitoring and Data Retrieval for the Collbran Pipeline Project in Garfield and Mesa Counties, Colorado* (Conner et al. 2014).

The projectile points documented during the inventory represent a temporal distribution that spans most of the known occupation of North America. Types are indicative of occupations by local groups of the Intermountain west and others known to occupy adjacent regions of the country including the Great Basin, Great Plains, and Southwest. Importantly, the mountains have been a refugia during times of environmental stress, and the west slope of the Continental Divide has been a thoroughfare for travel, trade and contact between cultures north and south, east and west. The diagnostic projectile points reflect this in their associated styles through time (Plate 10.1).

9.1.2 Ceramics

Ceramic sherds recorded during this and previous inventories in the vicinity of the trails indicate incursions by both the Anasazi and the Fremont during the Formative Era, and occupation during the Late Prehistoric. Ceramic types were recorded at sites 5ME12820, 5ME11675, and 5ME17115 within the bounds of the study areas, and include: Emery Gray , Mancos Corrugated, and Uncompahgre Brown Ware (respectively). Emery Gray is a Fremont Culture San Rafael Variant diagnostic based on descriptions by Madsen (1977:31) and Watkins (2006:8). The regional distribution of this variant extends into west-central Colorado and the temporal association is ca. AD 700-1200 (Brunswig et al. 1995:92). Mancos Corrugated, an Anasazi type is relatively tightly dated ca. AD 850 - 975 (Wilson and Blinman 1995: 42, 69).

Uncompahgre Brown Ware is a early Numic diagnostic that has been reported in western and central Colorado and eastern Utah (Buckles 1971; Reed and Metcalf 1999) and dates to as early as ca. AD 1350. Uncompahgre Brown Ware sherds in Mesa, Garfield and Rio Blanco Counties have been luminescent dated: 5ME4970, AD 1508-1644; 5ME16097, AD 1400-1520; 5GF620, AD 1450- 1528; 5RB144, AD 1510-1590. At the Pioneer Point site located in the Curecanti National Recreation Area, over seven hundred sherds of Uncompahgre Brown Ware ceramics (micaceous and non-micaceous tempered) were recovered. These were

Plate 9.1. Examples of point types documented during the inventory, temporally sorted:

Late Prehistoric to Historic periods
(ca. AD 1300-1840)
L-R: Cottonwood, and (3) Desert Side-notched

Late Formative (ca. AD 1100-1300)
L-R: Bear River Side-notched (Fremont),
Uinta Side-notched (Fremont), and Eclectic

Early-Middle Formative (ca. AD 300-900)
L-R: Rose Spring Corner-notched, and
Anasazi stemmed

Late Archaic - ca. 1000 BC- AD 300)
L-R: UC Horse Fly Phase, UC Dry Creek phase
Pelican Lake, UC Horse Fly Phase

Middle Archaic ca. 3000 - 1000 BC
L-R: Oxbow, UC Shavano Phase,
UC Roubideau Phase (illustration, not to exact scale)

Early Archaic ca. 7000 - 3000 BC
Top: Early Plains Archaic,

Bottom: Narrow Point Series or Mt. Albion
ca. 6000-4700 BC

Late Paleoindian ca. 9600-6000 BC
L-R: Foothill Mountain, and
(2) Prior Stemmed

Early Paleoindian: ca. 11,000 BC
Center: Goshen (pre-Folsom)

associated with features dating ca. AD 1476 (474±70 BP) and AD 1466 (484±80 BP) (Dial 1989:19).

Uncompahgre Brown Ware is defined as a low-firing temperature pottery which was primarily used to create wide mouth jars with flaring rims, slightly constricted necks, low shoulders, and conical or rounded bases (Buckles 1971:517). The color in this ware ranges from dark to light brown, yellowish brown to olive grey, and sometimes reddish; temper is variable and of local material; manufacture is coiling and scraping; surface treatment is fingertip impressed or plain (Buckles 1971:506-527; Reed and Metcalf 1999:155). The plain variety has been smoothed over the entire vessel after construction, occasionally leaving striations from scraping or wiping the surface (Buckles 1971:520). Uncompahgre Brown Ware is typically considered characteristic of Numic peoples, particularly Utes (Buckles 1971; Reed 1994). However, the Ute made only limited amounts of pottery, being better known for their skills in basketry, and usually obtained their pottery from the Apache and the Pueblo Indians in New Mexico (Loosle and Knoll 2003:5).

9.1.3 Aboriginal Wooden Features

Only a small percentage of the expedient Native American wooden architectural features remain intact in archaeological contexts. Of those that do in Colorado, a majority can be irrefutably interpreted as being of Ute construction, but they are rapidly disappearing. Several sites in the vicinity of the East Trail that have standing or collapsed wickiups, which were likely constructed after AD 1800, are 5ME13959, 5ME15003, 5ME15907, 5ME15661 and 5ME18264. An example of the remains of a wickiup is shown in Plate 9.2.

Importantly, within the bounds of the East Trail is site 5ME16097, which was excavated during the earlier Archaeological Monitoring and Data Retrieval for the Collbran Pipeline Project (Conner et al 2014). The floor of an apparent wickiup structure was found as were four other features: a fire-altered cobble concentration, a cluster of basalt fire-cracked rock, upright slabs, and a thermal feature. The floor was identified as an area cleared of basalt rocks surrounding the cobble concentration and thermal feature. A C^{14} sample recovered from the hearth feature within the apparent structure's floor produced a conventional radiocarbon date of 370±40 BP (AD 1440-1640 at 2-sigma; Beta-248418). This date, along with recovered diagnostic projectile point fragments and a concentration of Uncompahgre Brown Ware sherds -- luminescently dated AD1460±60 – suggest a single-component, prehistoric Ute occupation of the site that occurred during the Late Pre-Contact period (Canalla Phase).

9.2 ROCK ART

Rock Art Specialist Sally Cole and students from Utah State reviewed and renewed the documentation of 11 sites along the projected West and East cultural trails or corridors. Their detailed findings are presented in Appendix A and in site forms in Appendix D. The focus of their research was to examine sites that would present the nature and timing of Archaic, Formative (Fremont and Ancestral Pueblo), and historical Ute developments in west central

Plate 9.2. Brock Chapoose of the Northern Ute Tribe stands beside a partially intact "leaner" style wickiup previously recorded in site 5GF3003, located several miles east of the East Trail corridor.

Colorado through documentation and comparative analysis of rock art.

Cole notes that "the rock art styles identified in the projected West Trail and East Trail corridors are linked to Archaic, Fremont, Ancestral Pueblo, and protohistoric-historic Ute peoples of the Colorado Plateau and Intermountain region. The occurrence at a sample of sites in west central Colorado point to likely homelands and migration paths including the two examined in this study."

10.0 SUMMARY OF ARCHAEOLOGICAL FINDINGS

As expected, cultural resources were newly recorded. The nature of this study encompassed revisiting and reevaluating 34 selected sites, and the recording of 15 sites and 84 isolates that were newly discovered within 20 (randomly selected) 20-acre inventory blocks. Accordingly, a total of 400 acres of BLM land was newly inventoried and 133 resources were addressed.

As a result of the inventory, 31 sites (5ME163, 5ME164, 5ME529, 5ME538, 5ME540, 5ME545, 5ME580, 5ME905, 5ME963, 5ME974, 5ME1356, 5ME3768, 5ME.5247, 5ME5259,

5ME6387, 5ME6398, 5ME7306, 5ME8047, 5ME11675, 5ME12820, 5ME13959, 5ME15003, 5ME17115, 5ME19064, 5ME19869, 5ME19870, 5ME19872, 5ME19873, 5ME19874.1, 5ME19875, and 5ME19880) were field evaluated as eligible and three sites (5ME12819, 5ME16103, and 5ME16783) as need data, or potentially eligible. Protection and preservation is recommended for the eligible sites in the event of future federal undertakings with adverse effects. The three need data sites require further evaluation before a final determination of eligibility can be made. The remaining 15 sites (5ME973, 5ME975, 5ME1210, 5ME6795, 5ME12821, 5ME17944, 5ME17948, 5ME19871, 5ME19876-5ME19879, and 5ME19881-5ME19883) and 84 isolates (5ME19899-5ME19982) are field evaluated as not eligible and no further work is recommended for these resources.

11.0 CONSULTATION, PUBLIC OUTREACH AND INFORMATION SHARING

The information regarding the recorded sites from this project has been incorporated in a database for the Ute Trails of Colorado, which is accessed through the DARG website under password. This database operates similar to a search engine which, based on selected criteria can be readily accessed via a number of criteria: site location on a map, site number, site type, diagnostic artifact type etc. In this program, a simple click on the map brings up a wealth of information, including the site map, artifact location, photographs etc. Valuable to this digitization is the ability to view culture history collectively, in a more encompassing manner as well as on a "site by site" basis. The data can be reviewed geographically allowing for the determination of landscapes or districts based on various criteria.

This digitization and its on-going development has been reviewed by Ute tribal representatives on several occasions at the office of DARG. Although an official consultation with BLM and Ute tribal representatives has yet to occur, the initial Ute response has been positive and well received. Viewed as particularly beneficial is the accessibility of records which essentially belong to the tribe and yet were difficult for members to access. Continuing such review processes with the tribes can only be beneficial for all parties as open communication leads to a synthesis of ideas, progress and positive development. Going forward it is anticipated that DARG will be able to implement additions to the database as data is collected and submitted by other entities including but not limited to government agencies, museum collections and private contractors. Additional involvement is expected during official consultation and specific site visitations that will be co-sponsored by BLM.

12.0 REFERENCES

Adovasio, J. M., J. Donahue and R. Stuckenrath
1990 The Meadowcroft Rockshelter Radiocarbon Chronology 1975-1990. *American Antiquity* 55:348-354.

Agenbroad, Larry D.
1978 The Hudson-Meng Site: An Alberta Bison Kill in the Nebraska High Plains. University Press of America, Washington, D.C.

Alley, W.M.
1984 The Palmer Drought Severity Index: Limitations and assumptions. Journal of Climate and Applied Meteorology 23:1100-1109.

Anderberg, Michael R.
1973 *Cluster Analysis for Applications*. Academic Press, New York.

Archer, D. L., L. R. Kaeding, B. D. Burdick, and C. W. McAda.
1985 A study of the endangered fishes of the upper Colorado River. Final Report. U.S. Fish and Wildlife Service, Grand Junction.

Ashmore, Wendy and A. Bernard Knapp
1999 *Archaeologies of Landscape.* Blackwell Publishers, Lt.

Baker, Steven G.
1995 Archaeological Disenfranchisement of Colorado Utes. *Southwestern Lore* 61(3):1-9. Colorado Archaeological Society, Denver.

2013 Exploring the Advent of the Eastern [Aka "Colorado"] Ute Archaeological Tradition. Symposium abstract, Rocky Mountain Anthropological Conference, Taos, New Mexico.

Baker, Steven G., Richard F. Carrillo, and Carl D. Spath
2007 Protohistoric and Historic Native Americans. In *Colorado History: A Context for Historical Archaeology*, Church, Minette C., Steven G. Baker, Bonnie J. Clark, Richard F. Carrillo,Jonathon C. Horn, Carl D. Späth, David R. Guilfoyle, and E. Steve Cassells. Colorado Council of Professional Archaeologists, Denver.

Baker, Steven G., Jeffrey S. Dean and Ronald H. Tower
2009 The Old Wood Calibration Project and the Vanishing Ute Prehistory of Western Colorado. Paper presented at 9th Biennial rocky Mountain Anthropological Conference, Western State College, Gunnison, CO.

Behrensmeyer, A. K.
1978 Taphonomic and Ecologic Information from Bone Weathering. *Paleobiology* 4:150-162.

Berry, Michael S. and Larry V. Benson
2008 The Role of Prehistoric Climate Change in Anasazi Stage Transitions. Paper presented at the 2008 Geological Society of America, Houston.

Berry, Michael S., Carl Conner, James Miller, Richard Ott, Courtney Groff, Carl McIntyre, and Michael Brown
2013 Archaeological Investigations at the McClane Rockshelter 5GF741 in Garfield County, Colorado BLM CRIR 15811-02; OAHP No. GF.LM.R504. Grand River Institute. Submitted to Colorado Historical Society, State Historical Fund No. 2010-02-029. Ms on file at the BLM Grand Junction Field Office.

Bevan, Andrew and James Conolly
2004 GIS, Archaeological Survey, and Landscape Archaeology on the Island of Kythera, Greece. *Journal of Field Archaeology,* 29(1):123-138.

Blinman, Eric, Carl Phagan and Richard H. Wilhusen
1988 Dolores Archaeological Program: Supporting Studies: Additive and Reductive Technologies. United States Department of the Interior, Bureau of Reclamation.

Brooks, L.R., J.F. Duds, and D. Falck
1933 Land Classifications of Western Colorado, US Geological Survey. US Government Printing Office, Washington D.C.

Brunswig, Robert H. Jr., Bruce Bradley, and Susan Chandler
1995 Archaeological Pottery of Colorado: Ceramic Clues to the Prehistoric and ProtoHistoric Lives of the State's Native Peoples. *CCPA Occasional Papers No. 2.* Colorado Council of Professional Archaeologists, Denver.

Buckles, William G.
1971 *The Uncompahgre Complex: Historic Ute Archaeology and Prehistoric Archaeology on the Uncompahgre Plateau in West Central Colorado*. Unpublished Ph.D. dissertation, Department of Anthropology, University of Colorado, Boulder.

Burkhard, W.T., and T.A. Lytle
1978 Final Report for Fish and Wildlife Resource Analysis of the West Divide Project. Colorado Department of Natural Resources, Division of Wildlife, Grand Junction.

Burns, Sam
2004 The Ute relationships to the lands of West Central Colorado: An ethnographic overview prepared for the U.S. Forest Service. Office of Community Services, Fort Lewis College, Durango, Colorado. Electronic document, http://swcenter.fortlewis.edu/inventory/UteLands.htm, accessed January 6, 2009.

Campana, Stefano and Riccardo Frankovich
2001 Landscape Archaeology in Tuscany: Cultural Resource Management, Remotely Sensed Techniques, GIS Based Data Integration and Interpretation. Online document at http://internt.ht.lu.se/media/utbildning/dokument/kurser/ARKN06/20102/Landscape_Archaeology_in_Tuscany.pdf.

Cassells, E. Steve
1997 *The Archaeology of Colorado*. Johnson Books, Boulder.

Castleton, Kenneth B.
1978 *Petroglyphs and Pictographs of Utah, Vol. 1: The East and Northeast*. Utah Museum of Natural History, Salt Lake City.

Chavez, Fray Angelico (translator), and Ted J. Warner (editor)
1976 *The Domínguez-Escalante Journal: Their Expedition Through Colorado, Utah, Arizona, and New Mexico in 1776*. Brigham Young University Press, Provo.

Church, Minette C., Steven G. Baker, Bonnie J. Clark, Richard F. Carrillo Jonathan C. Horn, Carl D. Späth, David R. Guilfoyle and E. Steve Cassells
2007 *Colorado History: A Context for Historical Archaeology*. Colorado Council of Professional Archaeologists, Denver, Colorado.

Cole, Sally J.
1987 An Analysis of the Prehistoric and Historic Rock Art of Western Colorado. *Colorado Bureau of Land Management Cultural Resources Series No. 21*, Denver.

1988 Ute Rock Art. In Archaeology of the Eastern Ute: A Symposium, edited by Paul R. Nickens, pp. 102-143 with Errata. CCPA Occasional Papers 1, Colorado Council of Professional Archaeologists, Denver.

1989 Rock Art at 5MN2341, The Harris Site. Appendix A, The Harris Site Excavation, by Gordon C. Tucker and the Chipeta Chapter of the Colorado Archaeological Society. Colorado Bureau of Land Management Cultural Resource Series 28, Denver.

1990 *Legacy On Stone, Rock Art of the Colorado Plateau and Four Corners Region*. Johnson Books Publishing, Boulder, Colorado.

Cole, Sally J.

1995 *Legacy On Stone, Rock Art of the Colorado Plateau and Four Corners Region* (2nd ed.). Johnson Books Publishing, Boulder, Colorado.

1999 *Legacy on Stone*. Johnson Books, Boulder, Colorado.

2009 *Legacy on Stone: Rock Art of the Colorado Plateau and Four Corners Region*, Revised and updated. Johnson Books, Boulder, Colorado.

2011 Assessment of Prehistoric Rock Art for the GJFO RMPPA. In Class I Cultural Resource Overview for the Grand Junction Field Office of the Bureau of Land Management, edited by Michael S. Berry, pp. 4.1-4.51. Grand River Institute.

2013 Ute-Paiute Identity in Rock Art of Western Colorado and Eastern Utah South of the Colorado River. Symposium paper presented at the Rocky Mountain Anthropological Conference, Taos, New Mexico.

2015 Identifying Cultural Landscapes: Archaeological Documentation and Analysis of Native American Rock Art along Proposed Prehistoric-to-Historic Trails in Mesa County, West Central Colorado. Appendix B in Archaeological Investigations of Two Ute Trails of Mesa County, Colorado, for the BLM, Grand Junction Field Office.

Conner, Carl E. and Barbara Davenport

2007 Class III Cultural Resources Inventory Report for the Proposed Collbran Pipeline Project in Garfield and Mesa Counties Colorado, for Encana Oil and Gas (USA) Inc. [BLM-GJFO No. 1107-12] [GRI No. 2781] Grand River Institute, Grand Junction, Colorado.

Conner, Carl E. and Danni L. Langdon

1980 Cultural Resources Inventory Federal Sodium Lease C-0118326, Rio Blanco County, Colorado for Multi Mineral Corporation. Ms on file, Bureau of Land Management, White River Field Office.

Conner, Carl E. and Danni L. Langdon

1987 Battlement Mesa Community Cultural Resources Study. Ms on file, Colorado Historical Society Office of Archaeology and Historic Preservation, Denver.

Conner, Carl E., Phil Born, and John Lindstrom

1976 United States Department of the Interior Bureau of Land Management, Antiquities Site Inventory form and attachment for 5ME540. Bureau of Land Management, Grand Junction Field Office, Colorado.

Conner, Carl E., Nicole Darnell, Brian O'Neil, Richard Ott, Curtis Martin, Dakota Kramer, James C. Miller, and Barbara Davenport.
2011 Class I Cultural Resource Overview for the Grand Junction Field Office of the Bureau of Land Management. Vol. I Ch. 4. Grand River Institute (GRI). Submitted to the Bureau of Land Management, Grand Junction Field Office, Project No. 29111.

Conner, Carl E., James Miller, Dakota Kramer, Curtis Martin, Brian O'Neil, Carl McIntyre, Courtney Groff, Jessica Hostrup, Hannah Mills, Cheryl Harrison, and Michael S. Berry
2014 Archaeological Monitoring and Data Retrieval for the Collbran Pipeline Project in Garfield and Mesa Counties, Colorado. Grand River Institute. Ms on file BLM Grand Junction Field Office.

Creasman, Steven D.
1981 *Archaeological Investigations in the Canyon Pintado Historical District, Rio Blanco County, Colorado.* Unpublished MA Thesis, Department of Anthropology, Colorado State University, Fort Collins.

Criado, Filipe and Cesar Parcero
1997 *Landscape, Archaeology, Heritage* postela 1st Edition.

Dial, Janis L.
1989 The Currecanti Archaeological Project: The Late Prehistoric Component at Pioneer Point. *Occasional Studies in Anthropology No. 24.* Midwest Archaeological Center, Lincoln, Nebraska.

Dillehay, Tom
1984 A Late Ice-Age Settlement in Southern Chile. *Scientific American* 251:106-117.

Doleman, William
1996 FCR (Fire-Cracked Rock) Bibliography. Tennessee Archaeology Net Bibliography Page. http://www.mtsu.edu/~kesmith/TNARCHNET/Pubs/fcr.html

Eckerle, William
1992 Paleoenvironmental History of the Trans-Colorado Alignment. In *Research Design for the Cultural Resource Mitigation Phase of the Trans-Colorado Pipeline Project: Western Colorado and Northwestern New Mexico*. Alpine Archaeological Consultants, Inc., Montrose.

Evans, R. A.
1988 *Management of Pinyon-Juniper Woodlands*. U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. General Technical Report INT-249.

Everitt, Brian S., Sabine Landau, and Morven Leese
2001 *Cluster Analysis (4th ed.)*. London, UK.

Fenneman, Nevin M.
1931 Physiography of the Western United States. New York.

Francis, Julie E.
2000 Root Procurement in the Upper Green River Basin: Archaeological Investigations at 48SU1002. In Intermountain Archaeology, edited by D.B. Madsen and M.D. Metcalf. *University of Utah Anthropological Papers* 122, University of Utah Press, Salt Lake City.

Frison, George C.
1988 Paleoindian Subsistence and Settlement During Post-Clovis Times on the Northwestern Plains, the Adjacent Mountain Ranges, and Intermontane Basins. In *Americans Before Columbus: Ice-Age Origins*, edited by R. C. Carlisle, pp. 83-106. Ethnology Monographs No. 12., Pittsburgh.

1991 *Prehistoric Hunters of the High Plains* (2nd ed.) Academic Press, New York.

Gilmore, Kevin P., Marcia Tate, Mark L. Chenault, Bonnie Clark, Terri McBride, and Margaret Wood
1999 Colorado Prehistory: A Context for the Platte River Basin. Colorado Council of Professional Archaeologists, Denver.

Goss, James A.
1999 The Yamparika-Shoshones, Comanches, or Utes – or Does it Matter? *In Julian Steward and the Great Basin: The Making of an Anthropologist*, edited by Richard O. Clemmer, L. Daniel Myers and Mary Elizabeth Rudden, pp. 74-84. University of Utah Press, Salt Lake City.

Hayden, F.V.
1877 *Drainage Map of Colorado*. Department of the Interior, U.S. Geological and Geographical Survey of the Territories, Washington, D.C. David Rumsey Historical Map Collection, electronic document, http://www.davidrumsey.com

Haynes, C.V.
1980 Paleoindian Charcoal from Meadowcroft Rockshelter: Is Contamination a Problem? *American Antiquity* 45:582-587.

1991 Geoarchaeological and Paleohydrological Evidence for Clovis-age Drought in North America and its Bearing on Extinction. Quaternary Research 35:438-450.

Hester, James J. (editor)
1988 Effects of frost heaving on objects in soils and its archaeological implications. In *Archaeological Sites Protection and Preservation Notebook: Technical Notes*. U.S. Army Engineer Waterways Experimental Station, Environmental Laboratory, Vicksburg.

Holmer, Richard N.
1986 Common Projectile Points of the Intermountain West. In Anthropology of the Desert West, edited by Carol G. Condie and Don D. Fowler, pp. 91-115. *University of Utah Anthropological Papers No. 110.* Salt Lake City.

Holmer, Richard N. and Dennis G. Weder
1980 Common Post-Archaic Projectile Points of the Fremont Area, in *Fremont Perspectives*, David B. Madsen (ed), Antiquities Section Selected Papers Number 16, Utah State Historic Society.

Horn, Jonathan C.
2005 Historic Artifact Handbook. Alpine Archaeological Consultants.

Johnson, R.C. and V.F. Nuccio
1986 Structural and Thermal History of the Piceance Creek Basin, Western Colorado, in Relation to Hydrocarbon Occurrence in the Mesaverde Group. American Association of Petroleum Geologists Studies in *Geology* (24), p. 165-205.

Justice, Noel D.
2002 Stone Age Spear and Arrow Points of the Southwestern United States. Indiana University Press, Bloomington.

Keyser, James D.
1975 Shoshonean Origin for the Plains Shield Bearing Warrior Motif. Plains Anthropologist 20:207-215.

2011 Horse and Rider Rock Art in Western Colorado. In Class I Cultural Resource Overview for the Grand Junction Field Office of the Bureau of Land Management. Michael S. Berry, editor, pp. 4.67-4.86. Bureau of Land Management, Grand Junction Field Office, Colorado.

Keyser, James D. And George Poetschat
2008 *Ute Horse Raiders on the Powder Rim: Rock Art at Powder Wash, Wyoming*. Oregon Archaeological Society Publication #19. Maverick Publishing, Bend, Oregon.

Kornfeld, Marcel, George C. Frison, and Mary Lou Larson.
2010 *Prehistoric Hunter-Gatherers of the High Plains and Rockies*. Third Edition. Left Coast Press, Inc. Walnut Creek, California.

Landau, Sabine and Brian S. Everitt
2004 *A Handbook of Statistical Analyses Using SPSS*. Chapman & Hall/CRC, Boca Raton, Florida.

Lekson, Stephen H.
2008 *A History of the Ancient Southwest*. Santa Fe, NM: School for Advanced Research Press.

Lewarch, Dennis E. and Michael J. O'Brien
1981 The expanding role of surface assemblages in archaeological research. In: *Advances in Archaeological Method and Theory* 4:297-333.

Loosle, Byron and Michelle Knoll
2003 *Fremont Numic Transitions*. Paper given at the Rocky Mountain Anthropological Conference. (fs.usda.gov).

Madsen, David B.
1980 Fremont/Sevier Subsistence. In Fremont Perspectives, *Antiquities Section Selected Papers* 7(16), Salt Lake City, pp. 25-34. Utah State Historical Society.

Martin, Curtis W., Harley J. Armstron, Sally M. Crum, Barbara J. Kutz (Davenport), and Lester A. Wheeler
1983 Cedar Siding Shelter: Archaeological Excavation of a Multi-Aspect Overhang, Emery County, Utah. *Cultural Resources Series* No. 15. BLM Utah State Office, Salt Lake City.

Martin, Curtis and Michael J. Brown
2010 The Colorado Wickiup Project Volume V: Test Excavation of the Ute Hunters' Camp (5RB563) and Documentation of Five Additional Aboriginal Wooden Feature Sites in Rio Blanco County, Colorado. Ms. on file at the Office of Archaeology and Historic Preservation, Denver, and the Bureau of Land Management Colorado State Office, Lakewood, Colorado.

Martin, Curtis, Michael J. Brown, and John E. Lindstrom
2011 The Colorado Wickiup Project Volume VI: Test Excavation of the Black Canyon Ramada (5DT222) and the Documentation of Four Additional Premier Aboriginal Wooden Feature Sites in Colorado. Ms. on file at the Office of Archaeology and Historic Preservation, Denver, and the Bureau of Land Management Colorado State Office, Lakewood, Colorado.

Martorano, Marilyn A.
1988 Culturally Peeled Trees and Ute Indians in Colorado. In Archaeology of the Eastern Ute: A Symposium, edited by Paul R. Nickens. Colorado Council of Professional Archaeologists Occasional Papers No. 1 CCPA, Denver.

Martorano, Marilyn A., Ted Hoefer III, Margaret (Pegi) A. Jodry, Vince Spero, and Melissa L. Taylor
1999 Colorado Prehistory: A Context for the Rio Grande Basin. Colorado Council of Professional Archaeologists, Denver.

McBeth, Sally
2007 Native American Oral History and Cultural Interpretation in Rocky Mountain National Park. Electronic document, http://www.cr.nps.gov/history/online_books/romo/mcbeth/oral_history.pdf

Mehls, Steven F.
1988 *The Valley of Opportunity: A History of West-Central Colorado*. Bureau of Land Management Cultural Resources Series No. 12, Denver, Colorado.

Mendenhall, William, Lyman Ott, and Richard Sheaffer
1971 *Elementary Survey Sampling*. Belmont, CA: Duxbury Press.

Metcalf, Michael D. and Kevin D. Black
1991 Archaeological Excavations at the Yarmony Pit House Site, Eagle County, Colorado. *Colorado Bureau of Land Management Cultural Resource Series* No. 31. Denver.

Metcalf, Michael D. and Alan D. Reed (editors)
2011 Synthesis of Archaeological Data Compiled for the Piceance Basin Expansion, Rockies Express Pipeline, and Uinta Basin Lateral Projects Moffat and Rio Blanco Counties, Colorado, and Sweetwater County, Wyoming, Volume 2. Prepared by Alpine Archaeological Consultants, Inc. and Metcalf Archaeological Consultants, Inc. Ms on file with the BLM Colorado State Office, Lakewood, Colorado.

Miller, James C.
1992 Geology in Archaeology: Geology, Paleoclimates and Archaeology in the Western Wyoming Basin. Unpublished MA thesis, Department of Anthropology, University of Wyoming, Laramie.

1996 Latest Pleistocene and Holocene Geology of Twenty-one Sites in the Eagle Pass Ranch Land Exchange, Grand and Summit Counties, Colorado. Ms on file, BLM Kremmling Field Office.

Miller, James C.
2010 Preliminary Report of Geoarchaeological Investigations at Indian Creek, Mesa County, Colorado. Ms on file, BLM Grand Junction Field Office.

Moores, Jean (editor)
2000 *Gateway/Unaweep Canyon At Some Point In Time*. Anundsen Publishing Company, Decorah, Iowa.

Murray, Erlene D.
1973 *Lest We Forget – A Short History of Early Grand Valley, Colorado*, [Originally called Parachute, Colorado.] Qwuahada, Inc., Grand Junction.

Nickens, Paul R. (ed.)
1988 Archaeology of the Eastern Ute: A Symposium. *CCPA Occasional Papers, No. 1.* Colorado Council of Professional Archaeologists, Denver.

Palmer, W.C.
1965 Meteorgological drought. Research Paper No. 45, U.S. Department of Commerce Weather Bureau, Washington D.C.

Peterson, Kenneth P.
1981 10,000 years of change reconstructed from fossil pollen, La Plata Mountains, southwestern Colorado. Unpublished Ph.D. dissertation, Department of Anthropology, Washington State University.

Petraglia, Michael D.
2002 The heated and the broken: thermally altered stone, human behavior, and archaeological site formation. *North American Archaeologist*, 23(3):241-269.

Rapp, G.R., Jr., S. Balescu, and M. Lamothe
1999 The Identification of Granitic Fire-Cracked Rocks Using Luminescence of Alkali Feldspars. American Antiquity 64: 71-78.

Reed, Alan D.
1994 The Numic Occupation of Western Colorado and Eastern Utah during the Late Prehistoric and Protohistoric Periods. In *Across the West: Human Population Movement and Expansion of the Numa*. Edited by David B. Madsen and David Rhode, pp. 188-189. University of Utah Press, Salt Lake City.

1995 Ute Ceramics. In *Archaeological Pottery of Colorado: Ceramic Clues to the Prehistoric and Protohistoric Lives of the State's Native Peoples*. Edited by Robert H. Brunswig, Jr., Bruce Bradley and Susan M. Chandler. Colorado Council of Professional Archaeologists, Denver.

Reed, Alan D. And Michael D. Metcalf
1999 *Colorado Prehistory: A Context for the Northern Colorado River Basin*. Colorado Historical Society, Denver, Colorado.

Schaafsma, Polly
1971 The Rock Art of Utah. Papers of the Peabody Museum of American Archae-ology and Ethnology 65, Cambridge, Massachusetts.

Silbernagel, Robert
2011 *Troubled Trails: the Meeker Affair and the Expulsion of the Utes from Colorado.* University of Utah Press, Salt Lake City.

Simmons, Virginia McConnell
2000 *The Ute Indians of Utah, Colorado, and New Mexico*. University Press of Colorado, Boulder.

Spangler, Jerry
2004 Categories and Conundrums: The Rock Art of Lower Nine Mile Canyon. In New Dimensions in Rock Art Studies, edited by Ray T. Matheny, pp. 119-143. Museum Of Peoples and Cultures Occasional Papers 9, Brigham Young University, University of Utah Press, Salt Lake City.

Stiger, Mark A.
1998 *Hunter-Gatherer Archaeology of the Colorado High County*. University Press of Colorado, Boulder.

Tabor, S.
1929 Frost Heaving; Journal of Geology 37:428-461.

Thompson, Kevin and Jana V. Pastor
1995 *People of the Sage: 10,000 Years of Occupation in Southwest Wyoming*. Cultural Resource Management Report No. 67. Archaeological Services, Western Wyoming College, Rock Springs.

U.S.D.A. Soil Conservation Service
1955 Soil Survey of the Grand Junction area, Colorado. *USDA Soil Survey Series 1940*, No 19. Government Printing Office, Washington, D.C.

1975 Technical Guide IIE: Range Site Descriptions

U.S. Dept of Commerce
1965-1980 Climatological Data, Annual Summaries. National Oceanic and Atmospheric Administration Center, Nashville, North Carolina.

USDI Fish and Wildlife Service
1975 Endangered and Threatened Wildlife and Plants; "Threatened" Status for Three Species of Trout. Federal Register 40(137):29863-29864.

Wheeler, C.W. and G. Martin
1982 The Granby Site: Early-Middle Archaic Wattle and Daub Structure. *Southwestern Lore* 48(3):16-25.

White, William Wallace
1921 Patent and Trade Mark Review, Vol. 20-21. Trade Activities, Cooperstown, New York.

Whitten, David
2005 Glass Manufacturers' Marks on Bottles. Updated with new URL 2012. http://www.glassbottlemarks/bottlemarks/

Williamson, Ray A.
1987 *Living the Sky: The Cosmos of the American Indian*. University of Oklahoma Press, Norman.

wrcc.dri.edu
2010 Western Regional Climate Center. Accessed 5/16/2016.

Wroth, William (editor)
2000 *Ute Indian Arts and Culture: From Prehistory to the New Millenium*. Taylor

Wormington, H. Marie
1955 *Reappraisal of the Fremont Culture with A Summary of the Archaeology of The Northern Periphery*. Denver Museum of Natural History, Denver.

Young, Robert G. And Joann W. Young
1977 *Colorado West, Land of Geology and Wildflowers*. Wheelwright Press Ltd.

Zelditch, M.L., D.L. Swiderski, H.D. Sheets, and W.L. Fink
2004 *Geometric Morphometrics for Biologists: A Primer*. Elsevier Academic Press, New York.

APPENDIX A: Bibliographic List of Previously Conducted Cultural Resources Inventories and List of Previously Recorded Sites

APPENDIX B: IDENTIFYING CULTURAL LANDSCAPES: ARCHAEOLOGICAL DOCUMENTATION AND ANALYSIS OF NATIVE AMERICAN ROCK ART ALONG PROPOSED PREHISTORIC-TO-HISTORIC TRAILS IN MESA COUNTY, WEST CENTRAL COLORADO

Identifying Cultural Landscapes: Archaeological Documentation and Analysis of Native American Rock Art along Proposed Prehistoric-to-Historic Trails in Mesa County, West Central Colorado

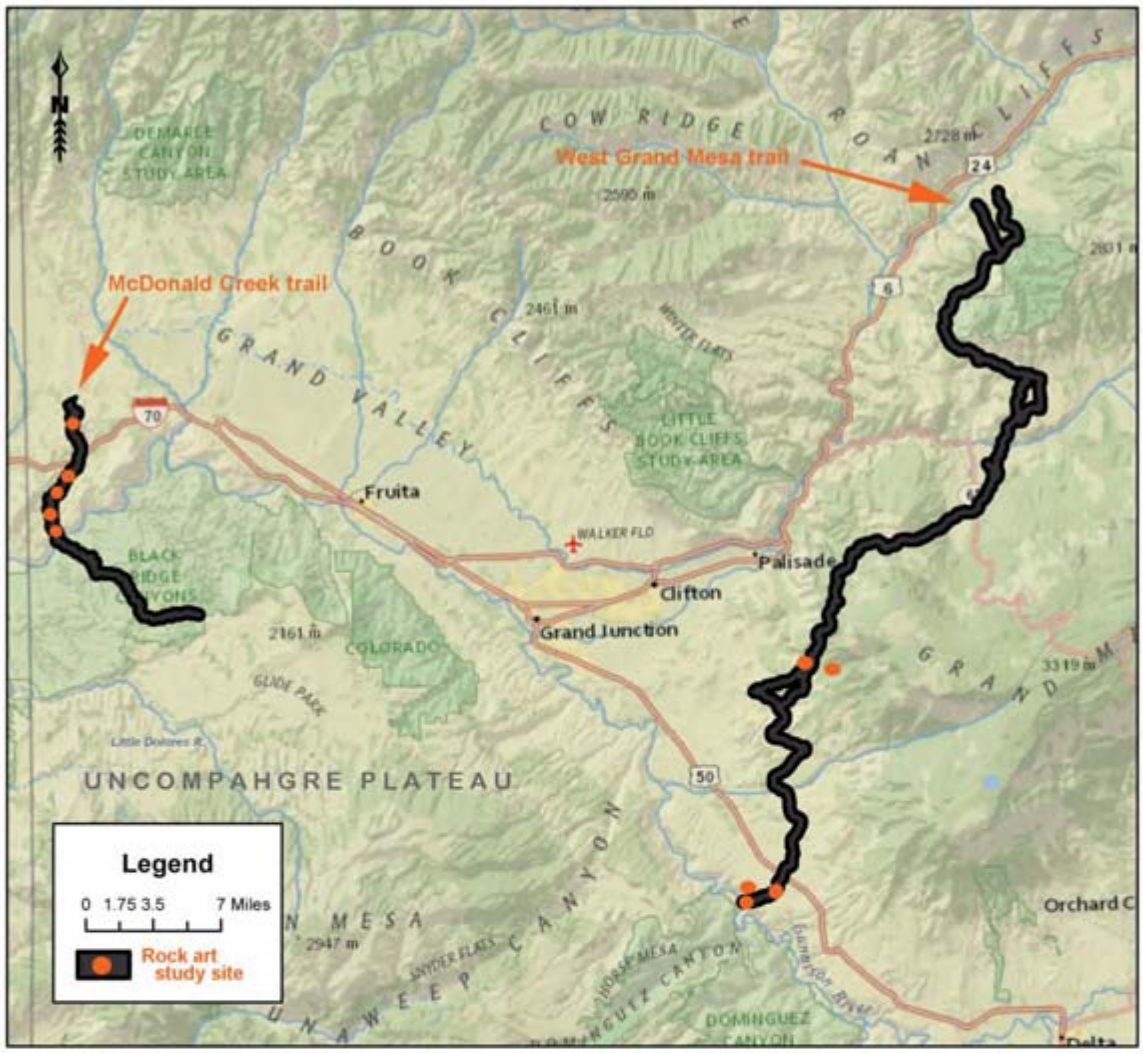
Sally J. Cole, Rock Art Principal Investigator
Ute Trails of Mesa County, Colorado State Historical Fund Project No. 2014-01-054
Dominquez Archaeological Research Group, Grand Junction, Colorado

Introduction

Rock art research has proved useful for distinguishing populations and patterns of behavior over time on the Colorado Plateau and in the Intermountain region. Petroglyphs and rock paintings are fixed in place and as communication were integral to group identities and rituals whether sedentary or mobile. They are marks and markers of culture and society on the landscapes where they were placed (Bernardini 2005; Buckles 1971; Castleton 1978–1979; Christensen 2007; Christensen et al. 2013; Cole 1989, 1990, 1992–1994, 1996, 2004a-b, 2009, 2011a-b; 2013; Grant 1978; Guernsey and Kidder 1921; Heizer and Baumhof 1962; Heizer and Clewlow 1973; Ives 1986; Keyser 1975, 1977, 2011; Kidder and Guernsey 1919; Matheny et al. 2004; Olsen 1985; Quinlan and Woody 2003; Robins 1997; Schaafsma 1971, 1980; Schaafsma and Schaafsma 1974; Spangler 2004; Stephen 1969; Stevenson 1904; Terlep 2012; Tipps 1995; Young 1985).

The present research examines the nature and timing of Archaic, Formative (Fremont and Ancestral Pueblo), and historical Ute developments in west central Colorado through documentation and comparative analysis of rock art at 11 sample sites along the projected McDonald Creek and West Grand Mesa cultural trails or corridors (Dominquez Archaeological Research Group, Colorado State Historical Fund Project #2014-01-054). The subject petroglyphs and paintings are models for the range of reported styles in the region and patterns of distribution along the trails and in surrounding areas. Although broadly dated, the stylistic patterns point to routes for migration and settlements through time.

The proposed McDonald Creek trail crosses the Colorado River near the Utah line, connecting Glade Park and the Little Dolores River on the northern Uncompahgre Plateau to the Book Cliffs and Roan and Tavaputs plateaus, and beyond to the Uintah Basin. The West Grand Mesa trail would link Battlement Mesa and the upper Colorado River to the Gunnison River, gateway to the central and southern Uncompahgre Plateau and the Dolores and San Juan River drainages (Figure 1). Here, groups of prehistoric hunter-gatherers and Fremont and Ancestral Pueblo farmers marked distinctive landscapes; historical Ute (horse and rider) markers cross earlier boundaries. The rock art enhances knowledge of cultural dynamics and offers insights into past traditions and territories.



Ute Trails in Mesa County, Colorado. Maps show potential trail locations with approximate distribution of 11 rock art study sample sites (above) and the project area within a larger geophysical-political landscape (left). (Adapted from DARG-Ute Trails of Mesa County Project, 2012)

Figure 1. Proposed prehistoric-to-historic travel corridors and rock art focus sites within local and regional landscapes.

The research comprises documentation and assessment of rock art at the 11 sample study sites and comparative analysis and identification of wider cultural affiliations and relationships exemplified by style and distribution within the regional cultural context (Baker et al. 2007, 2009; Black 1991; Blinman 2000; Bradley et al. 1986; Buckles 1971; Cassells 1997; Charles and Cole 2006; Conner et al. 2011, 2014; Creasman 1981, 1982; Fahrni 2004; Graham and Cole 2014; Gruebel et al. 2006; Hovezak 2003; Hurst 1940-1941, 1945-1948; Kinnear-Ferris 2011; Lister and Dick 1952; Lutz 1978; Madsen and Metcalf 2000; Marwitt 1973; McDonald 1997; Reed 2005; Reed and Metcalf 1999; Simms 2008; Smith-McDonald 1989; Spangler 2000; Stiger 2001; Stiger and Larson 1992; Talbot and Wilde 1989; Toll 1977; Tucker 1989; Wormington and Lister 1956). The study addresses Archaic dynamics investigated by Wormington and Lister (1956), Buckles (1971), and Black (1991) and recently identified in the radiocarbon record (Conner et al. 2014). Of particular interest in the latest study are Periods 3–5 (1750 B.C. to A.D. 1250) that span the late Archaic into Formative eras with which regional rock art styles examined here are most closely associated (Cole 1999, 2009, 2011a). The stylistic affiliations point to the presence of long term residents and origins of migrating populations.

The nature of trailside rock art and its potential contributions to cultural exchange and territorial control or passage are of interest to the research. To the degree it was public communication, openly signifying information about the makers and their societies; it is likely to have reinforced group identities and connections to the landscape. Depending upon the message and the nature of the societies involved, outsiders may have been welcomed or excluded from interaction. The public vs. private nature of rock art at the 11 study sites is examined in the framework of the corridor settings. This report summarizes documentation results; describes the rock art sites, settings, and stylistic associations; and examines questions of cultural affiliation and regional relationships with regard to migration, immigration, and settlement through time.

Research Methods, Results, and Personnel

Project work comprised records search, site survey, documentation, and assessment. The field work and subsequent analysis were conducted between June 2014 and May 2015 for the Dominquez Archaeological Research Group (DARG). The 2014 Utah State University (USU) Archaeological Field School (Steven R. Simms, Ph.D., Director) participated in the initial McDonald Creek rock art field and laboratory work supervised by Sally J. Cole. The USU field school technical assistant was Anastasia Lugo Mendez and the student archaeologists were Brandi Allred, Kylie Christensen, Ryan Gerstner, Jill Montgomery, Alicia Olea, Kristi Tuttle, Terry M. Williams, and Bethany M. Wurster. Sally J. Cole and Curtis Martin, individually, made field data checks and documented and assessed additional rock art sites in the two corridors.

Six previously recorded rock art sites in the proposed McDonald Creek corridor between the open terrain of the upper slopes and the Colorado River at the sandstone canyon mouth

(5ME529, 5ME538, 5ME540, 5ME1356, 5ME5247, and 5ME5259) and five sites in the West Grand Mesa corridor, two on the west bench of Grand Mesa (5ME3768, 5ME8047) and three near the Gunnison River to the south (5ME163, 5ME164, and 5ME580) were surveyed and documented for the Ute Trails project. The sites and rock art were assessed for condition, age, and cultural affiliation.

Existing records were updated for all study sites. Rock art panels were newly recorded or reevaluated with comments to provide additional information. The body of documentation is baseline data for this study and comprises site plans (new and adapted), high resolution digital photographs including annotated site-panel layouts and panel motif and attribute assessments, color-enhanced images to improve motif visibility, scaled and annotated rock art drawings, and applicable Colorado Cultural Resource Survey forms with comments (see DARG final report and attachments for Colorado Historical Fund project No. 2014-01-054).

Comparative Styles

Culturally affiliated rock art expressions utilized in the study are associated with Archaic hunter-gatherers, Ancestral Pueblo and Fremont farmers, and historical Ute. The Archaic-based expressions are the: Abstract-Geometric style tradition (petroglyphs and paintings) with links to the Great Basin and Southwest; Uncompahgre style (few paintings, predominantly petroglyphs) are most obviously manifested in the west central Colorado area; and Barrier Canyon style paintings and petroglyphs of the Colorado Plateau north of the San Juan River and south of the Uintah Basin. Unlike the other two, Barrier Canyon style is a component of anthropomorphic-centered iconography that characterizes Archaic and Formative expressions (rock art and material culture) on the plateau and provides major comparative data (Cole 2004a).

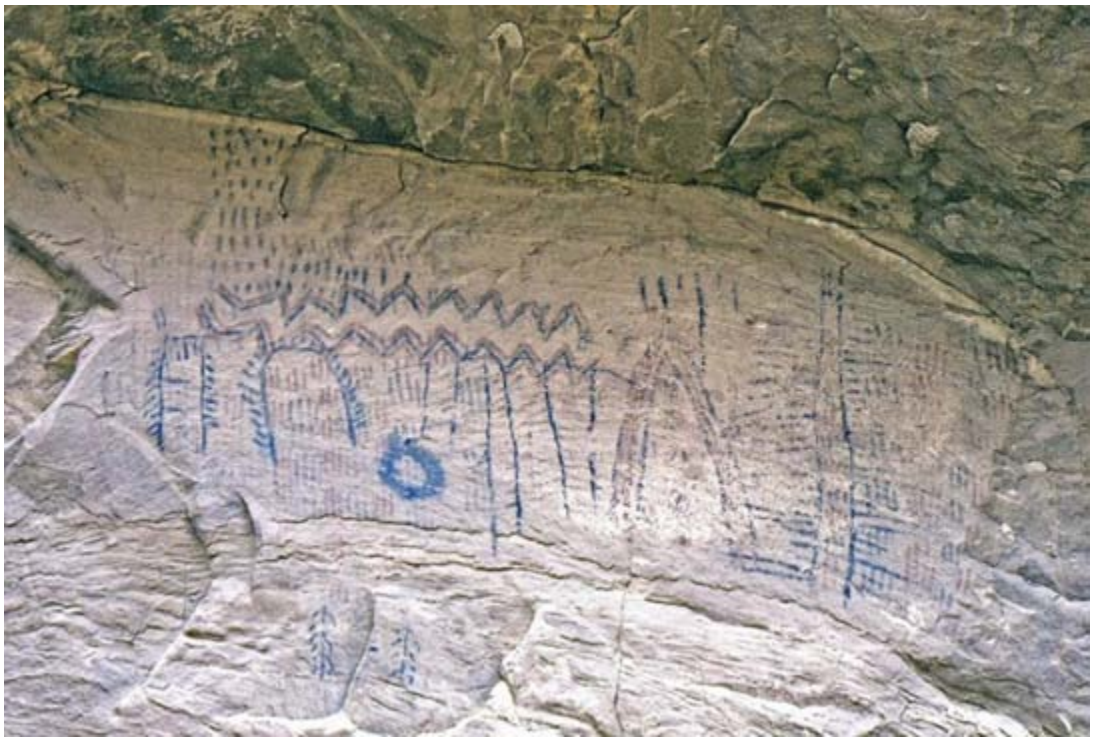
The proposed chronologies of the three Archaic-derived styles extend into the Formative era represented by generalized Basketmaker II-III petroglyphs and paintings connected to the greater San Juan and Canyonlands regions; generalized Fremont style petroglyphs and paintings associated with Uintah Basin-Roan and Tavaputs plateaus-Little Dolores River-Glade Park as well as the more remote San Rafael region; and Ancestral Pueblo I-II–early Pueblo III paintings and petroglyphs related to the greater San Juan, Canyonlands, and San Miguel-Dolores River regions (Figure 1). Historic Ute style petroglyphs and paintings are known from western Colorado, southern Wyoming, and eastern Utah where earlier and later expressions have been identified (Buckles 1971; Castleton 1978-1979; Cole 1988, 1989, 1990, 2004a, 2009, 2011a; Conner and Ott 1978; Creasman 1982; Grant 1978; Keyser 2011; Keyser and Poetschat 2008; Lutz 1978; Schaafsma 1971, 1980; Spangler 2004; Spangler and Spangler 2007; Wormington and Lister 1956).

The style chronologies generally follow Cole (1990, 2009): Abstract-Geometric Tradition (~4000 B.C.–500/1000 A.D.); Barrier Canyon style (~2000 B.C.–A.D. 400); Uncompahgre style (~1000 B. C. or earlier–A.D. 1000); generalized Basketmaker II-III (~1000/400 B.C.–A.D. 600);

generalized Basketmaker III–Pueblo I and Pueblo II–III (~A.D. 600–1350); generalized Fremont (~A.D. 400/600–1300/1500); early historic Ute (~1500s–1825/1850) and late historic Ute (~1825/1850–1900 and later). Uncompahgre style, in particular, may have earlier origins as suggested by stylistic and geographic overlaps with Abstract-Geometric rock art (and somewhat with Glen Canyon Style 5 not addressed in the present study). Uncompahgre and Abstract-Geometric styles appear deeply rooted in the study region.

Age estimates for the subject styles come with the proviso that sandstone surfaces upon which most occur may not have survived more than a few thousand years and relatively little comparable material culture from the Archaic era is reported. An abundance of material culture and records insure fewer uncertainties with regard to Ancestral Pueblo, Fremont, and historic Ute expressions. Present-day discussions about the age of a potential mammoth petroglyph and age of Barrier Canyon style paintings in southeastern Utah make the point (Hurst 2011; Malotki and Wallace 2010; Pederson et al. 2014; Steven Simms, personal communication 2014). Examples of relevant cultural styles and subject matter discussed in the study are illustrated in Figures 2 –7.

2a



2b

2c

2d

2e

Figure 2a–e. Abstract-Geometric style paintings and petroglyphs: (a)-(b) San Rafael Swell, Utah; (c) tipped boulder with multiple Archaic–Basketmaker II-III styles, San Juan River drainage, Utah; and (d)-(e) 5DT355,North Fork Gunnison River drainage, Colorado (note pecking around natural contours; some animals and human figures may be associated with Uncompahgre style that also occurs at the site).

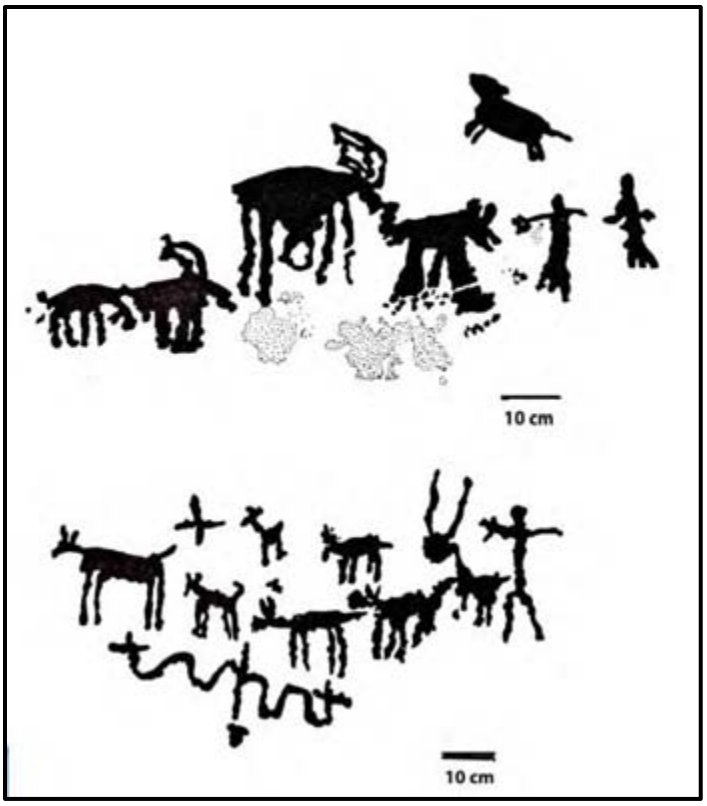
3a

3b

3c

Figure 3. Barrier Canyon style paintings and petroglyphs: (a)-(b) Book Cliffs-Roan Plateau area, Colorado; and (c) Near Moab, Utah.

4a

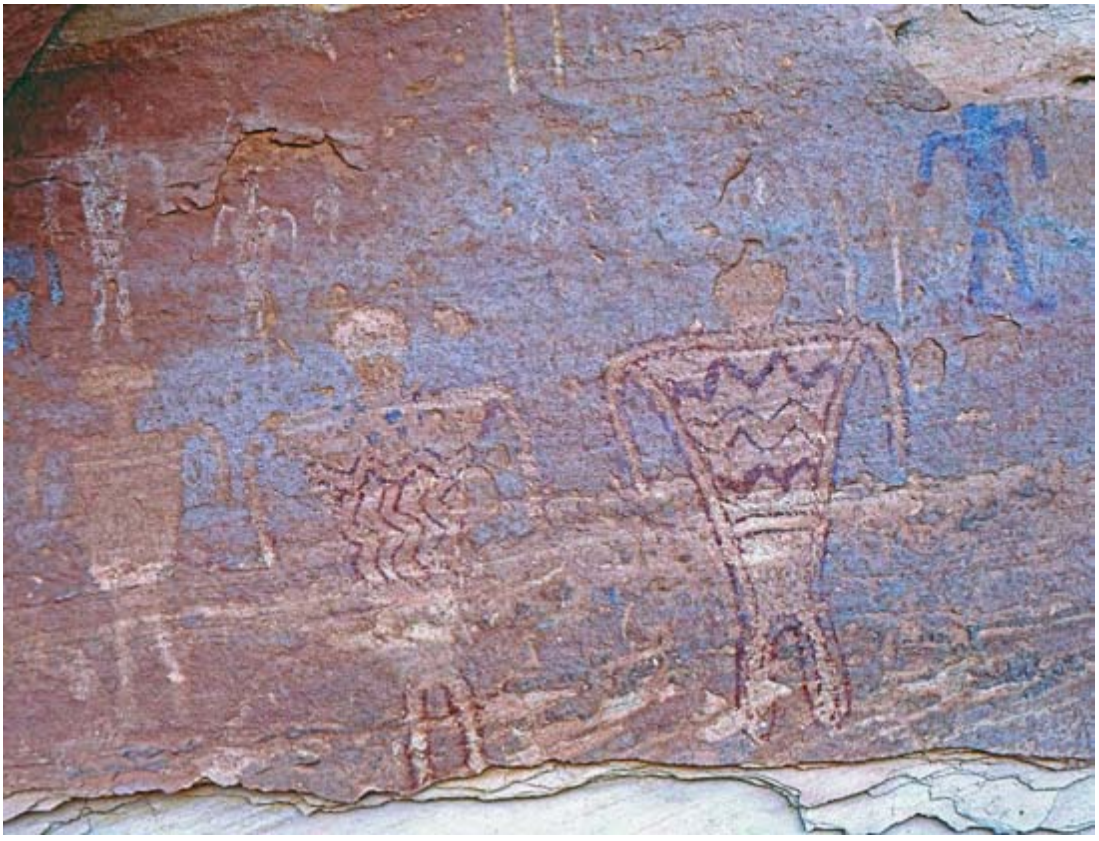


4b

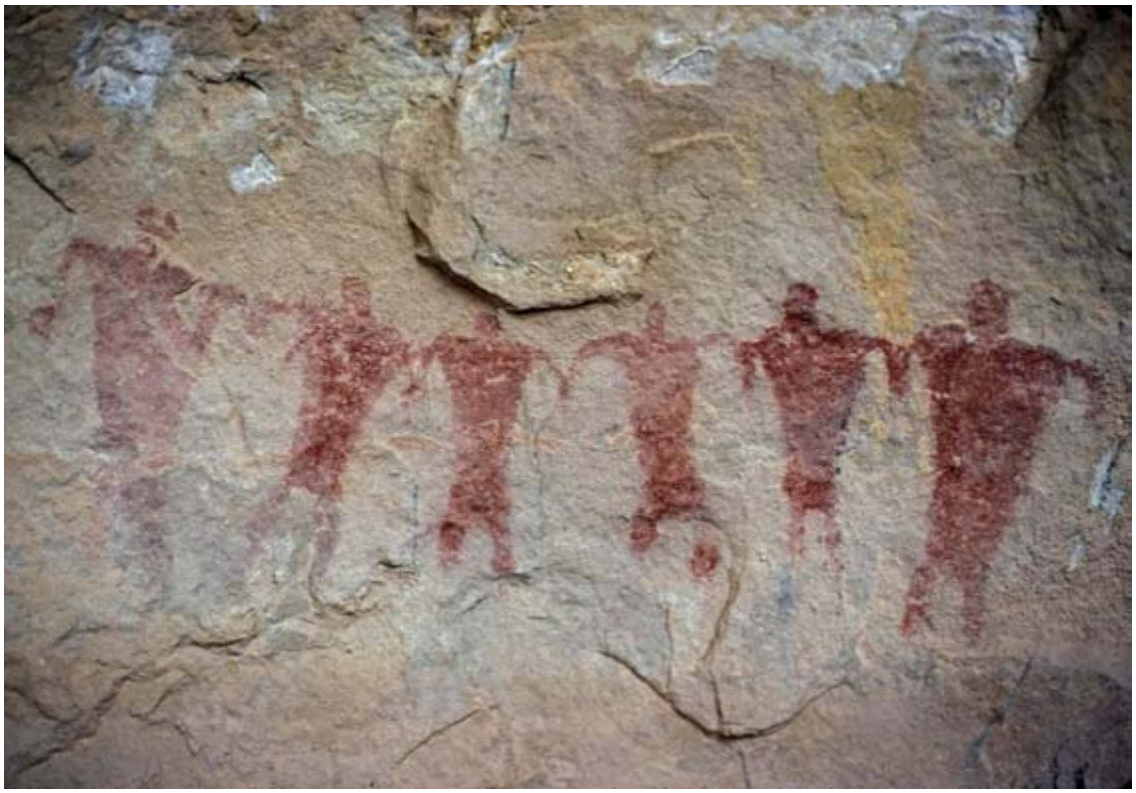
4c

Figure 4. Uncompahgre style petroglyphs at: (a) 5ME468 type-site; (b) 5ME228; and (c) 5DT355 with possibly masked anthropomorph; all in the Gunnison River drainage, Colorado.

5a



5b

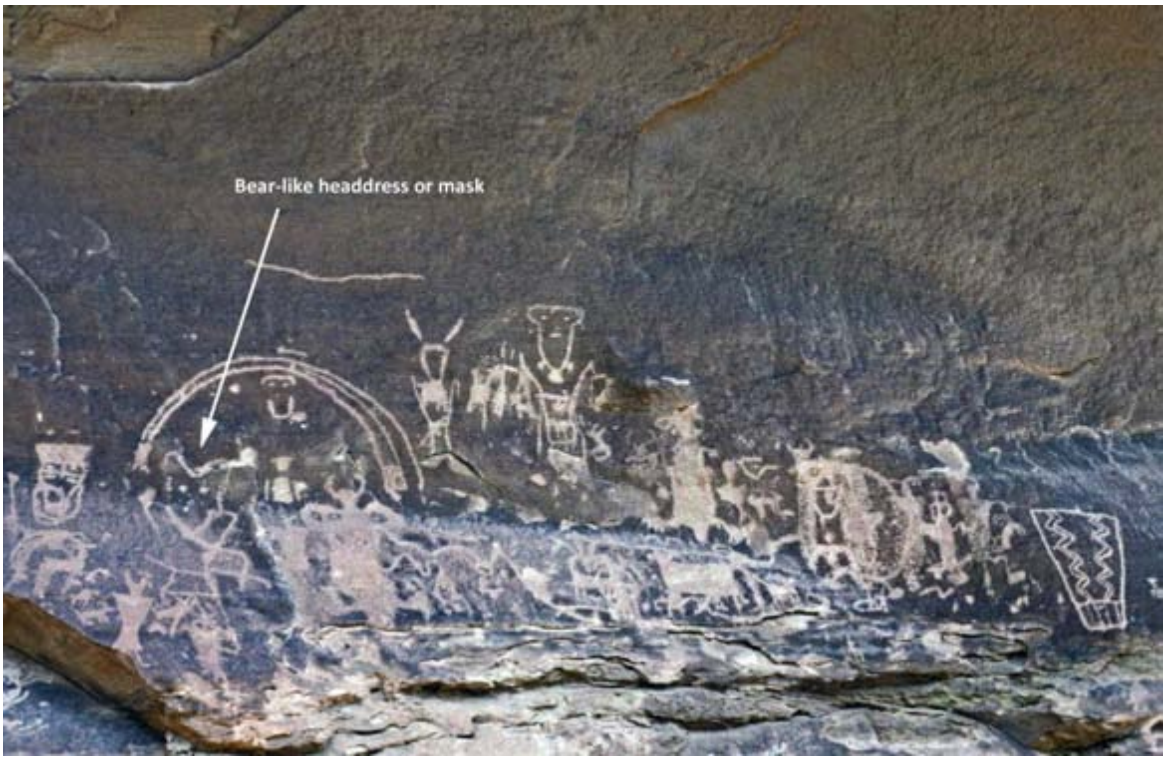


5c

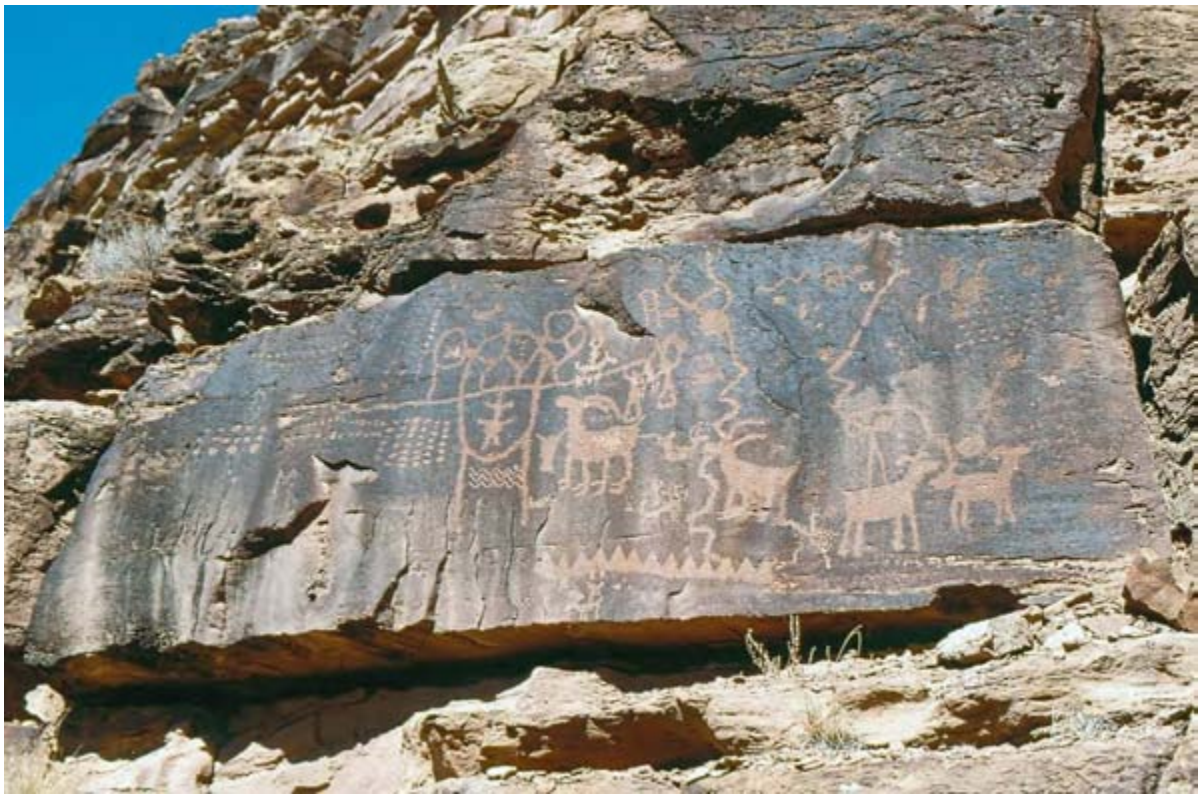
Figure 5. Basketmaker II-III style petroglyphs and paintings: (a)-(b) San Juan River drainage, Utah; and (c) San Miguel River drainage, Colorado.

6a

6b



6c



6d

6e

6f

Figure 6. Fremont style paintings and petroglyphs: (a)-(b) Uintah Basin, Utah; (c)-(d) Tavaputs Plateau, Utah; (e) Book Cliffs-Roan Plateau area, Colorado; and (e) Glade Park area, Colorado.

7a

7b

Figure 7. Historic Ute paintings and petroglyphs, probably pre-1850: (a) Colorado River and (b) San Juan River drainages, Utah.

The Study Sites

West Trail

The six rock art sites along the proposed McDonald Creek trail are described and discussed in order of occurrence, north to south, from the uplands to the confluence with the Colorado River near the Colorado-Utah line (Figure 1). Site type descriptions beyond rock art are derived from Colorado Cultural Resource Survey records and field data.

5ME5247

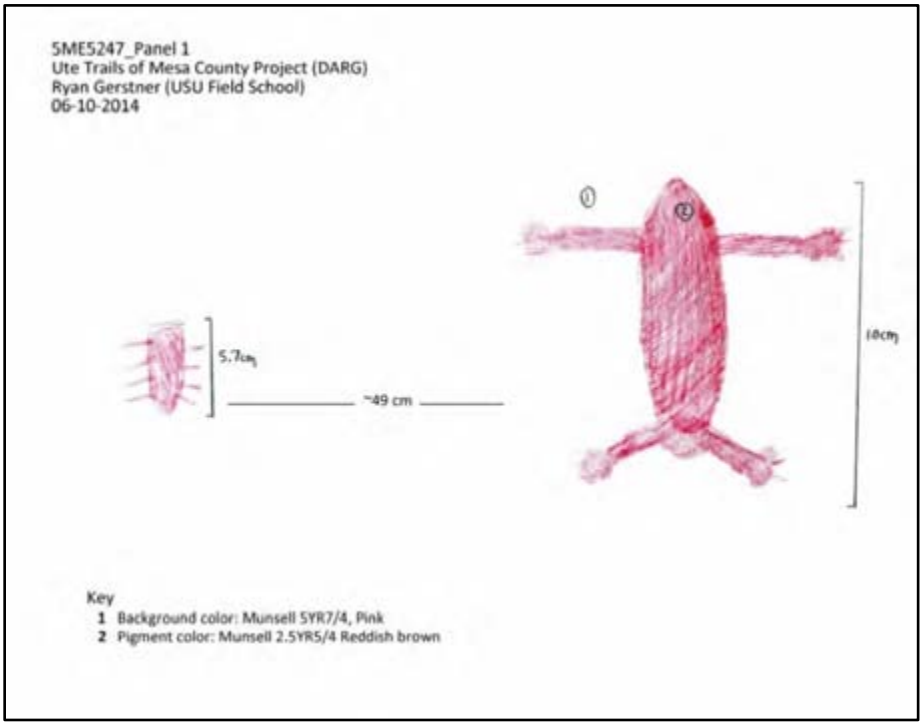
The northernmost site, a sheltered camp with rock art, is located near the streambed in the open terrain of the upper drainage. Two small, partially eroded red paintings (10 cm and less in length) and surrounding inscriptions and graffiti, soot deposits, and indistinct stains comprise Panel 1 located on the overhanging ceiling of a boulder-shelter near the streambed (Figure 8). The red motifs of interest here comprise an animal with spread legs and paws with prominent claws and a smaller, similarly shaped but indistinct form with fringelike appendages (possibly insect). The animal (or pelt as suggested by the pose) may represent a badger with an inconspicuous tail. The paintings are tentatively assigned to Fremont culture (~A.D. 400/600–1300 or later) (Bradley et al. 1989; Conner et al. 2011, 2014; Creasman 1981; Simms 2008; Spangler 2000) based on similarities in subject matter and painting techniques at downstream site 5ME538. Unlike that site, the diminutive size and setting of the present paintings within the modest shelter indicate they were not created for broad, public viewing and are unlikely to have communicated to outsiders traveling the corridor.

5ME1356

The second McDonald Creek site is near the point the canyon narrows. Here, the streambed makes a sharp bend around a prominent, overhanging sandstone cliff embellished with 9 panels of prehistoric and historic rock art, historic inscriptions, and numerous examples of graffiti. The various subjects are visible, exclusively, from upstream or downstream. Panels 2, 3, and 9 were assessed for the present study.

Panel 2 (visible from downstream) comprises eroded black paintings showing a pedestrian with a possible backpack and rifle pointed toward an equestrian; the cliff overhang is not significant and erosion and spall are significant. The paintings are probably of historic Ute origin and may chronicle a shooting event in the area. The style of paintings is consistent with late historic Ute expressions on the Uncompahgre Plateau and in eastern Utah and probably dates after 1750 (Baker 2013; Baker et al. 2009; Buckles 1971; Cole 1989, 1990, 2013). Ute paintings and petroglyphs commonly appear to represent encampments, individual accomplishments and characteristics; hunting events and raids and conflicts (Cole 1988, 1989, 1990, 2013; Keyser 2011; Keyser and Poetschat, eds. 2008). The Ute are credited with San Juan

8a



8b

Figure 8a–b. 5ME5247, Panel 1: (a) overview and (b) detail drawing.

River petroglyphs depicting a skirmish between Anglos and Indians, possibly involving a Colorado posse and Polk Narraguinip's Ute band (Hurst 2011).

The relatively small, dark paintings are openly accessible and viewed from the terrace at the base of the cliff but require close examination. In this sense they are not public displays and are more likely to have communicated to a relatively small and select group of travelers, perhaps Ute bands that occupied the canyon and/or regularly passed through from downstream (Figure 9).

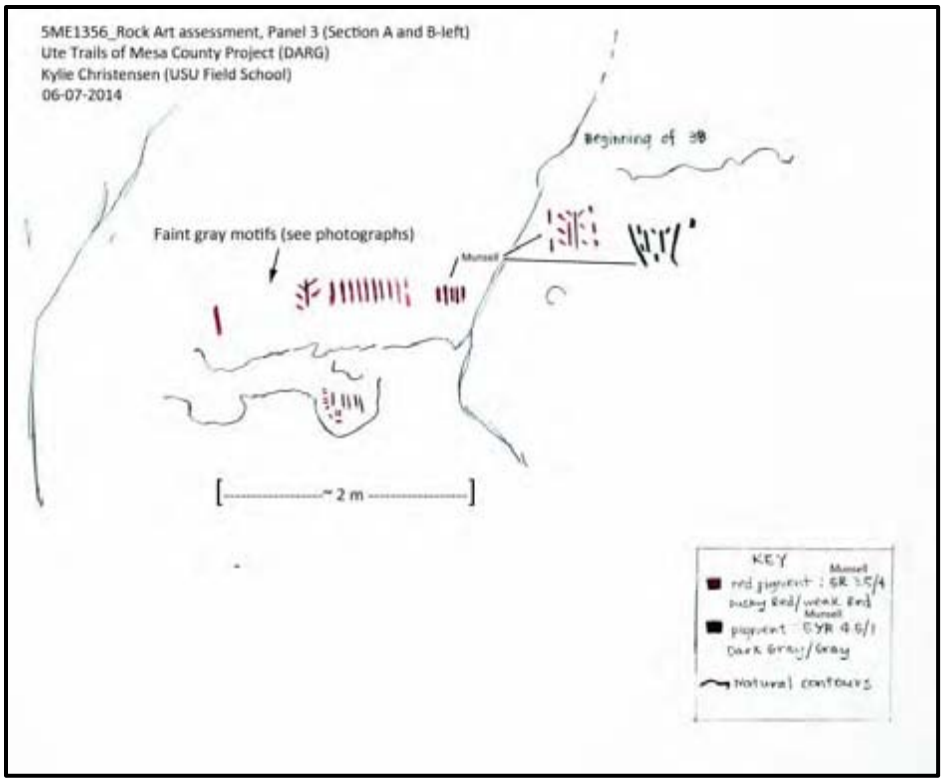
In contrast to the Ute work, Panels 3 and 9 at 5ME1356 (visible from upstream) are natural billboards. The now eroded and faint motifs may have been components of a continuous, colorful array that spanned 50 m or more of the cliff above the stream. Surface spall is obvious and extensive on Panel 3 and erosion and mineral accretion and/or dust deposits have made most motifs faint. The relatively well preserved elements in Panel 9 are bright but areas of spall are evident near the paintings. Collectively, the panels comprise red in various shades and black and gray paintings of linear geometric motifs (some resembling plants and bird or other animal tracks), parallel lines and/or finger "swipes" or "prints", circular forms, and dots (Figures 10–13).

9a

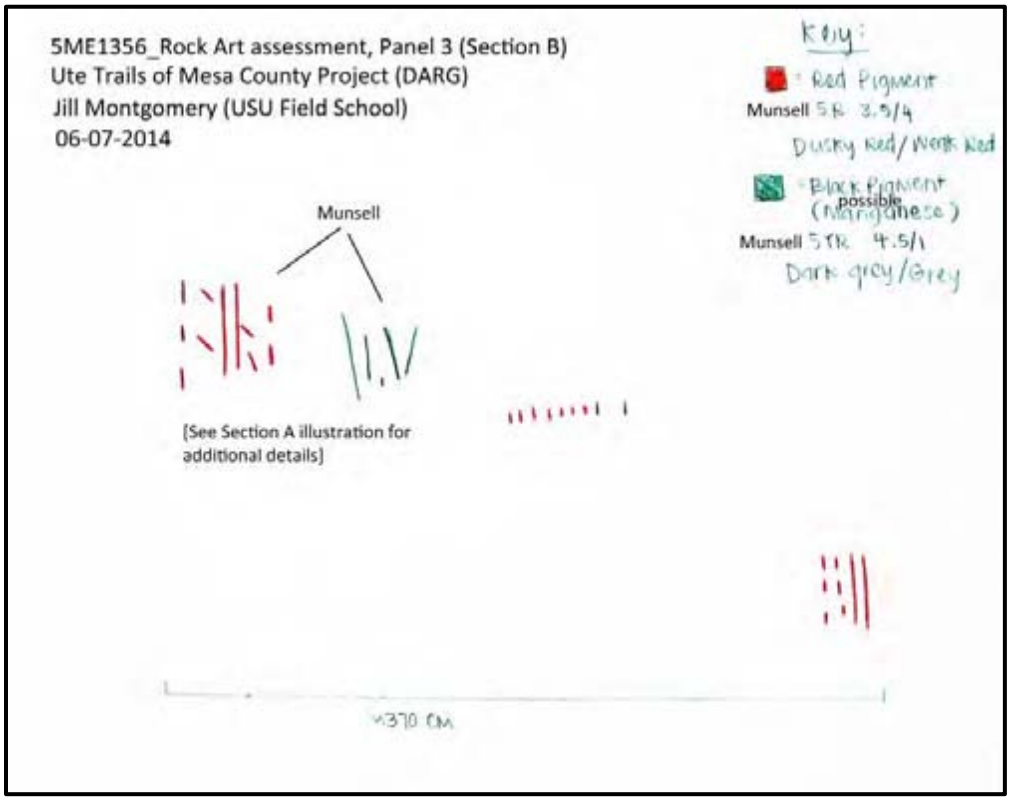
9b

Figure 9a–b. 5ME1356, Panel 2: (a) overview and (b) detail.

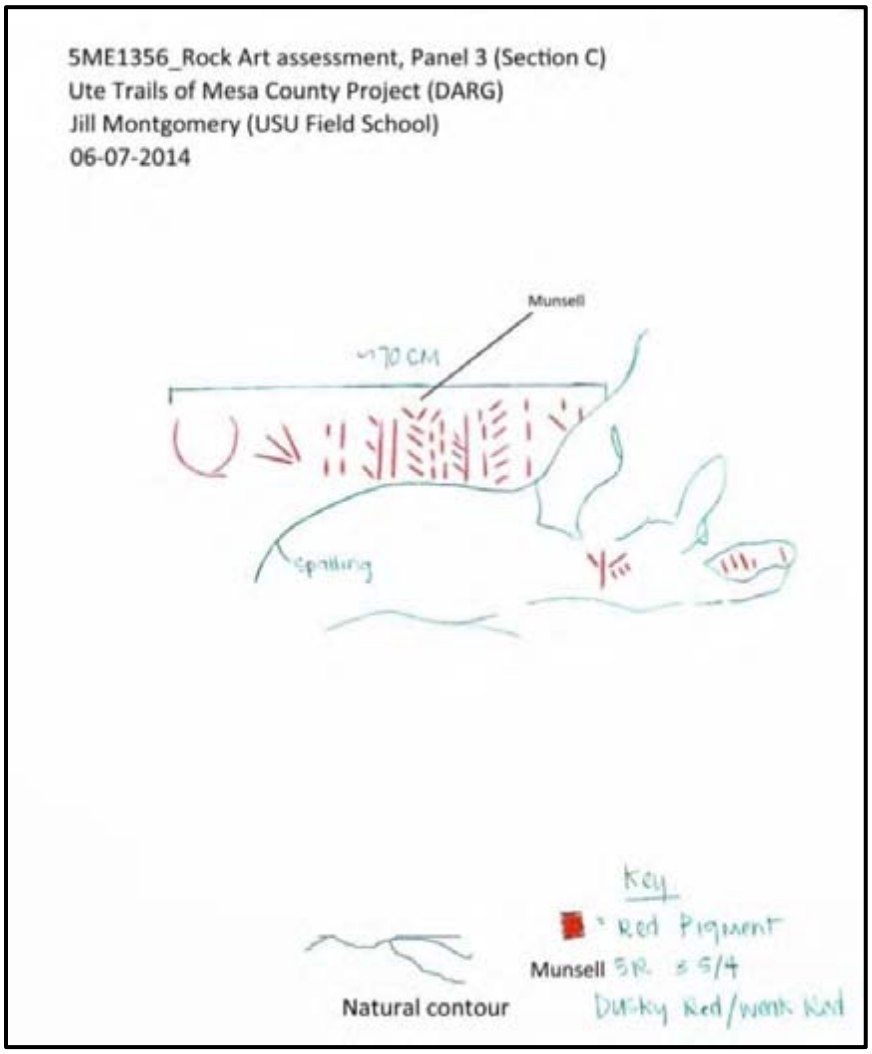
Figure 10. 5ME1356 with streambed approximately 5 m below Panel 3; view upstream toward Panel 9.


5ME1356_Rock Art assessment, Panel 3 (Section A and B-left)
Ute Trails of Mesa County Project (DARG)
Kylie Christensen (USU Field School)
06-07-2014
Beginning of 3B
Faint gray motifs (see photographs)
Munsell
~2 m
KEY
red pigment : 5R 3.5/4
Dusky Red/weak Red
pigment : 5YR 4.5/1
Dark Grey/Grey
Natural contours

11a


5ME1356_Rock Art assessment, Panel 3 (Section B)
Ute Trails of Mesa County Project (DARG)
Jill Montgomery (USU Field School)
06-07-2014
Key:
Red Pigment
Munsell 5R 3.5/4
Dusky Red/Weak Red
Black Pigment
possible (Manganese)
Munsell 5YR 4.5/1
Dark grey/Grey
Munsell
[See Section A illustration for additional details]
~370 cm

11b



11c

Figure 11a–c. 5ME1356, Panel 3: Drawings of (a) Sections A–B; (b) Section B; and (c) Section C.

12a

12b

12c

12d

Figure 12a–d. 5ME1356, Panel 3 details: (a) gray and red paintings and associated spall, Section A; (b) black lines and dot, Section B; (c) dark red circle, possible animal track, and lines and/or fingerprints, Section C; and (d) dark red lines or fingerprints, plantlike forms, and dot, Section C.

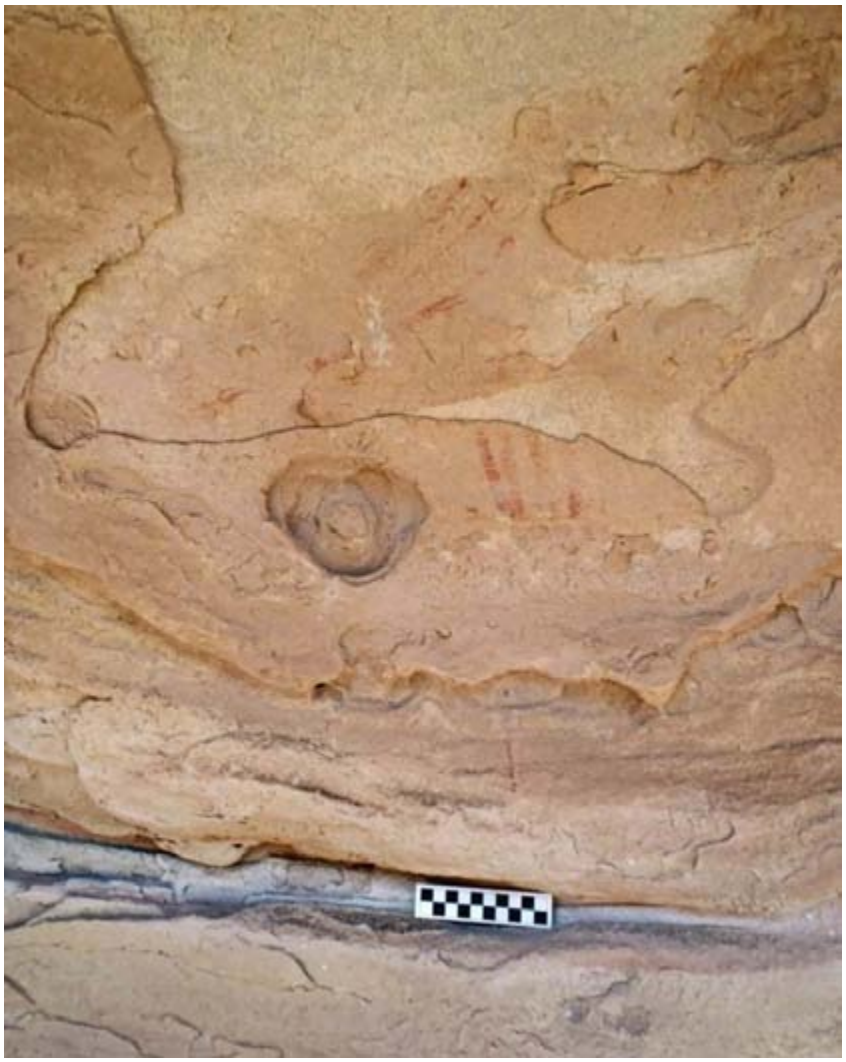


Figure 13. 5ME1356, Panel 9 paintings.

The rock art corresponds to paintings of the Abstract-Geometric style tradition of Archaic origin in the Great Basin, Colorado Plateau, and Chihuahuan desert (Cole 1990, 2009; Schaafsma 1980). The style is estimated to date 4000 B.C. to as late as A.D. 500/1000 in some areas and occurs at Utah locations with Barrier Canyon style; the two expressions may be contemporaneous after 2000-1000 B.C. (Abstract-Geometric petroglyphs and Barrier Canyon style petroglyphs are downstream at site 5ME5259). Panels 3 and 9 were openly displayed and public with regard to downstream travelers, especially when the paint was fresh and bright. The imagery potentially informed and influenced a wide range of residents and visitors well beyond the Archaic era.

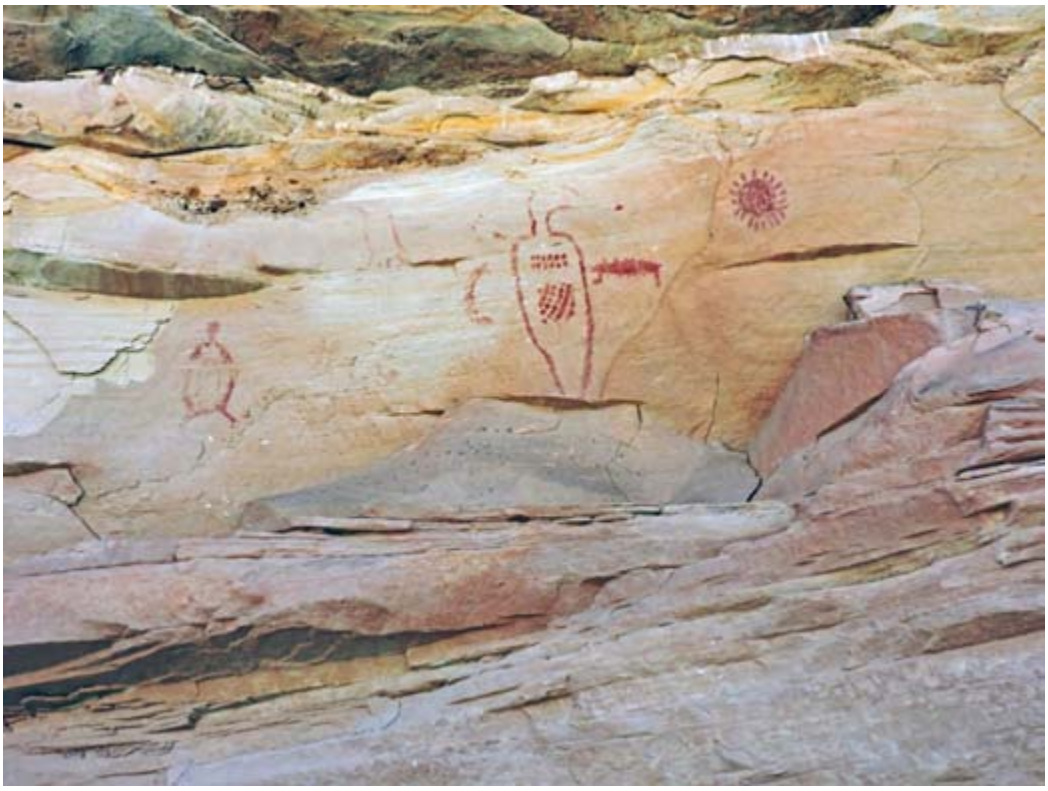
5ME538

Red paintings at the third study site (a possible camp with rock art) along McDonald Creek are situated in a bend that provides a direct view from the canyon floor and present day trail (Figure 14). The paintings (Panel 1) are on an overhanging sandstone cliff above the streambed (Figure 15) and are partially eroded and damaged by bullet holes. Additional paintings may have existed on the lower cliff but the surface appears subject to flooding and spall is evident. The better preserved paintings, particularly those with thickly applied paint, remain vivid (Figure 16). As such, the rock art probably attracted and communicated information to the travelling public. The site is bordered by grassy terraces that form the wide canyon floor and is a natural camp and place for people to gather. In addition to being a marker, the rock art site may have been a regular or ritual stopping place (possibly a shrine) for culturally and socially related groups.

Figure 14. Bend in McDonald Creek trail from Panel 1 area, 5ME538; view west with upstream at right.

Figure 15. 5ME538, setting of Panel 1 above streambed; view east.

16a

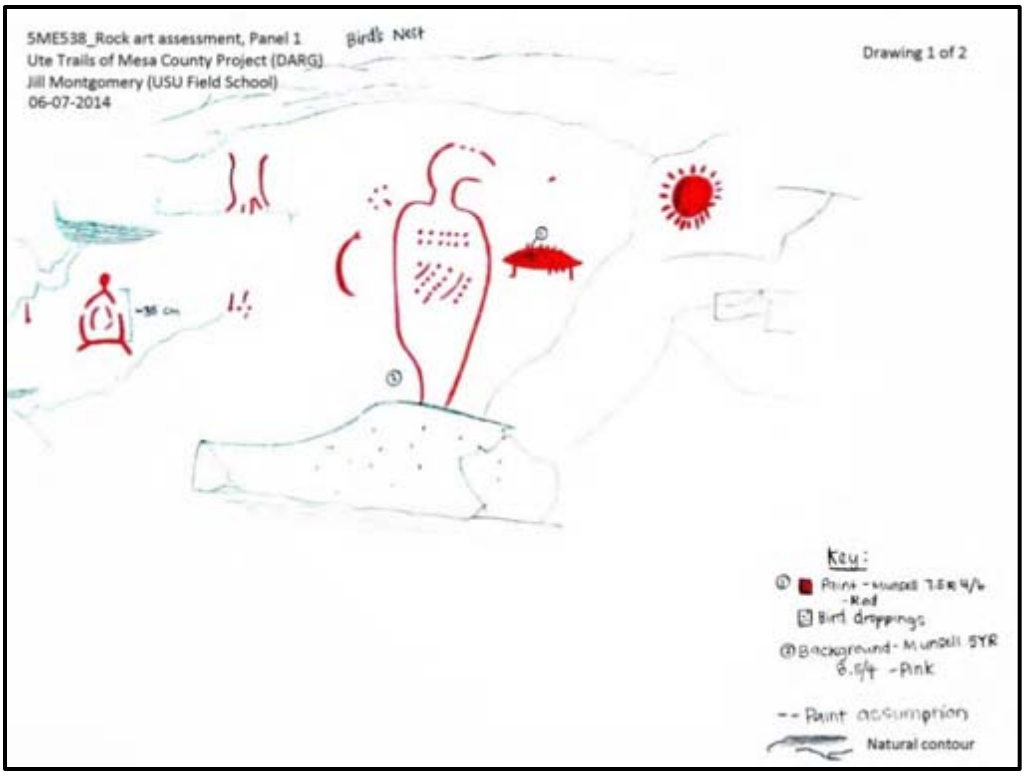


16b

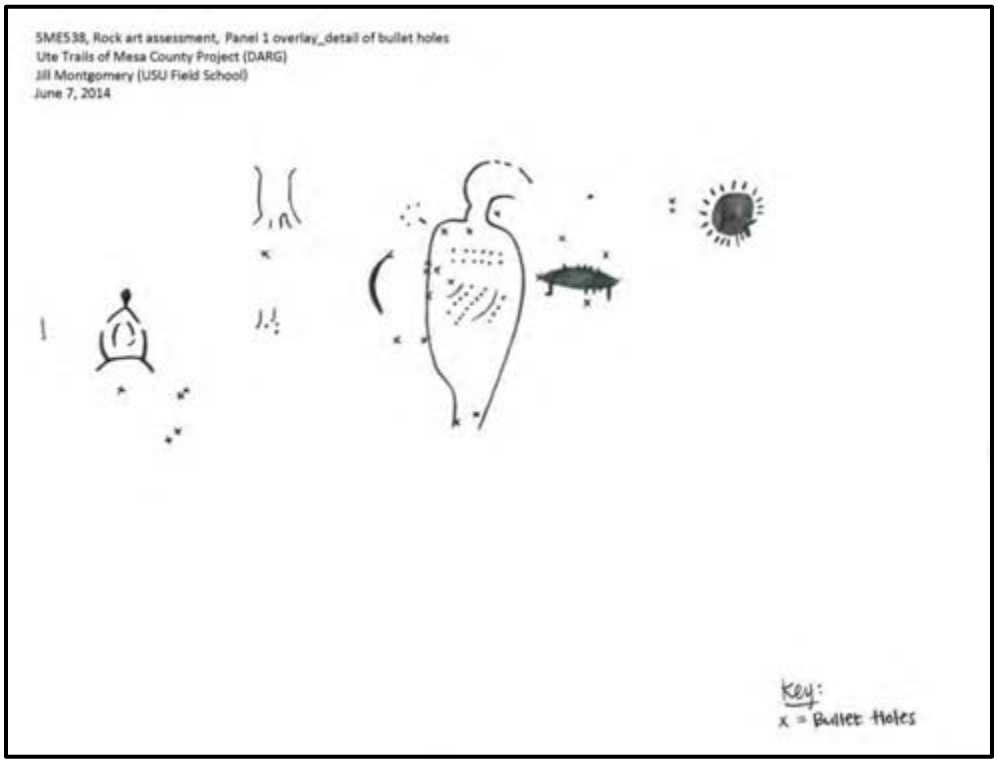
Figure 16a–b. 5ME538, Panel 1: (a) cliff setting and student archaeologist with scale (50 cm); (b) overview of rock art with bullet holes.

The panel motifs comprise an outlined and embellished wading bird (likely heron or crane); a possible turtle; possible insect larva with "horns"; and a crustacean or insect –like form with legs, ball-shaped feet, short tail, and bumpy (dotted) exterior (Figures 17-18). The bird and other subjects are associated with water and riparian environments such as that of the Colorado River. The body of the bird is marked by blocks of fingerprint-like dots. The painting technique and legs of the insect or crustacean form suggest the small red animal painting upstream at 5ME5247. Conner and Born (1976) propose the bird may have provided a directional sign to the river; the long beak points downstream. A possible sun, flower, or seed motif with finger or toe print-like "rays" is above the bird.

The subject paintings are attributed to Fremont culture, which is stylistically more definitive downstream at sites 5ME540 and 5ME529. In the Uintah Basin and Tavaputs Plateau and in nearby Little Dolores River-Glade Park areas, Fremont-related petroglyphs show rows and groups of dots and anthropomorphs with torsos embellished by dots suggestive of the



17a

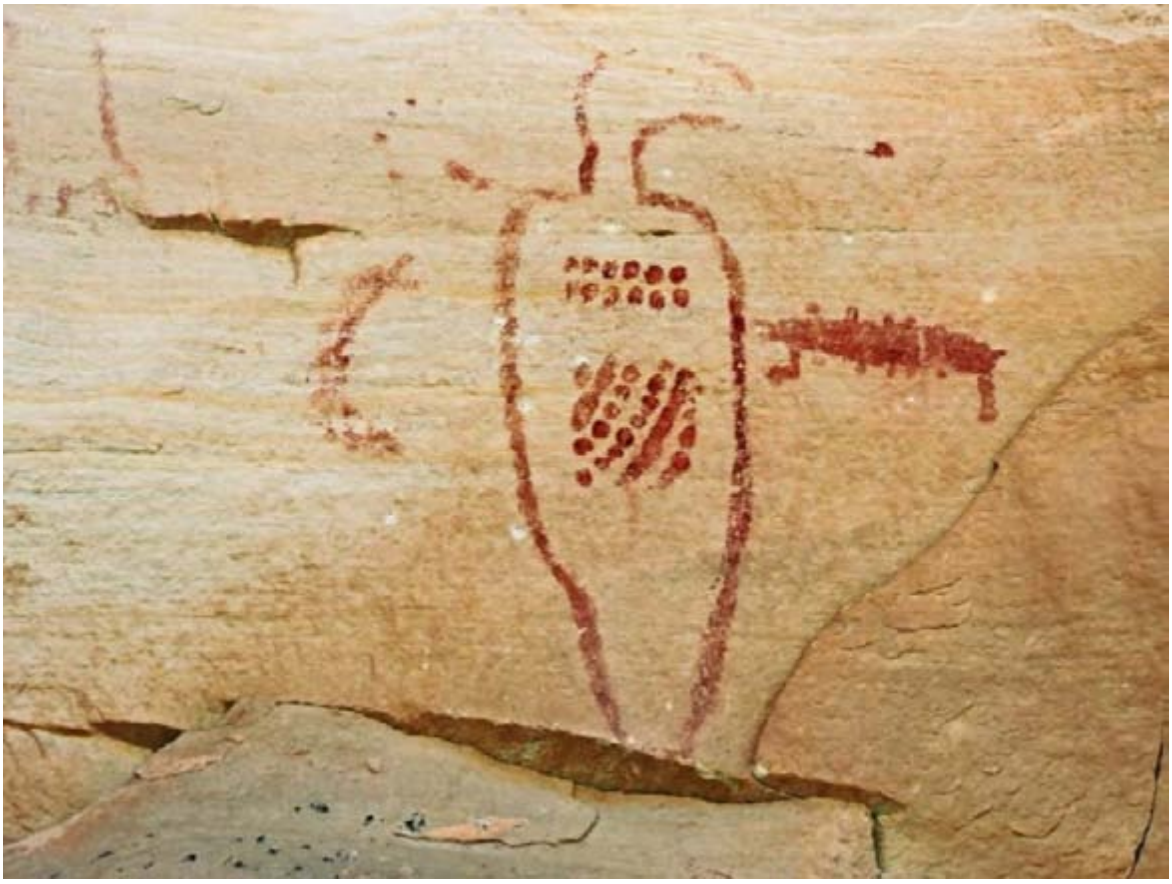


17b

Figure 17a–b. Drawings of Panel 1, 5ME538: (a) overview and (b) detail showing bullet holes.

painted bird (Castleton 1978; Cole 1990, 2009, 2011a; Schaafsma 1971). Fremont occupations in those areas and the Roan and Tavaputs plateaus date approximately A.D.400/600 to 1300/1500 (Bradley et al. 1989; Conner et al. 2011, 2014; Creasman 1981; Spangler 2000). It is possible that the "bird semaphore" provided direction to 5ME529, a likely ceremonial site in an alcove overlooking the Colorado River. Birds (wading and other species), insect forms, and sun-like motifs are common subjects of Ancestral Pueblo and Fremont rock art and are well represented in historical Hopi and Pueblo ritual objects with archaeological and traditional links to the generalized study area (Cole 1994, 2004b; 2006, 2009).

18a



18b

18c

18d

18e

Figure 18a–e. Panel 1, 5ME538: (a) detail of turtle-like motif; (b) detail of bird embellished with possible fingerprint dots, horned larva-like form to left, and possible, bumpy crustacean at right; (c) detail of possible crustacean showing legs, ball shaped feet, and short “tail”; (d) detail of possible sun or flower; (e) detail of toe or finger-like “rays.”

5ME5259

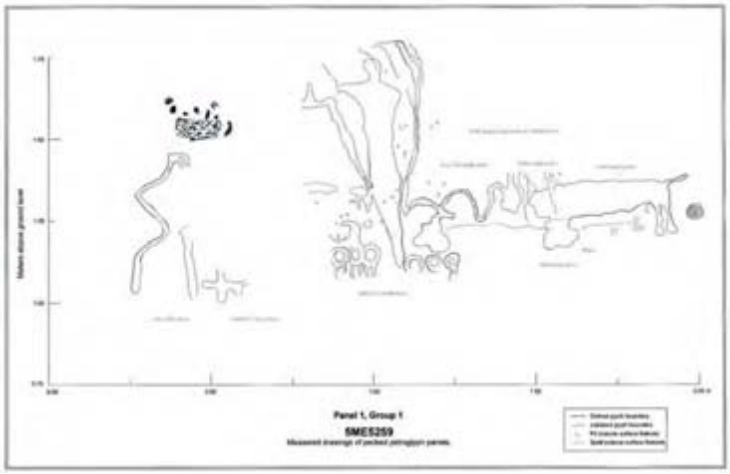
Petroglyphs (Panels 1–4) at the fourth McDonald Creek trail site are situated on an overhanging cliff adjacent to the streambed (Figure 19). The setting is similar to those at 5ME1356 and 5ME538 but the rock art is more secluded within an entrenched section of the canyon that can be bypassed from above or along the open terrace on the opposite side. In that context, the rock art is less obvious and public in nature but presently can be openly and closely viewed at eye level from the streambed. The imagery may have been regularly observed by travelers but probably communicated most directly with select, perhaps ritualistic, groups over time (ceremonial subjects and themes are indicated). The full complex of images is difficult to study in detail. The petroglyphs (obviously subject to flooding) are heavily repatinated and eroded, and some elements are damaged by scratches and other graffiti.

Figure 19. Setting of 5ME5259 with student archaeologists.

Panel 1 comprises groups of petroglyphs including tapered, elongated, and broad-shouldered anthropomorphic figures (some with embellished bodies); an eroded, elongated quadruped with “paws” and raised tail (possible canine), snakelike forms; a bull’s eye motif, pecked “dots”, pecked discs with linear attachments, a variety of circular and linear-geometric

motifs including interconnected forms; and pecked depressions or cupules and/or modified-natural depressions (Figures 20-24). The anthropomorphic subjects combined with various dot and linear motifs, snakes, and canine-like representations are characteristic of Barrier Canyon style (petroglyphs and paintings) dating from late Archaic into early Formative/Basketmaker II times (~2000 B.C. to A.D. 400) across much of the northern Colorado Plateau. Quite similar petroglyphs occur at sites in the Book Cliffs and Roan Plateau north of McDonald Creek (Cole 2004a, 2009; 2011a; Creasman 1982; Schaafsma 1971, 1980; Pederson et al. 2014; Steven Simms, personal communication 2014; Tipps 1995). Although linear-geometric imagery appears in Barrier Canyon style, it is not dominant and some or most examples in Panel 1 may be associated with the Abstract-Geometric tradition previously discussed for paintings at 5ME1356. At Utah and Colorado sites, paintings and petroglyphs of both styles, respectively, occur at the same sites (Cole 1990:Fig. 21; 2004a; 2009:Fig. 21–25).

20a



20b

Figure 20a–b. 5ME5259, Panel 1-Group 1: (a) 1987 drawing from projected slide; and (b) detail of 2006 documentation tracing by N. Darnell (upper left motif added 2014).

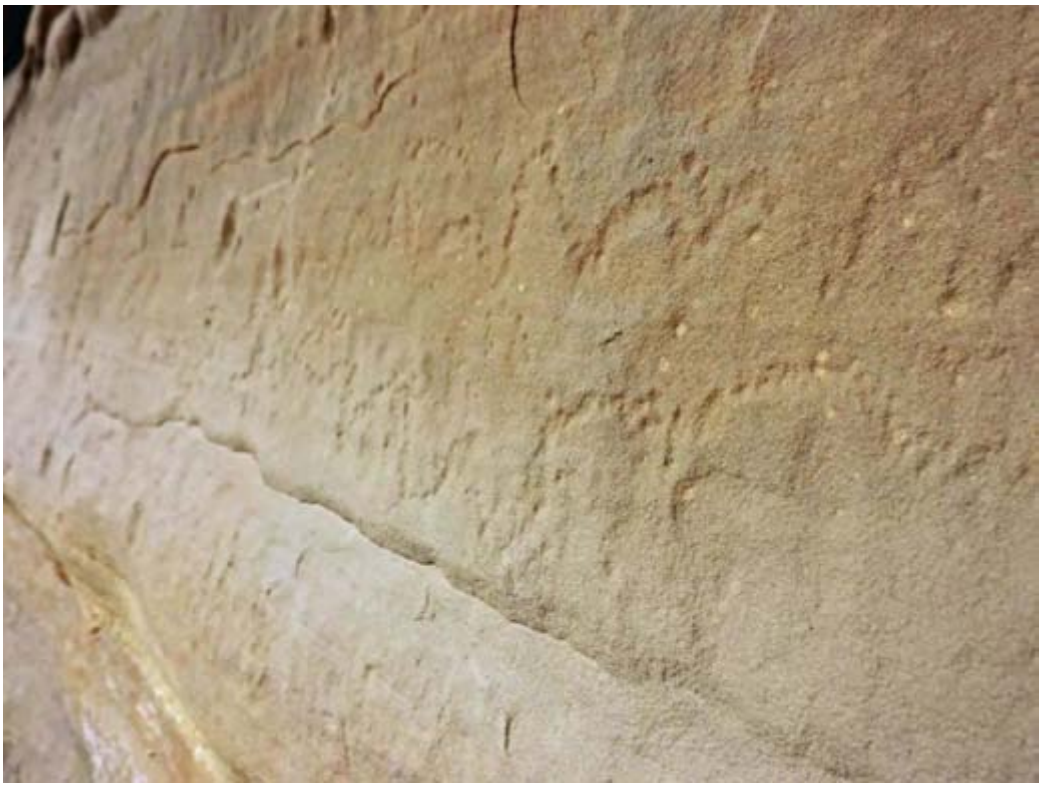
21a

21b

21c

21d

21e



21f

21g

Figure 21a–g. 5ME5256, Panel 1-Group 1: (a) overview from south end showing bull's eye motif below tail of quadruped, vertical snakelike form, pecked lines, pecked and possibly ground depressions or cupules and/or modified/enhanced natural depressions (pecking and grinding); (b) lines (some interconnected), pecked and possibly modified natural depressions, two elongated anthropomorphic figures embellished by lines and pecked dots (natural or embellished depression may represent vulva (modern scratch visible); (c) closer detail of elements in 14b; (d) complex anthropomorphic imagery (elongated, solid pecked figure within outline of broad-shouldered figure, solid pecked form below, and linear attachments); (e) pecked zigzag and curved lines, snakelike form with head down, anthropomorph with hunched shoulders, row of indistinct, elongated anthropomorphs and/or thin vertical lines; all elements intermingled with natural and possibly modified holes or depressions; (f) arcs and curved and zigzag lines; (g) solid pecked circular forms with attached lines (modern scratching at lower right).

Panel 2 is sloped, smoothly eroded (probably by repeated floods), and stained. A few distinct petroglyphs comprise parallel lines, a horseshoe-dot motif, and a small, finely pecked concentric circle-"sunburst" (Figure 22). Similar horseshoe shaped motifs appear in the context of Archaic Abstract-Geometric and Uncompahgre Style petroglyphs at Utah sites in the San Juan and Colorado River drainages, respectively (Cole 2009).

Figure 22. 5ME5259, Panel 2 overview showing pecked parallel lines, a horseshoe-dot motif, and a small, concentric circle-sunburst motif.

Panel 3 petroglyphs are separated (~ 14 m) from the area of Panels 1 and 2 and are in one of a pair of small natural openings in the lower cliff. The two small motifs are pecked and scraped (the latter possibly vandalism intended to remove surface dirt or modify) and comprise a quadruped and human form with spread legs and arms (Figures 23). The figures are stylistically distinct from discernable elements in Panels 1 and 2 and the pecking (some obscured by stain) is more recent in appearance despite equal or greater exposure to flood water. The style is not distinctive and the subject matter occurs in prehistoric and historic contexts. With the exception of the scraped portions, the panel does not appear recent and is likely to be at least historic in age and possibly Ute.

23a

23b

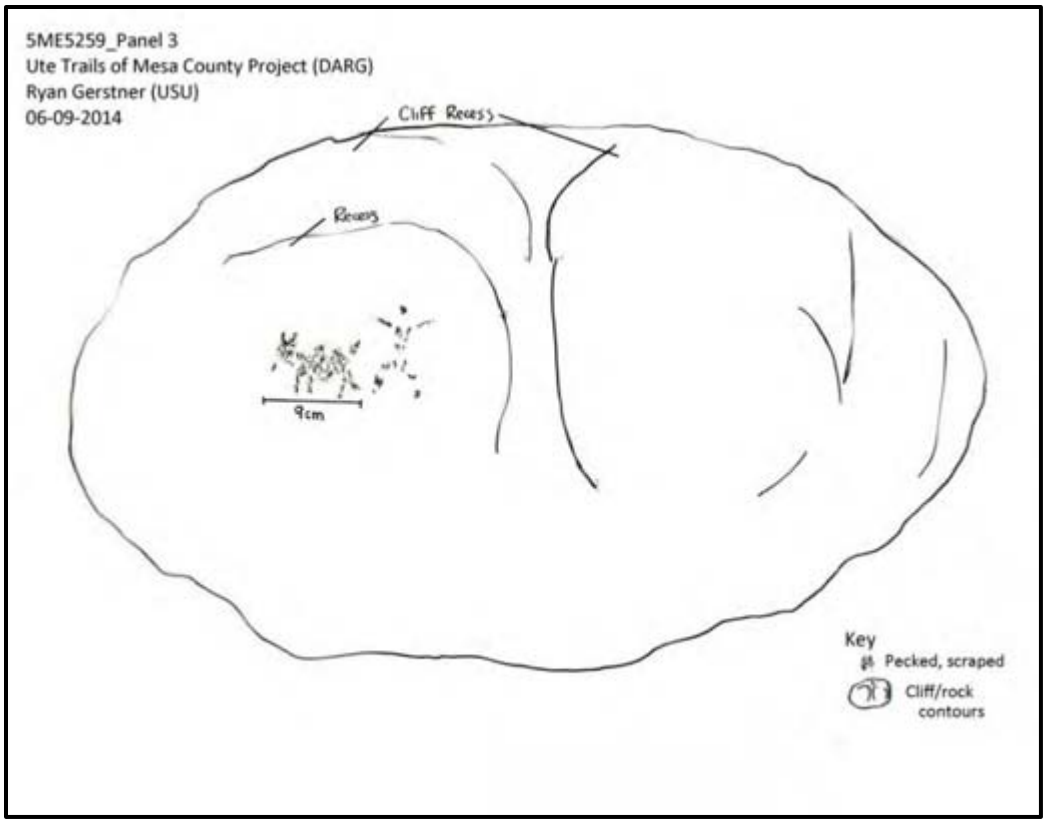


Figure 23a–c. 5ME5259, Panel 3: (a) overview of natural depressions with petroglyphs at left; (b) detail of pec ked, stained, and scraped animal and human forms; and (c) drawing.

5ME540

The fifth site is a sheltered habitation and camp with prehistoric and historic rock art, historical inscriptions, and extensive graffiti. The site is in an entrenched, narrow portion of the canyon below a dry waterfall or pour-off where pools form intermittently. Seven rock art panels considered for this study are on the overhanging cliffs east and west of the site. On the east, Panels 1–3 are directly above the streambed; to the west, Panels 4–7 border sandy terraces. The panels evince erosion, spall, and areas of cliff where rock art appears to have been removed (Figure 24).

The box canyon setting promotes pedestrian entry from the south along the streambed, which represents a detour for both downstream and upstream travelers. As such, the site was probably a destination for water and shelter rather than a trailside attraction. Consistent with this observation, the limited visibility of the rock art outside of the site indicates it probably did not attract broad public interest even when fresh. Views of the panels from the canyon rims are restricted by the cliffs and vegetation that was probably present to varied degrees in the past, and the subject petroglyphs and paintings are not particularly large or colorful. It is likely that the rock art was intended to communicate to occupants that controlled the site's obviously attractive resources and to visitors that utilized those over time.

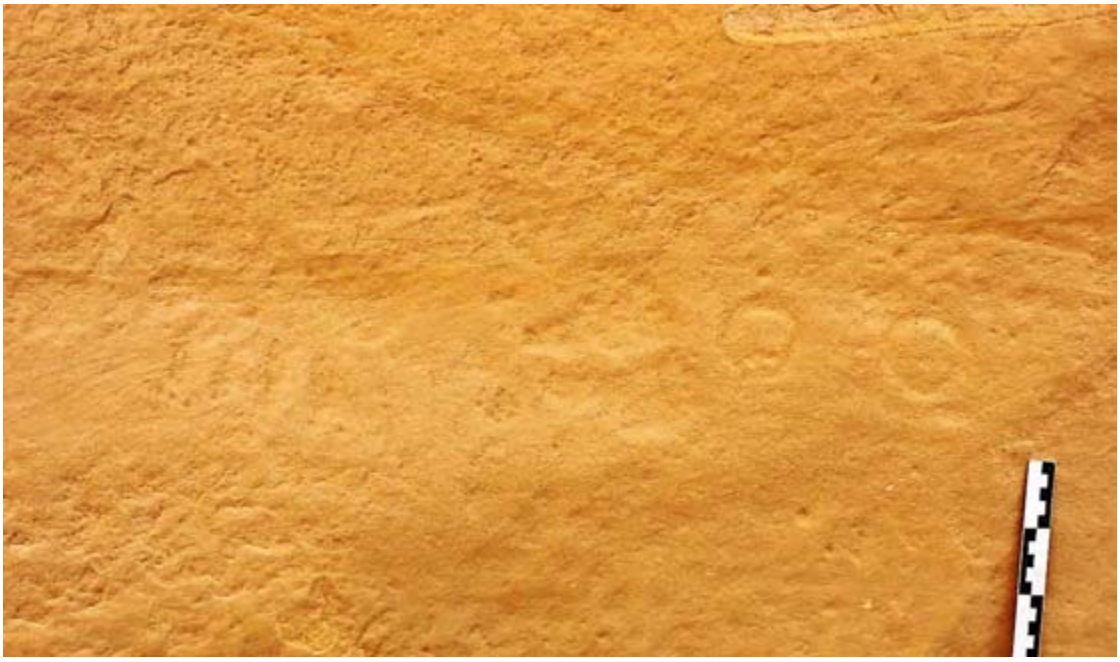
24a

24b

Figure 24a–b. 5ME540: (a) view north to the dry waterfall with Locus 1 (Panels 1-3) at right; (b) view southwest from streambed toward Locus 2 (Panels 4-5) at left-center and Locus 3 (Panels 6-7) at right.

Lithic artifacts from a disturbed context at 5ME540 (Conner et al. 1976 photograph) comprise a knife or possible projectile point with a square base and side notches suggestive of the Sudden Side Notched dart point dating 4500-2000 BC, Middle to Late Archaic (Justice 2002:154,162-164) and a projectile point resembling a Dolores Expanding Stem arrow point (Justice 2002:242-245) dating to Pueblo I-II, about AD 600-1000 (Carole Graham, personal communication 2015). The one and possibly two projectile point dates generally agree with estimated dates for prehistoric rock art at the site: Archaic Abstract-Geometric tradition (~4000 B.C. to A.D. 500/1000) and post-A.D. 400/600 Fremont related to styles of the Uintah Basin and Tavaputs and Roan plateaus as well as the San Rafael region to the southwest (Castleton 1978; Cole 2009; Creasman 1981; Schaafsma 1971; Spangler 2004). Basketmaker II-III style rock art (~1000/400 B.C.–A.D. 600) also may be present.

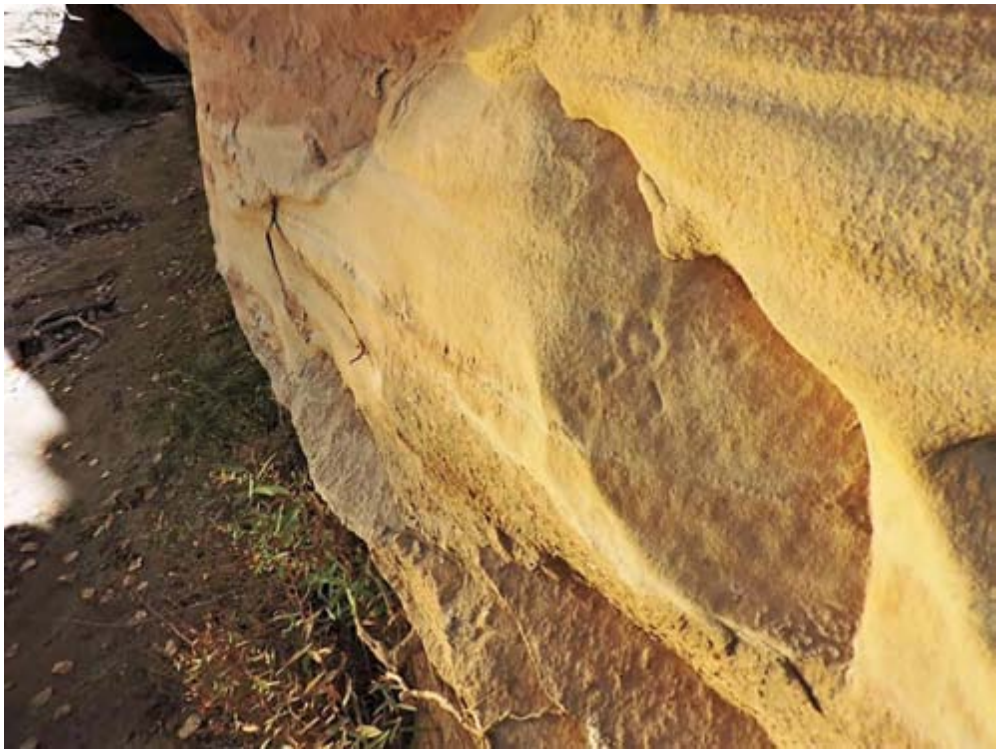
Abstract-Geometric style petroglyphs are concentrated in Panels 1 and 3 on the east side of the site (Panel 25). These comprise heavily repatinated and eroded circles, wavy lines, a sunburst-like form, and paw or foot print motifs. An interesting petroglyph resembling a corner



25a.

25b

25c

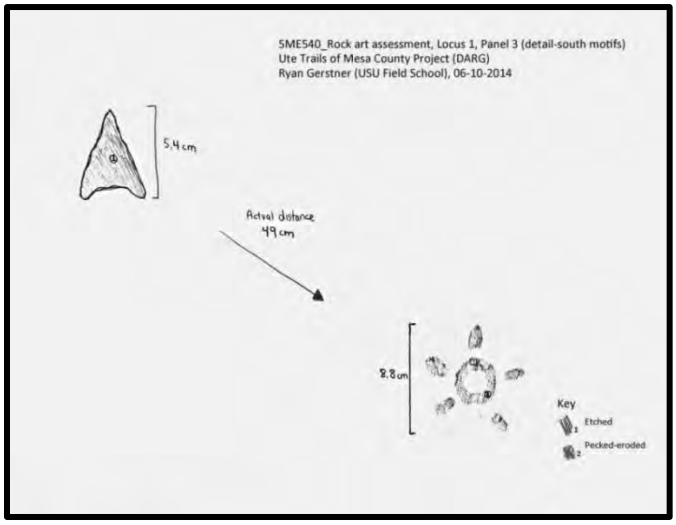


25d

Figure 25a–d. 5ME540 (Panels 1 and 3): (a) – (b) circles and paw- or footprint motifs in color and black and white; (c) wavy lines and arcs; and (d) sunburst motif.

notched dart point (with missing base) of Middle to Late Archaic age (Justice 2002:195-208; Carole Graham, personal communication 2015) may date from that period but it is less weathered than the geometric petroglyphs and appears more recent (Figure 26).

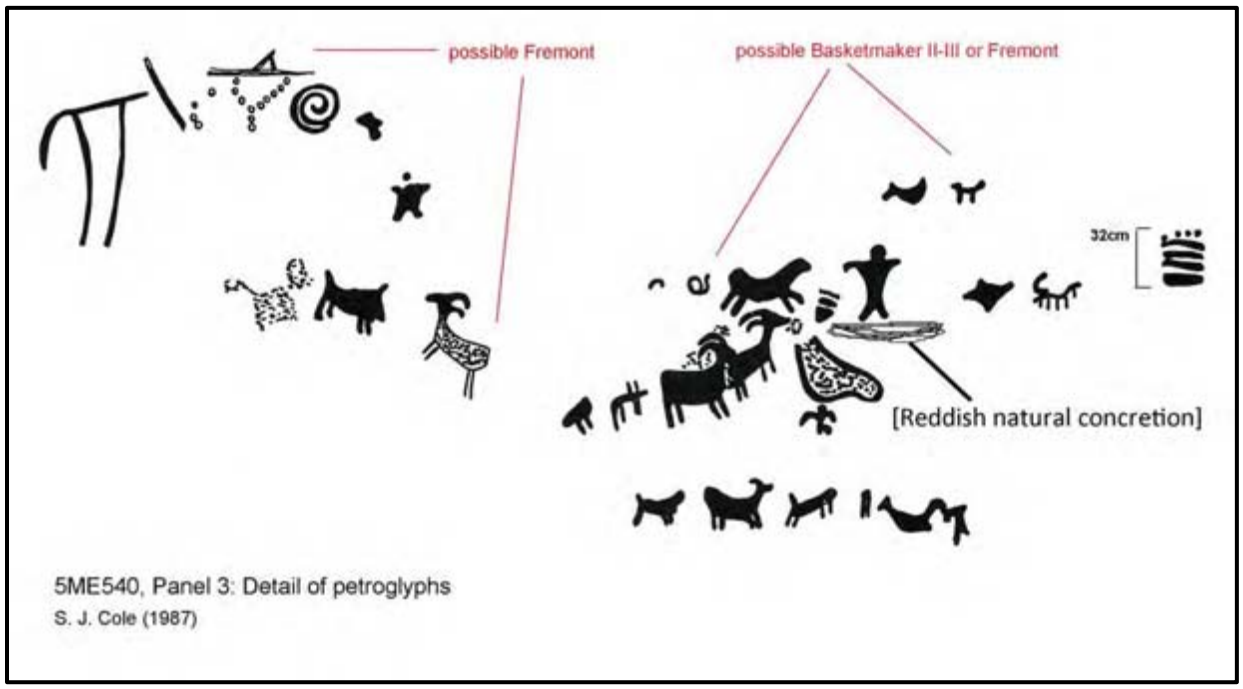
26a



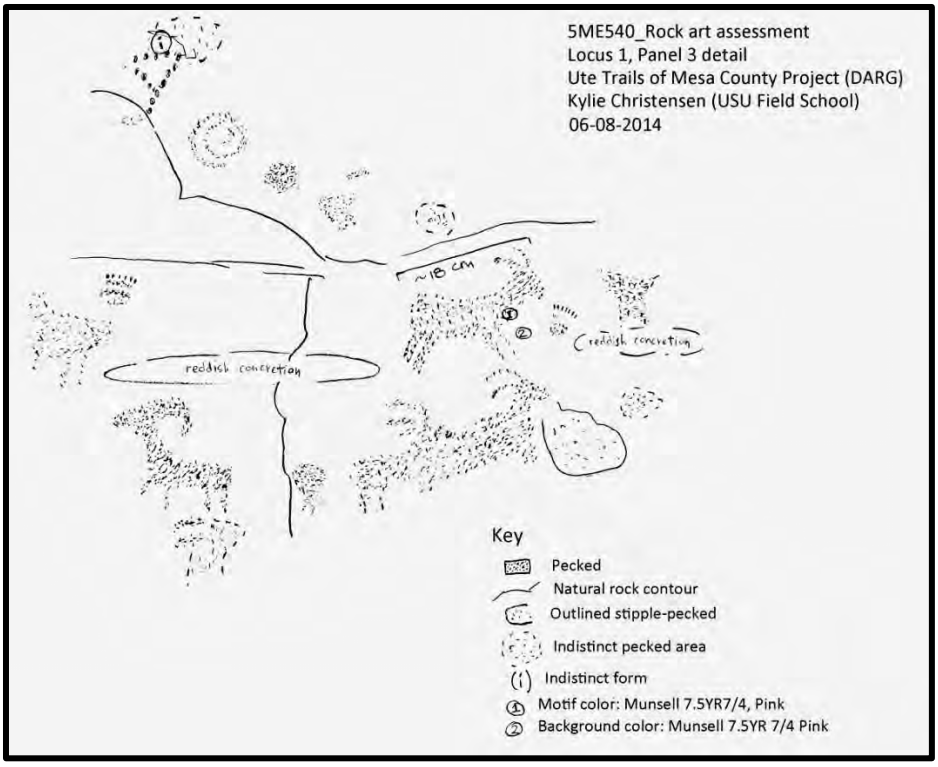
20b

Figure 26. 5ME540, Panel 3: (a) projectile point-like petroglyph and (b) drawing of projectile point and sunburst motif (Figure 19d photograph).

Petroglyphs in Panel 3 (on the east) have a range of imagery and repatination levels indicating differences in age and cultural-stylistic affiliations (Figure 27). Possible Basketmaker II-III or Fremont style petroglyphs comprise an anthropomorph with broad shoulders and rounded head, possible bird forms including one that is headless, and adjacent quadrupeds with similar repatination levels. Nearby darkly repatinated, bear paw print motifs (segmented) may be of Basketmaker or Archaic origin. These types of representations are typical of Basketmaker II-III rock art in the San Juan and Dolores River drainages and Fremont in the Uintah Basin, Roan and Tavaputs plateaus, and Little Dolores River-Glade Park area (Cole 1999, 2009; Ives 1986). Other elements in Panel 3 are probably associated with Fremont culture including a variety of quadrupeds, segmented bear paw print motifs (lighter repatination), a spiral (probably post-A.D. 900), and indistinct forms that may represent anthropomorphs (one possibly embellished with dots). The dot motif suggests Fremont style anthropomorphs in the comparative areas (Cole 2011a).



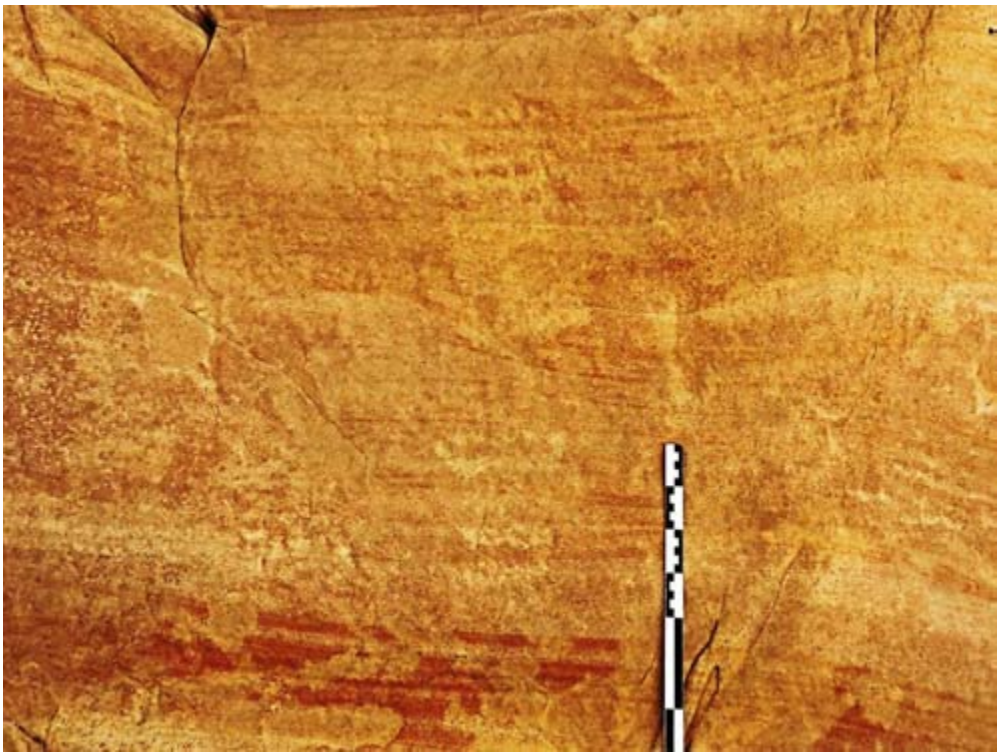
27a


5ME540_Rock art assessment
Locus 1, Panel 3 detail
Ute Trails of Mesa County Project (DARG)
Kylie Christensen (USU Field School)
06-08-2014
~18 cm
reddish concretion
reddish concretion
Key
Pecked
Natural rock contour
Outlined stipple-pecked
Indistinct pecked area
Indistinct form
Motif color: Munsell 7.5YR7/4, Pink
Background color: Munsell 7.5YR 7/4 Pink

27b

27c

27d

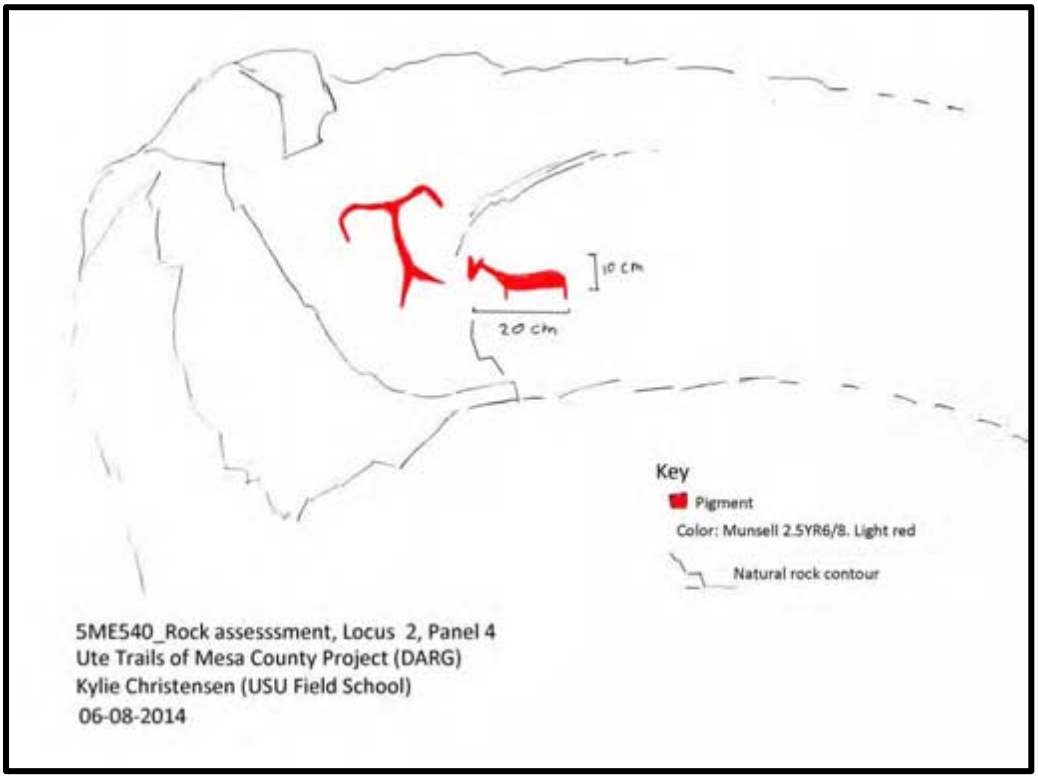


27e

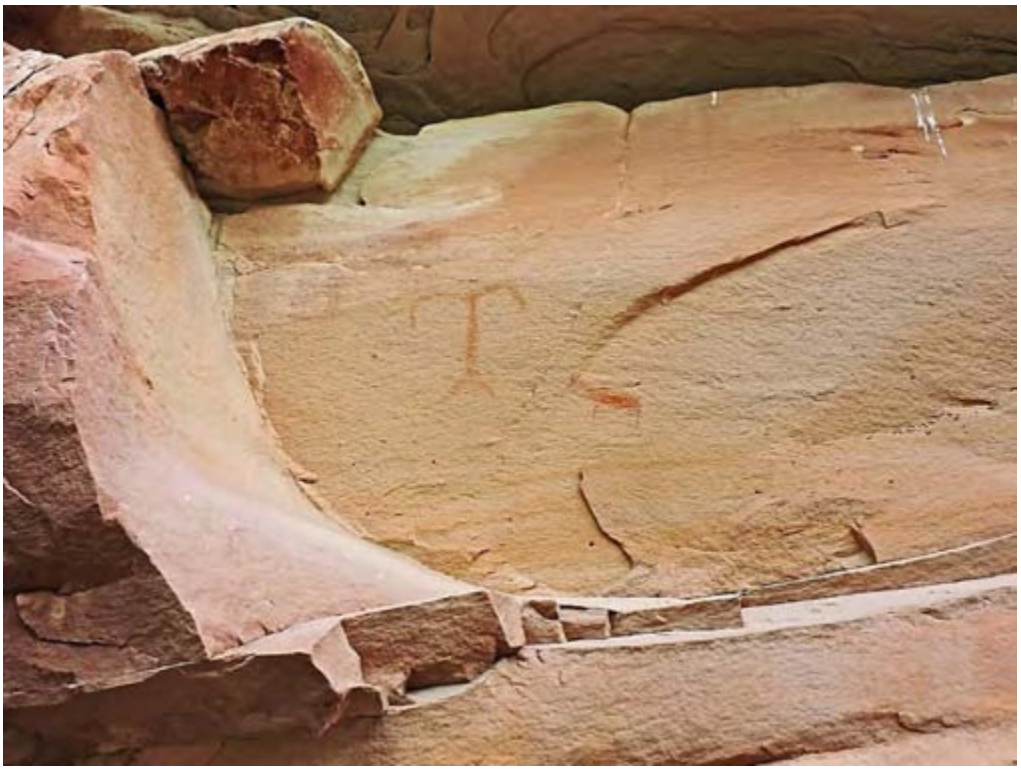
Figure 27a–e. 5ME540, Panel 3: (a-e) Drawings and photographs showing details of possible Ancestral Pueblo (Basketmaker II-III–Pueblo I), Fremont, and Archaic petroglyphs. More heavily repatinated paw print motifs probably date from Archaic or Basketmaker periods.

Fremont-associated rock art has the widest distribution at 5ME540 and appears to dominate the west side of the site, although some heavily eroded and vandalized quadrupeds and other elements may date from the Archaic period (Figure 28). Red paintings in Panel 4 showing a stick figure anthropomorph (possibly headless) juxtaposed with a animal with upright ears are attributed to the Fremont based on the subject matter, a persistent theme of Barrier Canyon style and San Rafael style Fremont rock art in eastern Utah, and use of red paint as previously discussed for other Fremont-related sites in the McDonald Creek corridor (Figure 28a-c).

Groups of quadrupeds in Panels 5 and 6 resemble Fremont-related work on the Tavaputs Plateau and in the nearby Glade Park area (Cole 2011a; Matheny et al. 2004; Spangler 2004) (Figures 28d-f). Petroglyphs in Panel 7 share the anthropomorph-animal theme of Panel 4 and the small Panel 7 anthropomorph is typically Fremont style in appearance (broad-shouldered and wearing an eared headdress) (Figures 28g-h). The head of the figure was made within a natural cliff depression creating relief suggestive of a mask. Similar headdresses as well as masklike or embellished faces are common in Fremont-related rock art of the Unitah Basin and in the Glade Park area (Castleton 1979; Cole 1999b, 2004, 2009, 2011a; Schaafsma 1971, 1980)

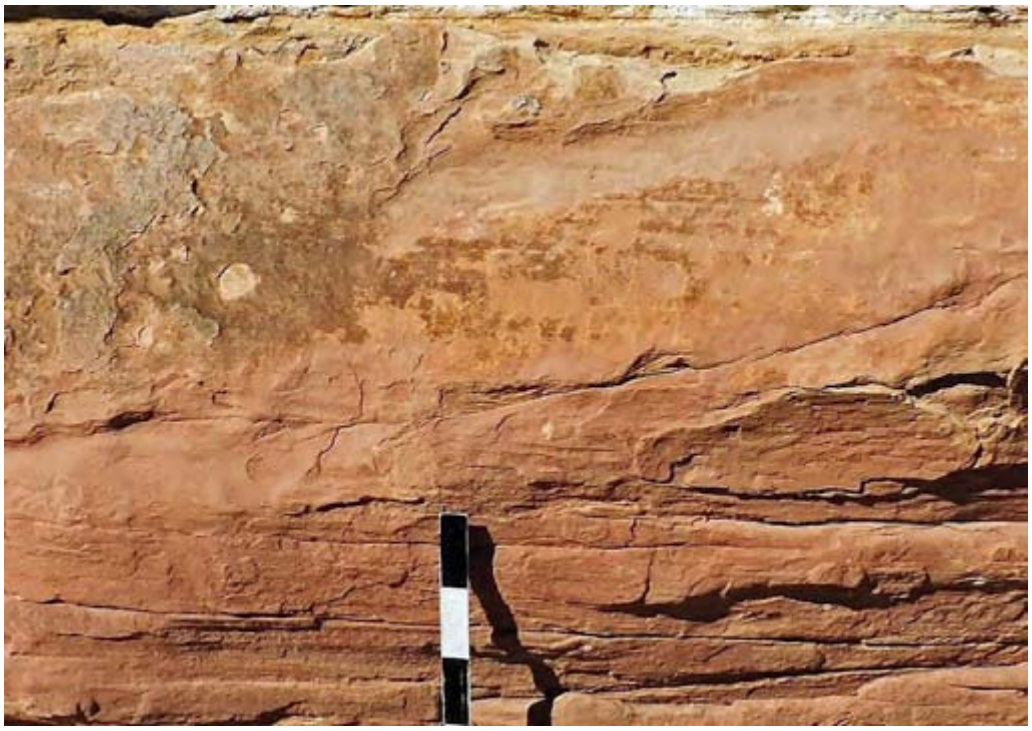


28a



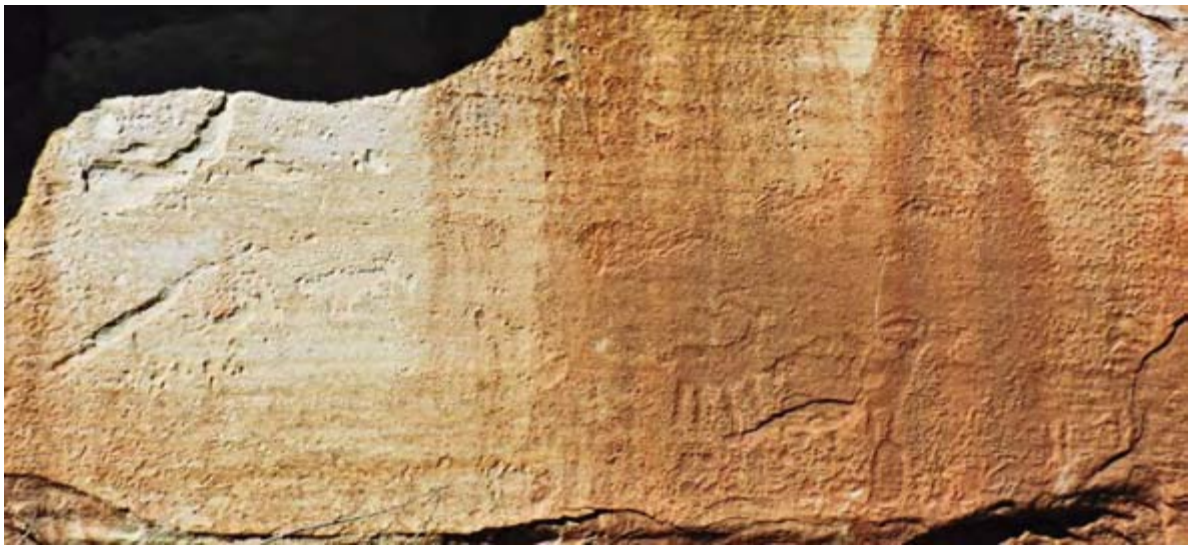
28b

28c

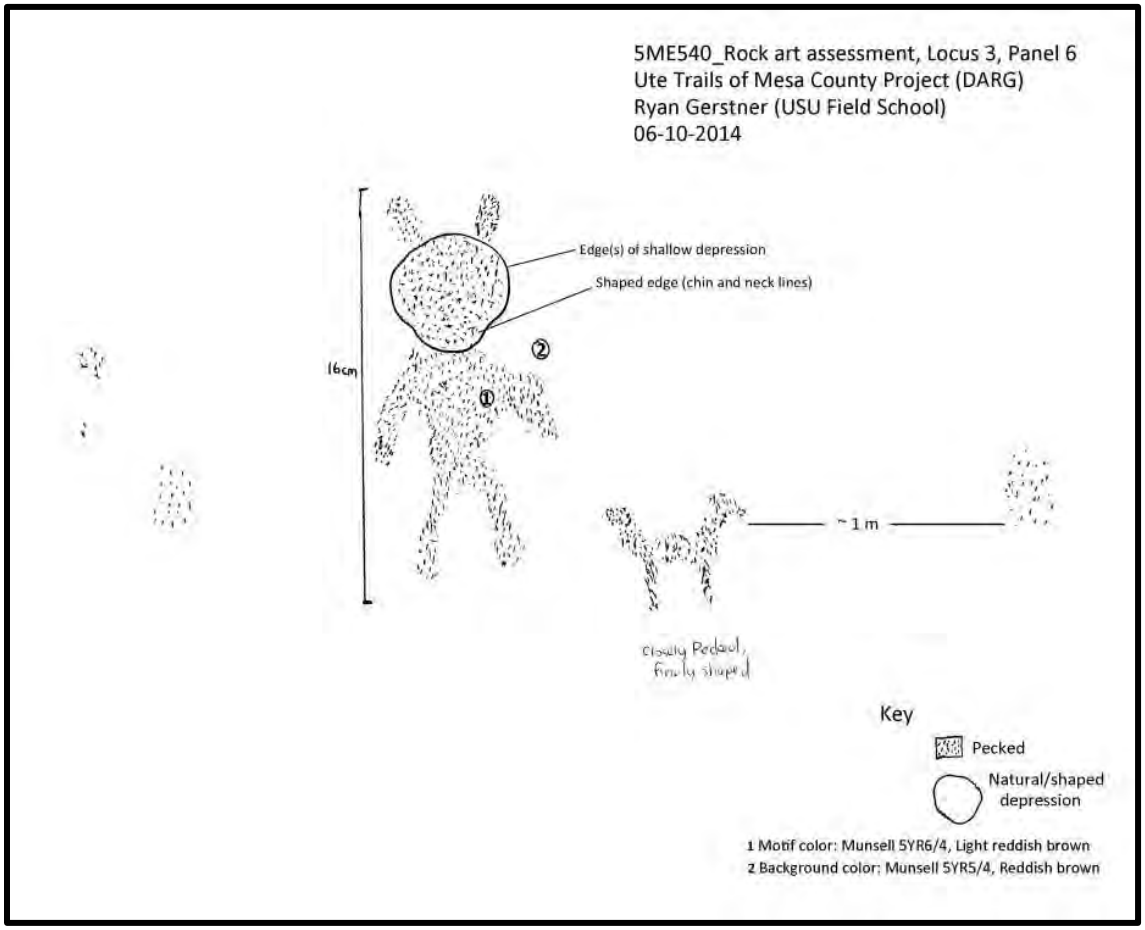


28d

28e



28f


5ME540_Rock art assessment, Locus 3, Panel 6
Ute Trails of Mesa County Project (DARG)
Ryan Gerstner (USU Field School)
06-10-2014
Edge(s) of shallow depression
Shaped edge (chin and neck lines)
16cm
~1 m
Key
Pecked
Natural/shaped depression
1 Motif color: Munsell 5YR6/4, Light reddish brown
2 Background color: Munsell 5YR5/4, Reddish brown

28g

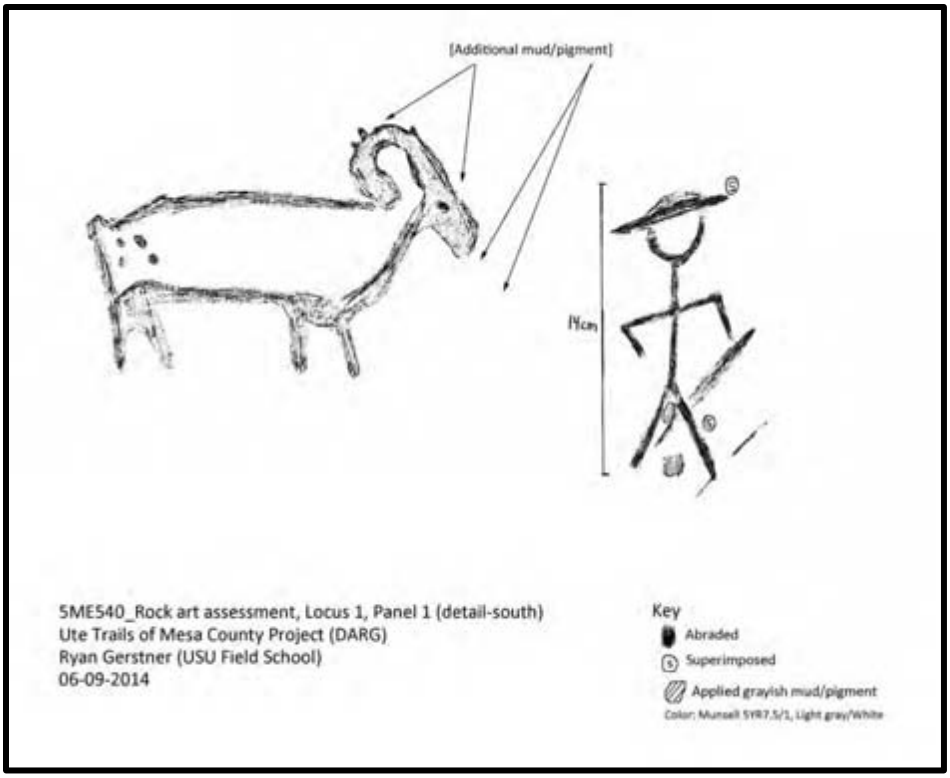
28h

Figure 28a–h. 5ME540: (a)-(c) Fremont style paintings in Panel 4; (d) eroded petroglyphs of quadrupeds in Panel 5; (e) quadrupeds in Panel 6; and (f)-(h) anthropomorph, animal , and pecked circle form in Panel 7.

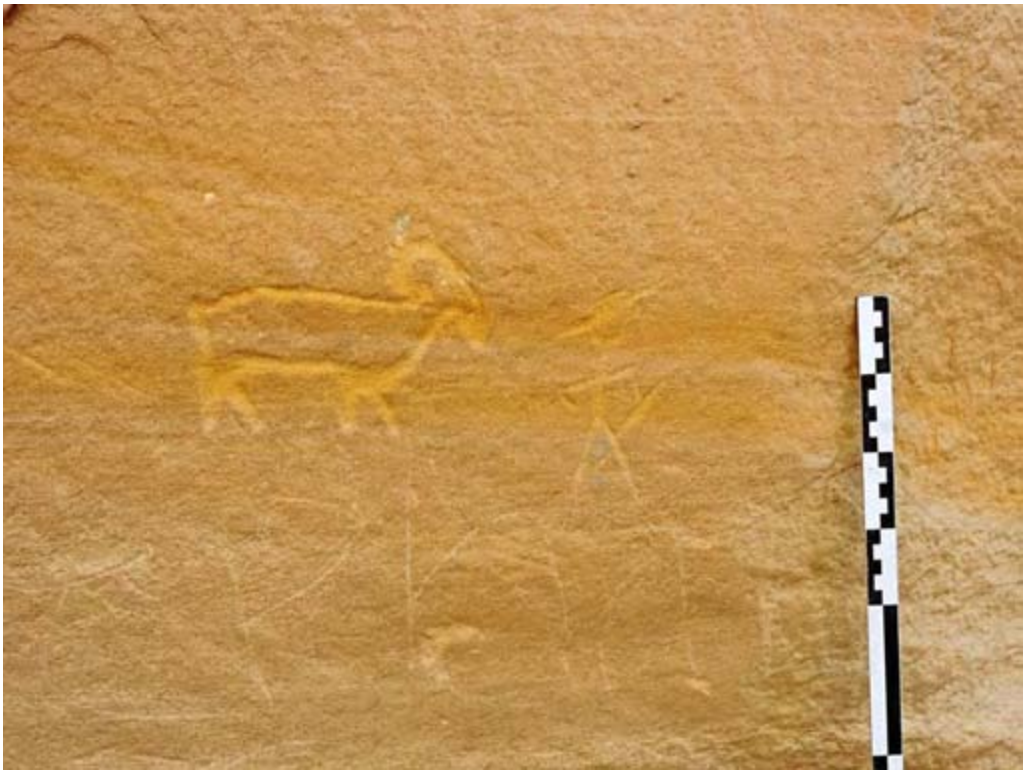
Petroglyphs of possible historic Ute origin are in Panels 1 and 2 on the east side of 5ME540 (Figure 29). The petroglyphs comprise scratched and abraded human forms (broad-shouldered and stick-figure) that are repatinated to a degree that suggests historical age. The elements are intermingled with gray mud paintings of unidentified forms (one possibly an animal with a tail). One of the human figures appears to superimpose the tail of the animal and a less repatinated, scratched line superimposes both elements (Figure 29a). In light of the presence of nearby historic inscriptions and extensive graffiti, the makers of the subject rock art may have been Euroamerican.

29a

Other possible Ute petroglyphs are deeply etched motifs of a person wearing a broad-brimmed hat and holding a bladelike object juxtaposed with a quadruped with curved horns, presumably a bighorn or domestic ram (Figure 23b-c). The overall subject matter, particularly a bighorn if that was depicted, seems consistent with historic Ute interests. However, the figures stylistically resemble historic aspen carvings attributed to Mexican and Basque livestock herders in western Colorado and a herder using the shade and water in McDonald Creek may be the source of the petroglyphs (personal records with regard to aspen art in the Uncompahgre National Forest).


[Additional mud/pigment]
19cm
5ME540_Rock art assessment, Locus 1, Panel 1 (detail-south)
Ute Trails of Mesa County Project (DARG)
Ryan Gerstner (USU Field School)
06-09-2014
Key
Abraded
Superimposed
Applied grayish mud/pigment
Color: Munsell 5YR7.5/1, Light gray/White

29b



29c

5ME529

The final McDonald Creek location is a sheltered camp and/or ceremonial site in a cliff alcove offering a commanding view of the Colorado River and landscapes to the south (Figures 1 and 30). The setting was probably a landmark for down-canyon travelers as well as for those approaching from across the river and along the shores, and the alcove may have served as a defensive lookout for canyon dwellers and travelers over time. Some rock art images are visible from the canyon floor and lower benches and presumably were more obvious when fresh. Despite the prominence and open visibility, entry to the alcove and close access to the rock art and associated features and activities may have been restricted by occupants over time. Subjects and themes of the site's prehistoric rock art are ceremonial suggesting it was a destination for affiliated societies on both sides of the river over time. In this sense, it potentially transmitted worldviews and socioreligious practices across cultural landscapes and boundaries.

30a

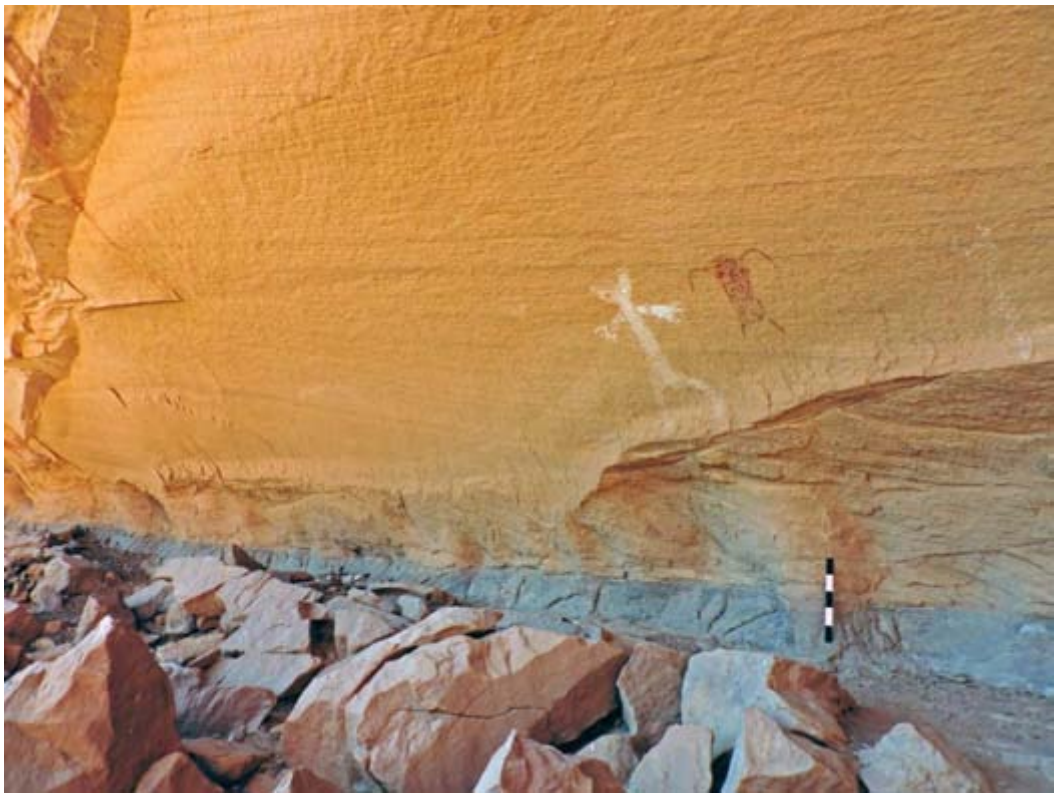
30b

Figure 30a–b. Alcove at 5ME529: views (a) northeast toward student archaeologist and white and red paintings on the alcove rear wall and (b) from the alcove looking southwest across the Colorado River.

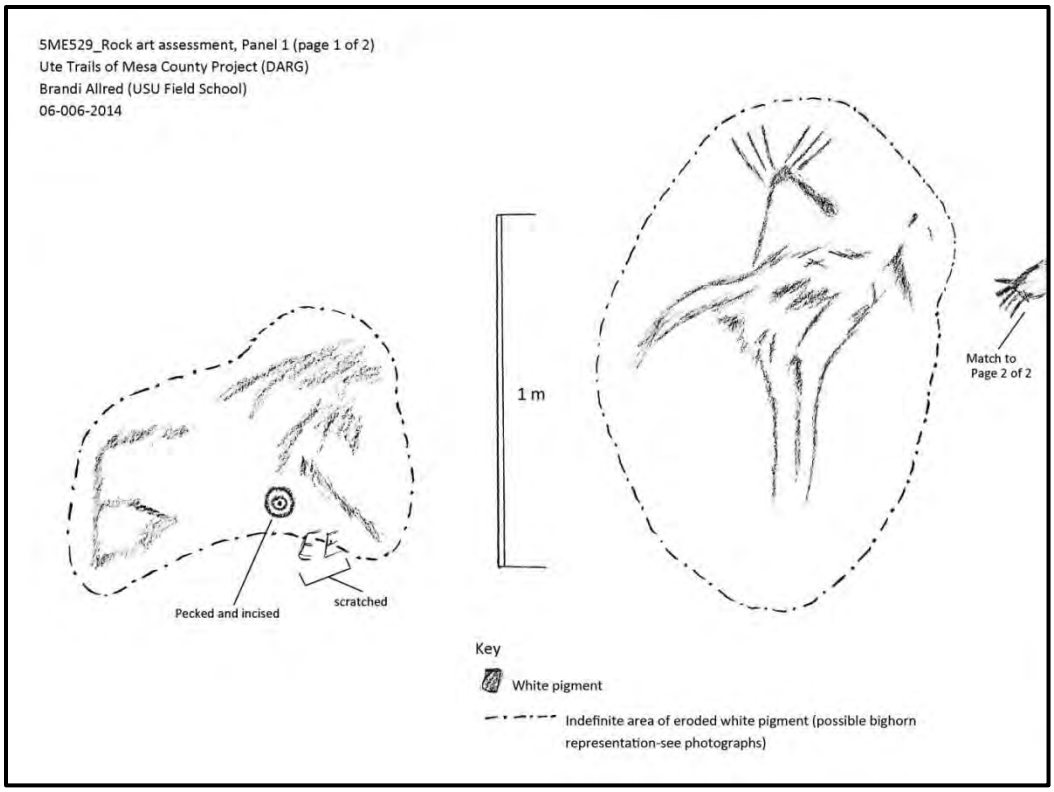
Rock art at 5ME529 (Panels 1-3) includes prehistoric Fremont style paintings and petroglyphs dating A.D. 400/600–1300/1500 and additional petroglyphs that are possibly contemporaneous. Historic inscriptions and motifs are also present. Bullets, abrasion, scratching, and graffiti have damaged rock art in various locations at the site. The present study focuses on Fremont and potentially related rock art in Panels 1 and 2. These are situated on the rear alcove wall (Panel 1) and on a series of boulders at the base of the wall (Panel 2). The representations are comparable to rock art in the Book Cliffs, Tavaputs and Roan plateaus, and Uintah Basin to the north and in the Little Dolores River-Glade Park area across the river to the south. There also are obvious similarities to rock art in the San Rafael Fremont region to the west. Beyond subject matter and themes, techniques of manufacture and types of modification

parallel examples in the comparative areas (Castleton 1978; Cole 1990, 2009, 2011a; Creasman 1982; Schaafsma 1971).

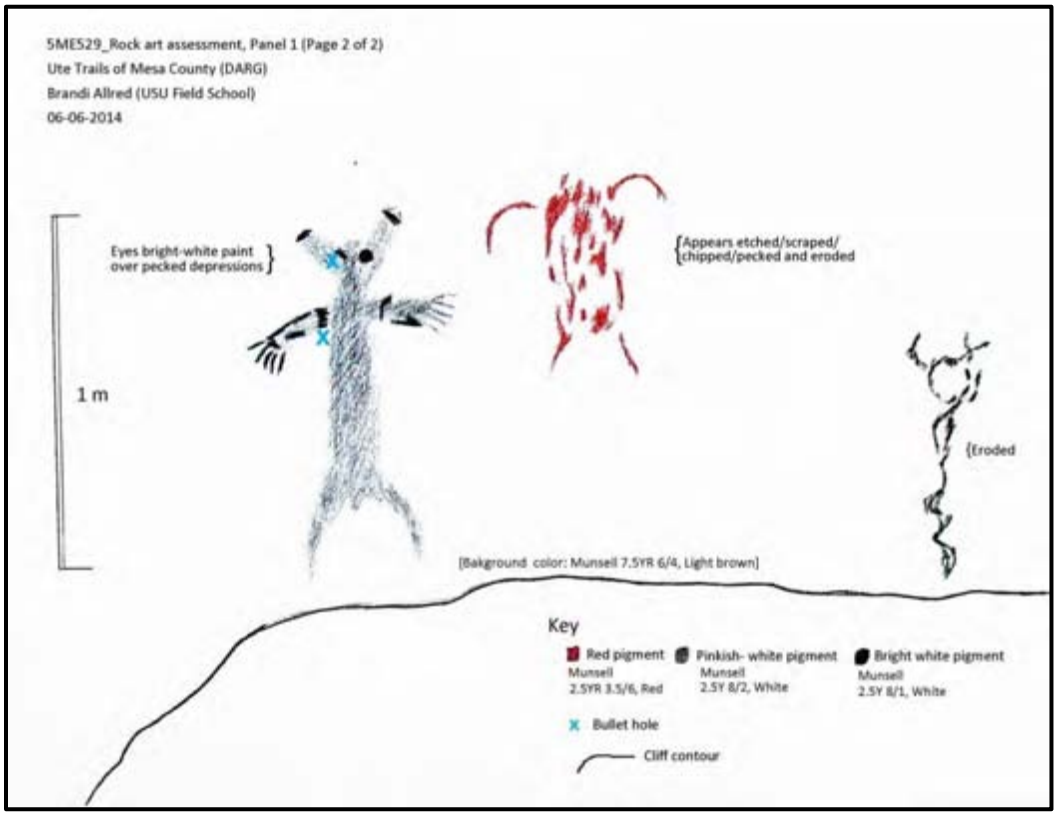
The more distinct elements in Panel 1 are (left to right) a white animal (possible bighorn) with a petroglyph-bull's eye motif in the "heart"; a white broad-shouldered anthropomorph with pinched-waist, hair-bobs or earrings, and fringelike headdress; a white anthropomorphic-bear with indistinct headdress, pecked and painted eyes, and arm bands; a red anthropomorph; a white, upright horned-snake motif; and a relatively small white figure (possibly an anthropomorph) and nearby white marks (Figure 31). The possible bighorn and broad-shouldered anthropomorph are heavily eroded (Figure 31e-h). The bearlike figure is painted in two shades of white: bright-white ear stripes, eyes, arm bands, and fingers or claws over grayish white and pecked areas (Figure 31i-j). The red figure appears headless but the head may have been removed when the form was modified by chipping, pecking, scraping, and/or etching, probably during the prehistoric era (Figure 31k). The reworking does not appear recent, and examples of Fremont style rock art north and west of the study area are modified in similar ways. Barrier Canyon style imagery at Colorado and Utah sites is also similarly changed, possibly by Fremont (Castleton 1978-1979; Cole 2004, 2009).



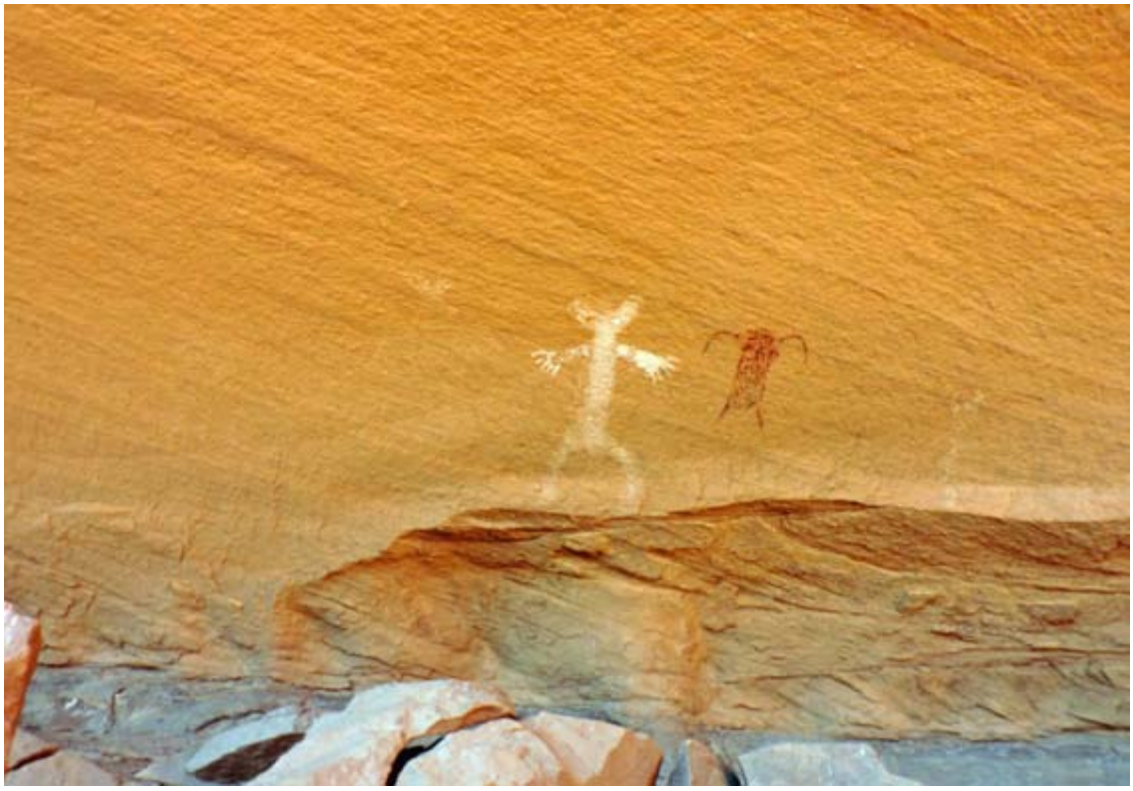
31a


5ME529_Rock art assessment, Panel 1 (page 1 of 2)
Ute Trails of Mesa County Project (DARG)
Brandi Allred (USU Field School)
06-006-2014
1 m
Match to Page 2 of 2
Pecked and incised
scratched
Key
White pigment
Indefinite area of eroded white pigment (possible bighorn representation-see photographs)

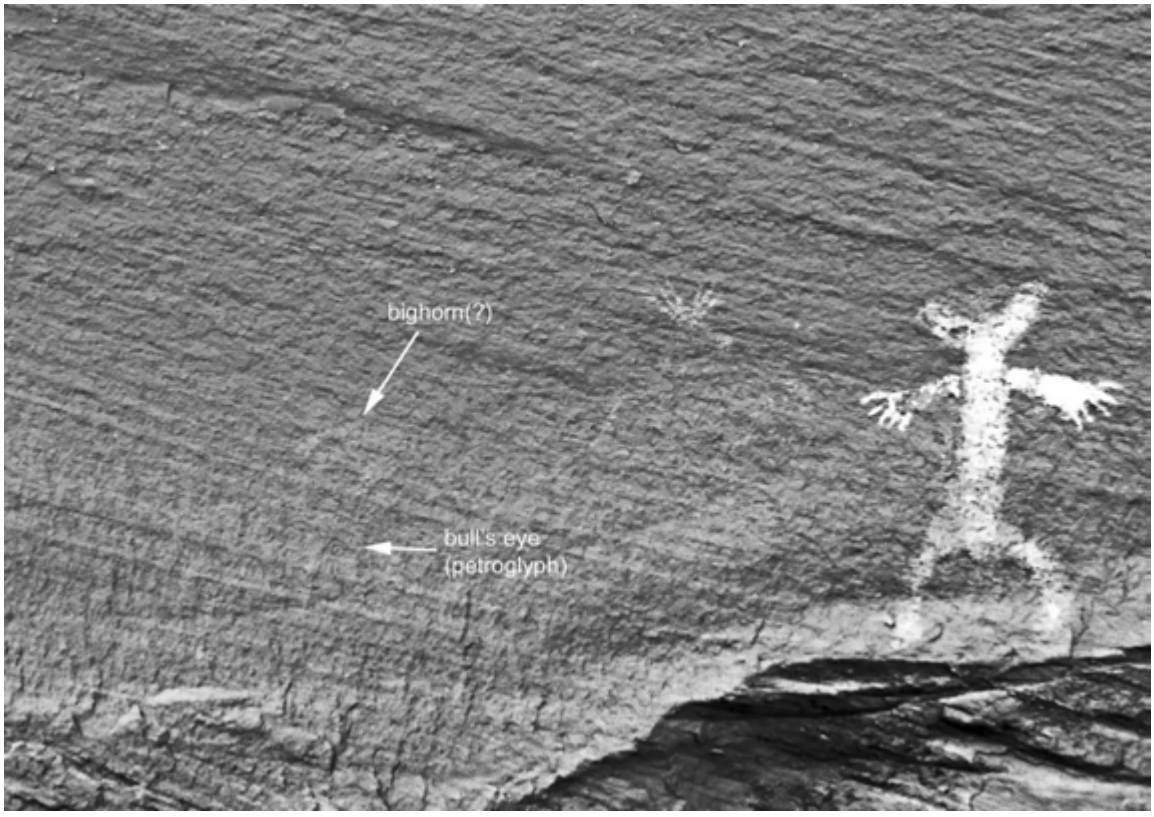
31b


5ME529_Rock art assessment, Panel 1 (Page 2 of 2)
Ute Trails of Mesa County (DARG)
Brandi Allred (USU Field School)
06-06-2014
Eyes bright-white paint over pecked depressions
Appears etched/scraped/ chipped/pecked and eroded
1 m
Eroded
[Bakground color: Munsell 7.5YR 6/4, Light brown]
Key
Red pigment Munsell 2.5YR 3.5/6, Red
Pinkish- white pigment Munsell 2.5Y 8/2, White
Bright white pigment Munsell 2.5Y 8/1, White
Bullet hole
Cliff contour

31c

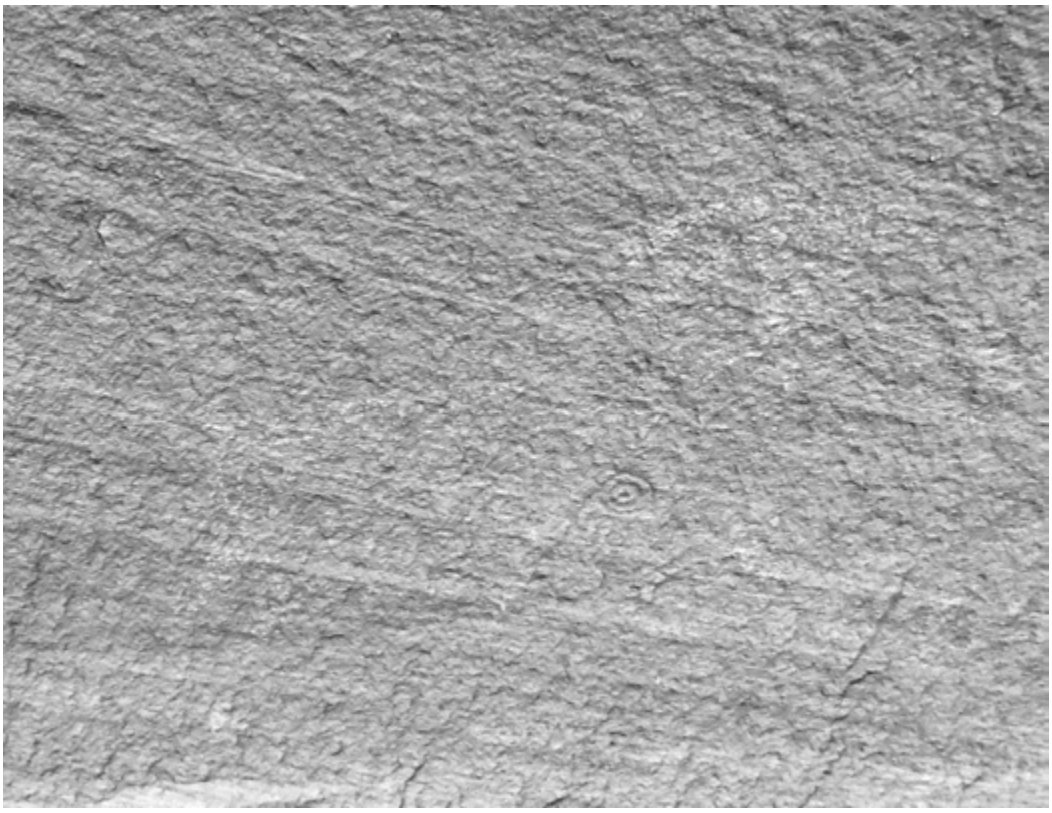


31d



31e

31f

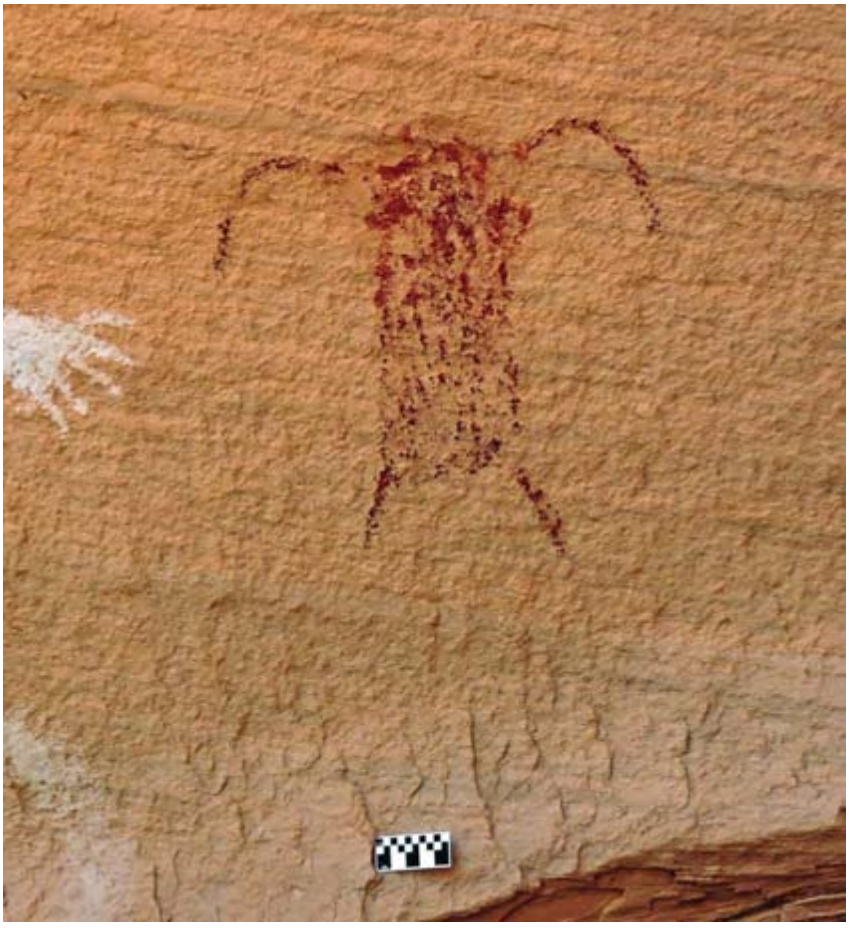


31g

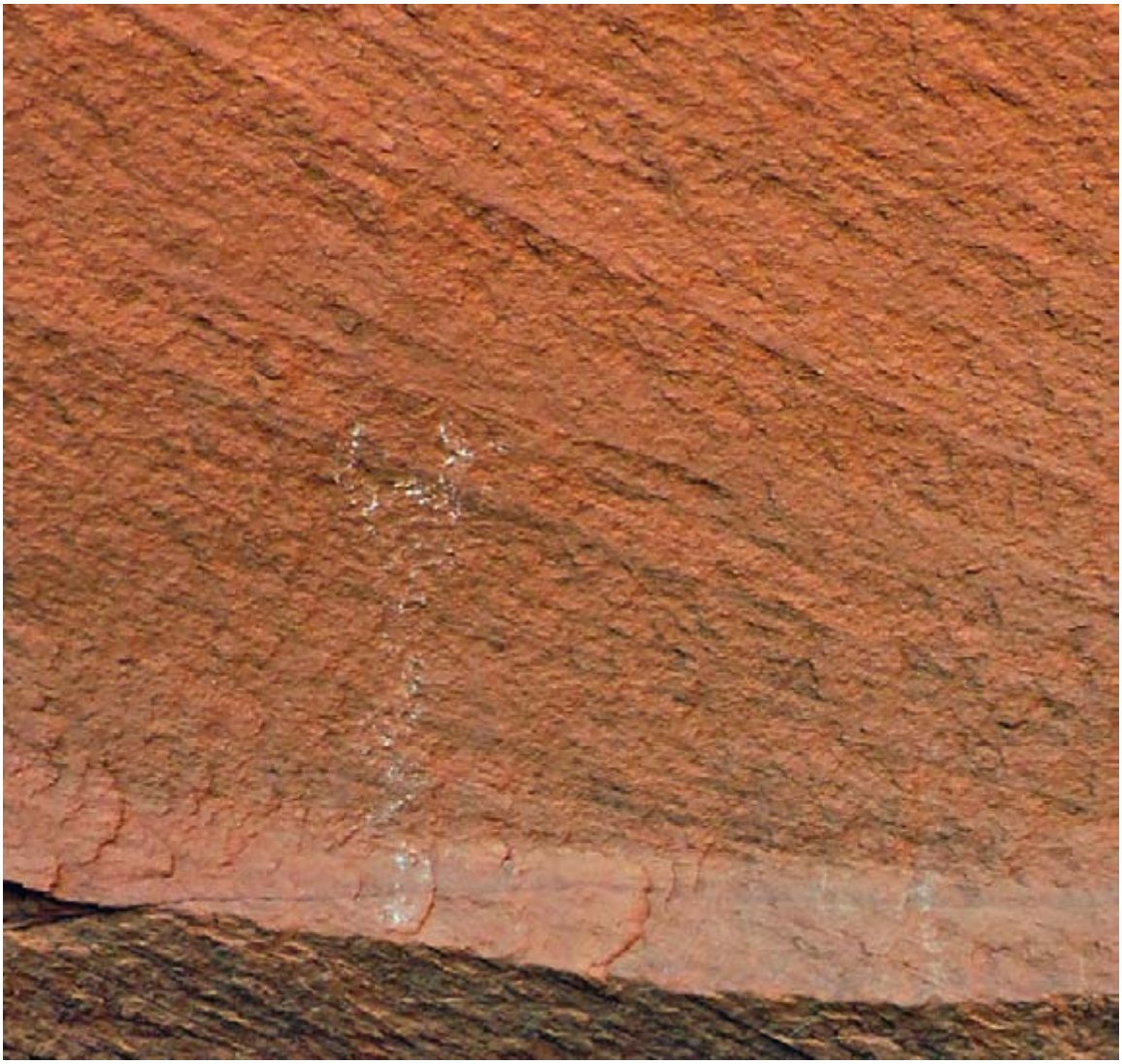
31h

31i

31j



31k



31l

Figure 31a–l. 5ME529, Panel 1 photographs and drawings: (a) overview to northeast; (b) left section drawing; (c) right section drawing; (d) central section; (e)annotated-B/W detail of left section; (f) detail of faint white animal form (possible bighorn) and bull's eye motif and (g) B/W image of same; (h) color-enhanced anthropomorph with hair-bobs/earrings and headdress with anthropomorphic-bear figure; (i) detail of bearlike head with "headdress" and arm band; (j) detail of bearlike arm band and fingers or claws; (k) modified red figure; (l) right section detail of horned-snake motif and indistinct paint and possible anthropomorph at lower right.

Petroglyphs in Panel 2 at 5ME529 show five bear track motifs (front-broad and segmented and rear-unbroken, footlike pattern), a possible anthropomorphic stick figure, and shallow V-grooves and abrasions on fall boulders below Panel 1 (Figures 32-33). The track motifs and a few elements of similar repatination were probably made by Fremont, perhaps in conjunction with the making of Panel 1 paintings or during related activities. Bear track motifs (segmented and not) are common petroglyph subjects in west central Colorado and neighboring areas from Archaic through Formative Ancestral Pueblo and Fremont times (Buckles 1971; Castleton 1978-1979; Cole 1999, 2009).

The Panel 2 track motifs are situated on four generally flat, horizontal surfaces suggesting the movement of bear(s) across the alcove floor, generally southwest to northeast, ending in the vicinity of the white anthropomorphic-bear in Panel 1 (Figure 32). The layout combined with subjects and themes displayed in the paintings, reinforces the possibility the site was a ritual destination. Similar bear-track petroglyphs on the cliff at 5ME540, upstream, are attributed to Fremont and Basketmaker or Archaic groups. A "walking sequence" of footprints (or rear bear tracks) and other paw–like representations on boulders at site 5ME792 in the Little Dolores River-Glade Park area are thought to be Fremont in origin (Cole 1990). Interestingly, the projected bear path through the alcove at 5ME529 fits the generalized trajectory of travel from the Glade Park area, across the Colorado River, toward and into the alcove (Figure 1).

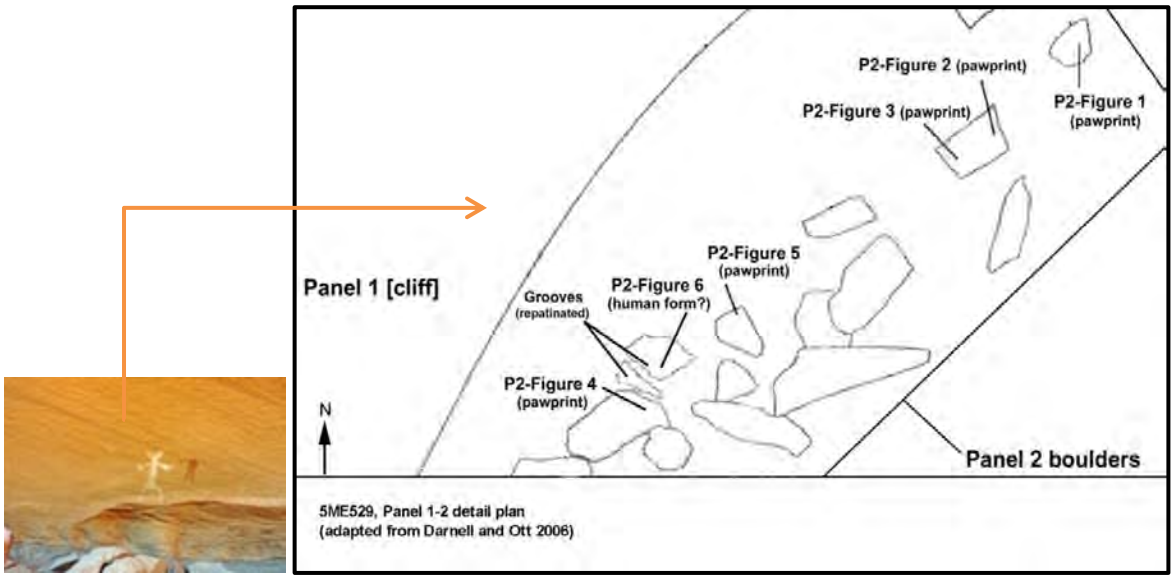
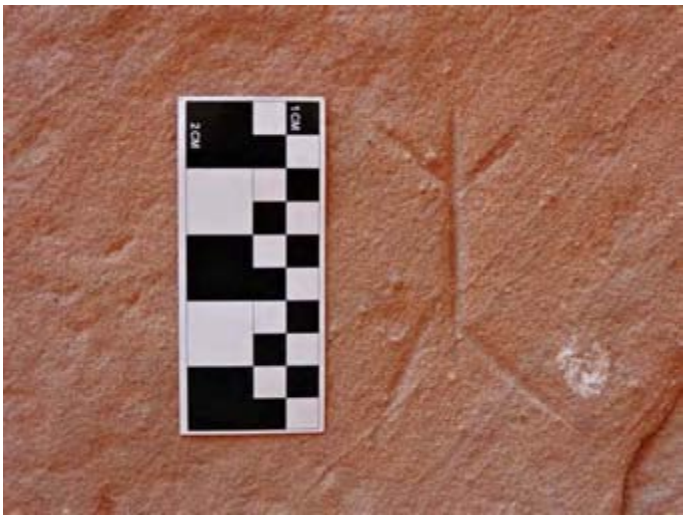


Figure 32. 5ME529 plan showing layout of Panel 2 ear track motifs and other boulder petroglyphs.


Key
Pecked (heavy, most distinguishable)
Pecked (light, eroded)
Panel 2-Figure 1
Panel 2-Figure 2
Panel 2-Figure 3
Panel 2-Figure 4
Panel 2-Figure 5
SME529_Rock art assessment
Panel 2-Figures 1-5
Ute Trails of Mesa County Project (DARG)
Bethany M. Wurster (USU Field School)
06-06-2014

33a

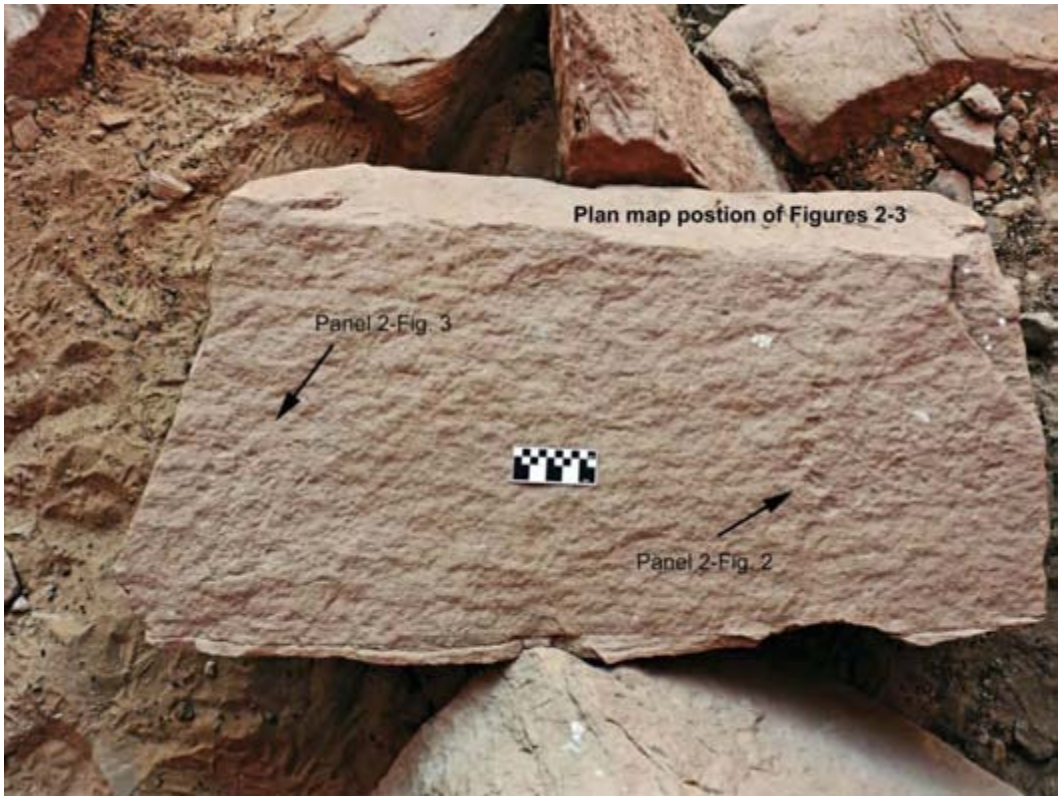
33b



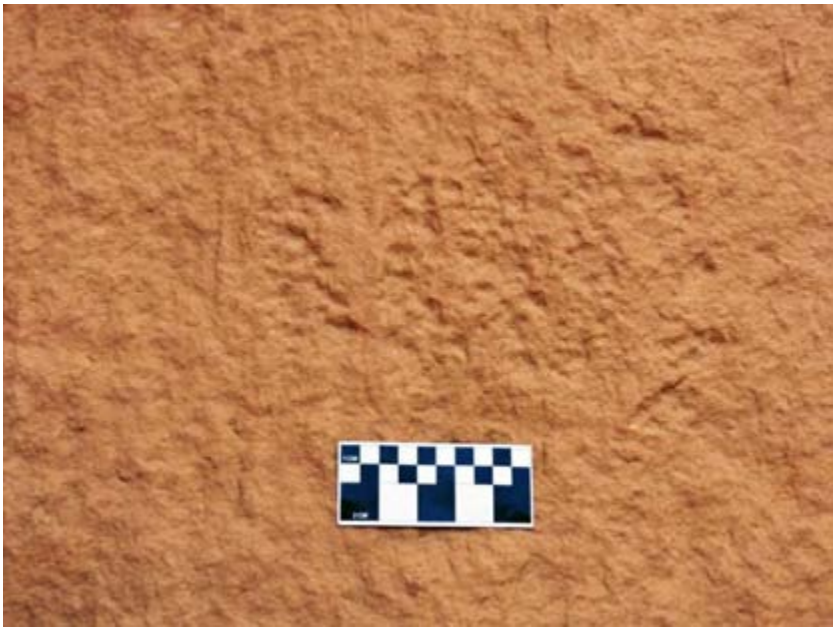
33c

33d

33e



33f



33g

Figure 33a–g. 5ME529, P2: (a) drawing of bear track motifs; (b) boulder petroglyphs showing possible stick-figure human form, grooves, and north most bear track motif; (c) detail of stick figure; (d)-(g) track petroglyphs in order of N-S distribution (see use of natural depression for heel in 27d, “heel-swirl” resembling an actual impression in 27e, and “ball-joint impressions” in 27d-g).

East Trail

Five rock art sites on the projected trail across the western slope of Grand Mesa to the confluence with the Gunnison River are described and discussed from north to southwest beginning with the upper elevation sites followed by three near the river (Figure 1). Site type descriptions beyond rock art are derived from Colorado Cultural Resource Survey records and field data.

5ME8047

The first site, a habitation and petroglyphs, is in piñon-juniper forest. Three basalt boulders with Abstract-Geometric style petroglyphs, dating approximately 4000 B.C. to A.D. 500/1000 (Cole 2009, 2011a), are on the slope of a low ridge with features including rock structures above. Radiocarbon dates from the general site area suggest it was occupied between 1250 B.C. and A. D. 1 (*Period 4*), perhaps by migrants (Conner et al. 2014). The subject boulders are not particularly prominent with regard to size or shape but the imagery probably was quite visible when fresh as historic petroglyphs on basalt often appear white (Castleton 1979; Schaafsma 1980). Most interestingly the three petroglyph boulders are situated in near north-south alignment (340˚ at 10˚ declination) (Figure 34).

Linear motifs predominate and some pecked lines intricately follow and incorporate natural contours suggestive of landscapes; Panels 1 and 3 are densely covered with lines; dot motifs occur on Panels 1 and 2 (Figures 35 and 36). The north-south boulder alignment suggests the panels were utilized for rituals associated with celestial or calendric events. Prehistoric alignments involving rock art, boulders, and architecture with proposed cosmological/calendric significance occur at a range of Ancestral Pueblo sites (Malville 2004, 2006; Williamson 1987). These types of activities are significant in the context of travel and migration corridors and socioreligious communication.

The levels of petroglyph weathering and repatination support an Archaic origin and indicate the motifs were made over a significant period of time. A number of the petroglyphs are heavily eroded and difficult to distinguish, particularly in Panel 3. A few petroglyphs with relatively light repatination are in Panels 1 and 2. If the panels predate the structures on the ridge above, their presence may have influenced that choice of settlement and construction in a ritual place. Less repatinated elements on the boulders were presumably made by later occupants, probably Formative in age. The size and setting of the petroglyph boulders indicate they were not intended to attract the public (for example, travelers) but were created and utilized for purposes of interest to locals and possible migrants over time.

Figure34. 5ME8047, Panels 1–3 alignment.

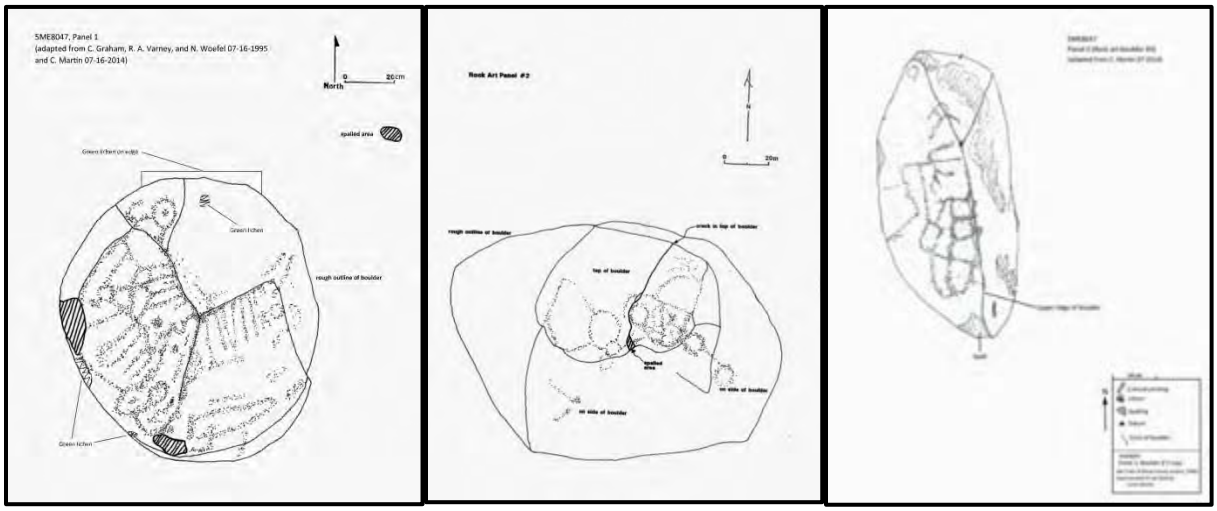


Figure 35. Drawings (left to right): Panels 1–3 at 5ME8047.

36a

36b

36c

36d

36e

Figure 36a–e. 5ME8047 petroglyph boulders: (a)-(b) Panel 1, two views; (c)-(d) Panel 2, two views; and (e) Panel 3.

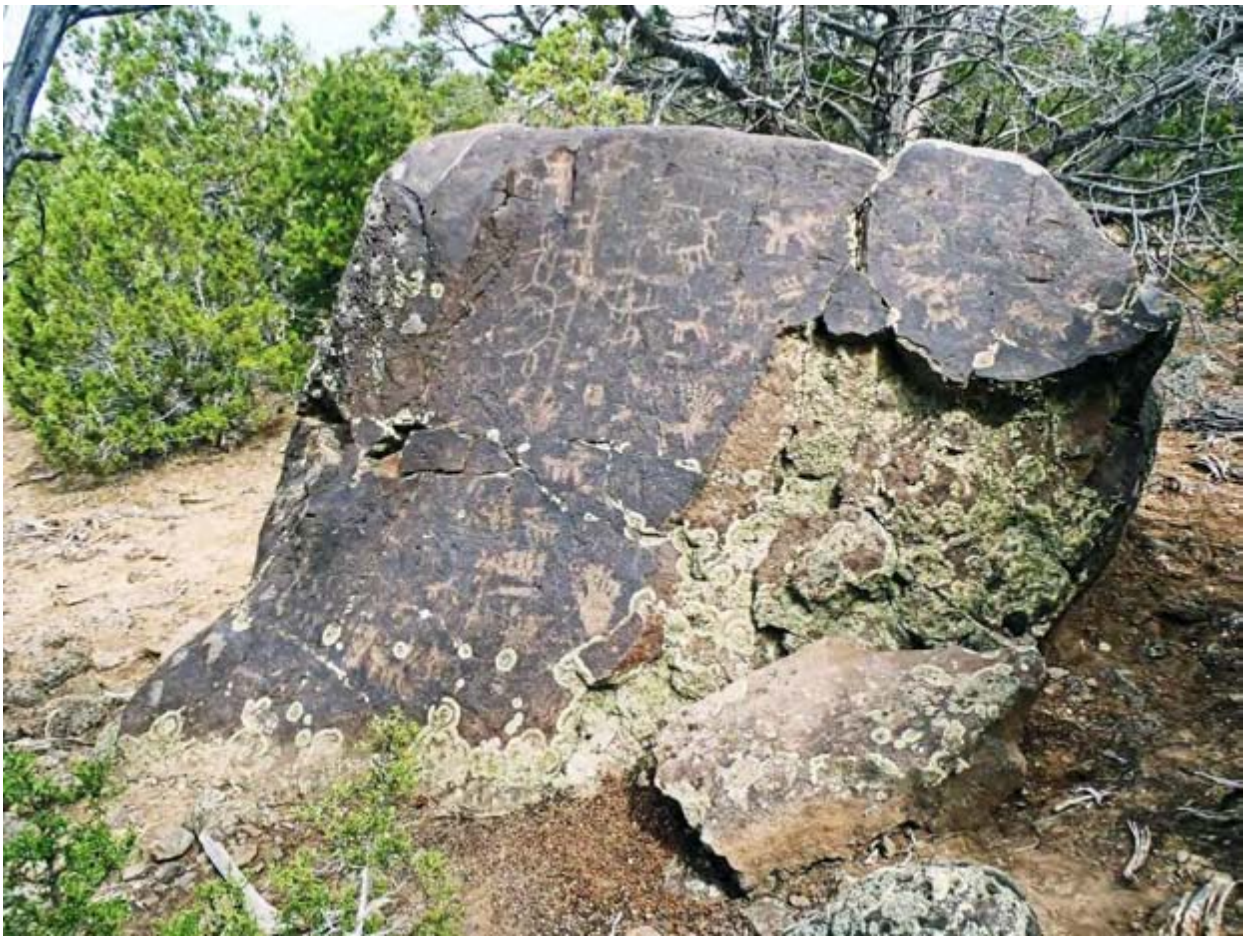
5ME3768

The second Grand Mesa trail site, a possible camp, features Uncompahgre style petroglyphs on three basalt boulders in piñon-juniper woodland. The Panel 1 boulder is notably large and Panel 2 boulder is upright and distinctive in shape. Petroglyphs in Panels 1–2 are typical Uncompahgre style; Panel 3 petroglyphs are less typical but not inconsistent with the style. The boulders are on the bank of the adjacent creek bed where they are likely to have been viewed by prehistoric groups using the waterway (and associated trail).

Uncompahgre style is primarily regional in scope and numerous sites are in the Uncompahgre Plateau and Grand Mesa areas and similar rock art is found in neighboring mountainous areas (Cole 1990; 2009). The distribution and associated material culture suggest origins among the Mountain Tradition described by Black (1991). Uncompahgre style is proposed to date from the Archaic into the Formative period in west central Colorado,

approximately 1000 B. C. or earlier to A.D. 1000 (Buckles 1971; Cole 1999; 2009, 2011a; Conner et al. 2011, 2014; Wormington and Lister 1956).

The petroglyph motifs include representations of paw prints or tracks (segmented-front paw of a bear track and rear bear paw or human foot print with linear attachment); hand print; various quadrupeds with tails and curved or upright horns, ears, and/or antlers; stick-figure humans (static and active); and geometric forms including circular, branching, and interconnected lines and dots. Repatination levels, superimpositions, and techniques in Panel 1 indicate two or more time periods were involved (Figure 37).



37a

a

37b

37c 37d

Figure 37a–d. 5ME3768: (a) Panel 1 (Richard Ott photograph); (b) Panel 1 detail; (c) Panel 2; and (d) Panel 3.

5ME164

The site is a sheltered camp with an extensive array of petroglyphs in a side drainage of a canyon leading to the Gunnison River. Five of the six total panels are clustered on boulders and cliffs near rock shelters evinicing occupation (Figure 38). They are are openly displayed but not visible from the main canyon. Presumably, they were intended for the site occupants and visitors over time. The petroglyphs are weathered and numerous elements are significantly eroded and difficult to examine; graffiti and bullet holes have caused further damage. The rock art indicates the site is particularly significant for a study of prehistoric cultural traditions and affiliations in west central Colorado. Unfortunately, the rock shelters have been extensively looted, reducing possibilities for archaeological clarification.

The site exemplifies common use of sites by makers of Abstract-Geometric and Uncompahgre style petroglyphs between 1000 B.C. or earlier and A.D. 1000 and offers insights into the nature of Archaic populations assumed to have long histories in the study area. The rock art weathering, spatial organization, and patterns of use suggest the makers were residents and affiliated over time, perhaps sodalities within an Archaic population such as the Uncompahgre Complex (Wormington and Lister 1956) and Mountain Tradition described by Black (1991). (A similar situation exists at site 5DT355 illustrated in Figures 2d and e and 4c.) Black's construct points to Great Basin connections evident in Abstract-Geometric style petroglyphs (Cole 2009). Archaic social complexity may explain shifts in population dynamics reflected in the radiocarbon record explored by Conner et al. (2011, 2014). A hand or paw print motif and quadrupeds at the site may be of historic Ute origin and are possibly connected to Ute use of nearby trail sites 5ME580 and 5ME163.

Variations in repatination and patterns of erosion support Archaic origins. In general, the Abstract-Geometric imagery seems older but there are more panels of that style and they are very exposed to weather. Although Uncompahgre style petroglyphs are generally less darkly repatinated than those of the Abstract-Geometric, both show considerable age and support contemporaneity at points in time. Panel situations and view shed indicate certain petroglyphs were associated with occupants of particular shelters. For example, abstract-geometric forms in Panels 1 and 2 were probably created by occupants of central Shelter C where the imagery was adjacent and/or exclusively in direct view over time. A relatively small number of Uncompahgre style elements also border that shelter lending support to the possibility that both groups participated in the rock art system.

Abstract-geometric type petroglyphs comprise precisely made wheel-like forms with "spokes" and other embellishments including a central "sunburst"; lines (mostly curvilinear, some mazelike; some encircle or are appended to other motifs including the distinctive wheel-like forms); dots (large and small, individual and in rows); wicket or arch–like forms; netlike forms; straight, zigzag, and wavy lines; chains of circles; and triangles. Consistent with the style tradition, a few representational motifs including paw prints, a possible handprint, foot prints,

38a

.

b

Figure 38a–b. 5ME164 rockshelter bordered by cliff petroglyphs.

and snakelike forms are juxtaposed with the abstract-geometric motifs. Panel 1-petroglyphs on the east side of a large tilted boulder, are of particular interest with regard to the Abstract-Geometric expression. The general N-S alignment of the boulder and use of the east face suggests the distinctive “wheel” and sunburst motifs may have had astronomical and calendric significance (Figure 39). The boulder and overall site setting provide good opportunities for groups to observe light and shadow phenomena associated with rock art and possibly other features at the site (Cole 2009; Malville 2006; Williamson 1987).

39a

39b

39c

39d

39e

Figure 39a–e. 5ME164 Abstract-Geometric style petroglyphs: (a) Panel 1 overview; (b) detail of Panel 1 “wheel” and other motifs; (c) close detail of Panel 1 sunburst and other motifs; (d) Panel 2 overview; and (e) closer view of Panel 2 linear motifs, triangles, and hand/paw print motifs.

Panels 3–6 at 5ME164 exhibit Uncompahgre style human and animal forms. Wheel- and netlike forms and other linear motifs in Panels 3 and 4 are probably components of Abstract-Geometric style (Figure 40). Uncompahgre style petroglyphs include representations of paw/hand-print motifs; linear motifs; bird-track form; slender human forms with raised arms; snakes; and quadrupeds shown individually and in rows and groups. Narrative content is implied by the appearance and relationships among elements. Animals variously exhibit antlers and cloven hooves, upright horns or ears, and long tails (possible felines or canines). A quadruped in Panel 5 appears to be shown full-face, a rare position in Colorado Plateau and other rock art. With the exception of a single quadruped with large antlers in Panel 6, all Uncompahgre style imagery is near rock shelters and panels of Abstract-Geometric style. The small lone animal is remote, located at the edge of the site and well away from other panels. It presumably served a different function and may have had more private use or marked "entry" to the site and contact with affiliated societies.

40a

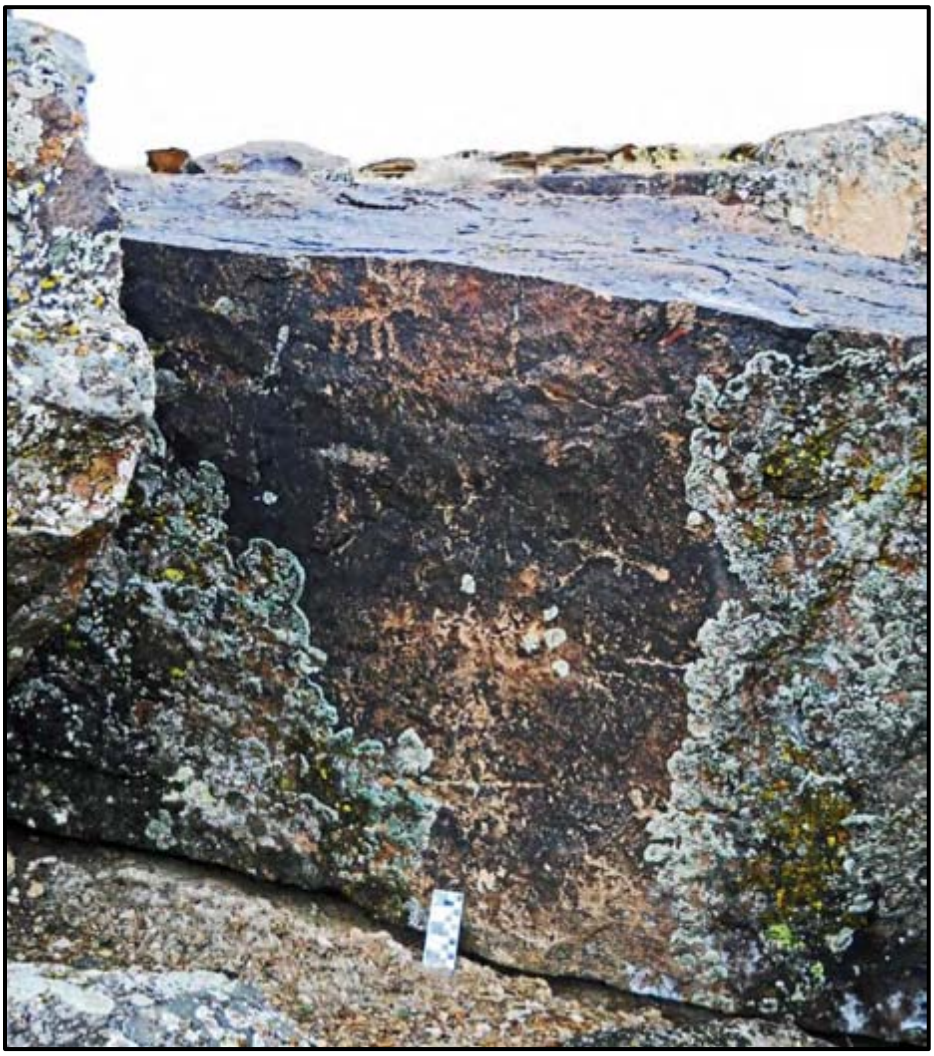
40b

40c

40d

40e

40f



40g

Figure 40a–g. 5ME164 Uncompahgre style petroglyphs: (a) Panel 3 human, animal, and linear motifs (1m scale); (b) Panel 4 animals and paw/hand print motifs and bullet holes; the lightly repatinated and possibly re-worked hand/paw motif may have been made by Ute; darker hand/paw motifs may be components of the Abstract-Geometric style also represented in the panel); (c) Panel 4 lower detail; (d) Panel 5 group of Uncompahgre style quadrupeds with various repatination levels and bracket-like form (brownish-more recent motifs possibly of Ute origin); (e) Panel 5 overview with scale; (f) Panel 5 enlarged view of central, grayish-older animal in rare facing position; and (e) Panel 6 isolated, lone quadruped with typically large antlers at edge of site.

5ME580

The sheltered camp at the edge of a seasonal drainage is characterized by rock shelters, petroglyphs, and paintings. The setting is similar to that of nearby 5ME164 but the rock art panels are generally small and less visible and the information was probably intended for occupants. Prehistoric (probably Uncompahgre style) and historic Ute styles are present (Buckles 1971; Cole 1990, 2009) (Figures 41 and 42). The prehistoric elements are eroded and faint; historic Ute style images are relatively well preserved. A radiocarbon sample from a vandalized feature at the site has an uncalibrated date of 2040 ± 70 RCYBP (McDonald et al. 2010) indicating the presence of Archaic–early Formative occupants (Conner et al. 2014) and correlating with the estimated age of Uncompahgre style (~1000 B. C. to A.D. 1000).

The possible Uncompahgre style imagery occurs in Panel 2 and comprises an indistinct, eroded red painting of an animal (probable bighorn) that may have been pecked prior to painting or the motif is a combination of the two techniques (Figure 41). The curved horns appear pecked and over-painted. Indistinct pecking suggestive of a human form is near the animal (a common theme of Uncompahgre style). Examples of pecked and painted imagery, including combination forms, occur at regional Uncompahgre style sites but are not common (Cole 1990, 2009).

41a

41b

Figure 41a–b. 5ME580, Panel 2 prehistoric type petroglyphs and paintings: (a) overview in dim light showing red and pecked animal (above scale) and possible pecked human form to the right; (b) detail of pecked and painted animal. (Photographs by Richard Ott)

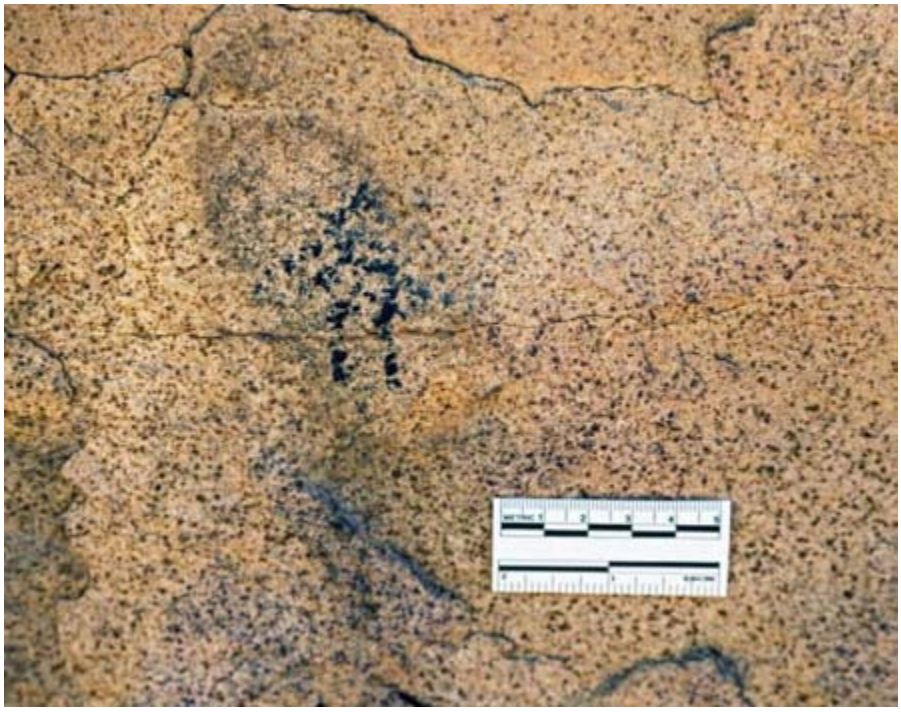
Panels 1, 3, and Panel 4 comprise early historic Ute style pecked and scratched petroglyphs estimated to date prior to 1850 (Buckles 1971; Cole 1988, 1990, 2013). Panel 1 at 5ME580 is a well preserved example of Ute scratched and scratched-abraded petroglyphs, a technique likely derived from the Great Basin and Intermountain-Plains regions and possibly an indication of relatively early Ute use of the site (Cole 2013). The panel shows a quadruped with very large ears and a long tail, possibly a mule or horse (somewhat consistent with petroglyphs in Panel 3) and two detailed tipis. Additional, indistinct scratches may show animals and possibly one or more human forms. The panel is an example of biographic type rock art described for the Intermountain-Plains and present study region (Keyser 2011; Keyser and Poetschat 2008).

In Panel 3, seven or eight pecked animals exhibit various antlers, horns, and/or upright ears. Four quadrupeds have long tails suggesting horses. For one of these, an indistinct, scratched or lightly pecked rider may be signified. A relatively large, unidentified scratched motif is juxtaposed with the animals. The ambiguity with regard to possible horses suggests the rock art was made prior to common use of horses by regional Ute in the 1700s (Baker 2013; Baker et al. 2009, 2013; Cole 2013).

42a

42b

42c



42d

Panel 4 shows a small black figure (charcoal/soot pigment?) that may represent a shield-figure or shield-bearing-warrior of the type portrayed in Pueblo, Fremont, and Plains-Intermountain rock art styles from late prehistoric into early historic times (Keyser 1975, 2011; Cole 1999, 2009). The motif is closely associated with pre-horse and early-horse era warriors using large body shields as opposed to smaller shields later used by equestrians and also depicted in rock art. The possible body shield depiction at 5ME580 supports the impression of a relatively early Ute occupation.

e

Figure 42a–e. 5ME580: (a)-(c) Panel 3 animals and unidentified scratched forms; (d) Panel 4 possible shield-figure in black pigment; and (e) Panel 1 scratched and scratched-abraded animal, tipis, and unidentified motifs. (Photographs by Richard Ott; black and white enhancement by S. J. Cole)

5ME163

The final West Grand Mesa trail site is an open camp near the mouth of a tributary canyon leading to the Gunnison River. Prehistoric and historic styles of petroglyphs are on boulders adjacent to a historical stone structure probably built and occupied by Euroamerican sheep and/or cattle herders after 1880 (Flores et al. 2012) (Figure 1). The site area is easily seen when approaching from the river or down the canyon and the rock art is openly visible when near. It was presumably viewed by the occupants and visitors over time.

Although the site is in the vicinity of 5ME164 and 5ME580, it evinces prehistoric diversity not seen at the other sites and addresses the issue of interaction among societies with presumably distinct lifeways, worldviews, and iconographies. Prehistoric Archaic-based Uncompahgre style (~1000 B.C.–A.D. 1000) and Basketmaker II-III style (1000/400 B.C.–A.D. 600) petroglyphs appear with late historic Ute style petroglyphs (post 1825/1850) in Panels 1a and 1b (Buckles 1971; Cole 1990, 2009) (Figures 43 and 44). Portions of the rock art panels are significantly impacted by graffiti.

Identifiable Uncompahgre style motifs in Panel 1a comprise quadrupeds with antlers, horns, and upright ears, and a vague stick-figure human that appears to hold the right side (as viewed) of a branched, plantlike form of likely Basketmaker II-III origin (similar forms appear in Uncompahgre style). Basket maker II-III style imagery in Panel 1a includes representations of a broad-shouldered human form "holding" the left side of the plantlike form, quadrupeds with ears and tails (possibly canines), a pronghorn, and a concentric circle motif. The broad-shouldered anthropomorph is highly typical of San Juan-related Basketmaker II-III style rock art on the Colorado Plateau (Cole 2009) (Figure 43a-d). A relatively large animal (possible canine) appears to have a dart embedded in the chest.

Distinct pecking techniques are displayed in Panel 1a prehistoric styles. Makers of Uncompahgre style used large peck marks and those making Basketmaker II-III style used relatively small and fine peck marks (Figure 43b-c). The patterns of weathering, repatination levels, and element superimposition indicate the two styles are roughly contemporaneous and themes such as the possibly shared plantlike form support that possibility (Figure 43c-d). The regional Uncompahgre style chronology extends into the Formative period and tracks with Archaic to Formative developments described by Conner et al. (2014) for the study area. Beyond chronology, the rock art points to sociocultural diversity. Insofar as Uncompahgre style is focused in (generally restricted to) the generalize study area and Basketmaker II-III style is linked to major agricultural developments in the greater San Juan and Dolores River areas to the south, the makers of Basketmaker II-III images at 5ME163 were probably migrants.

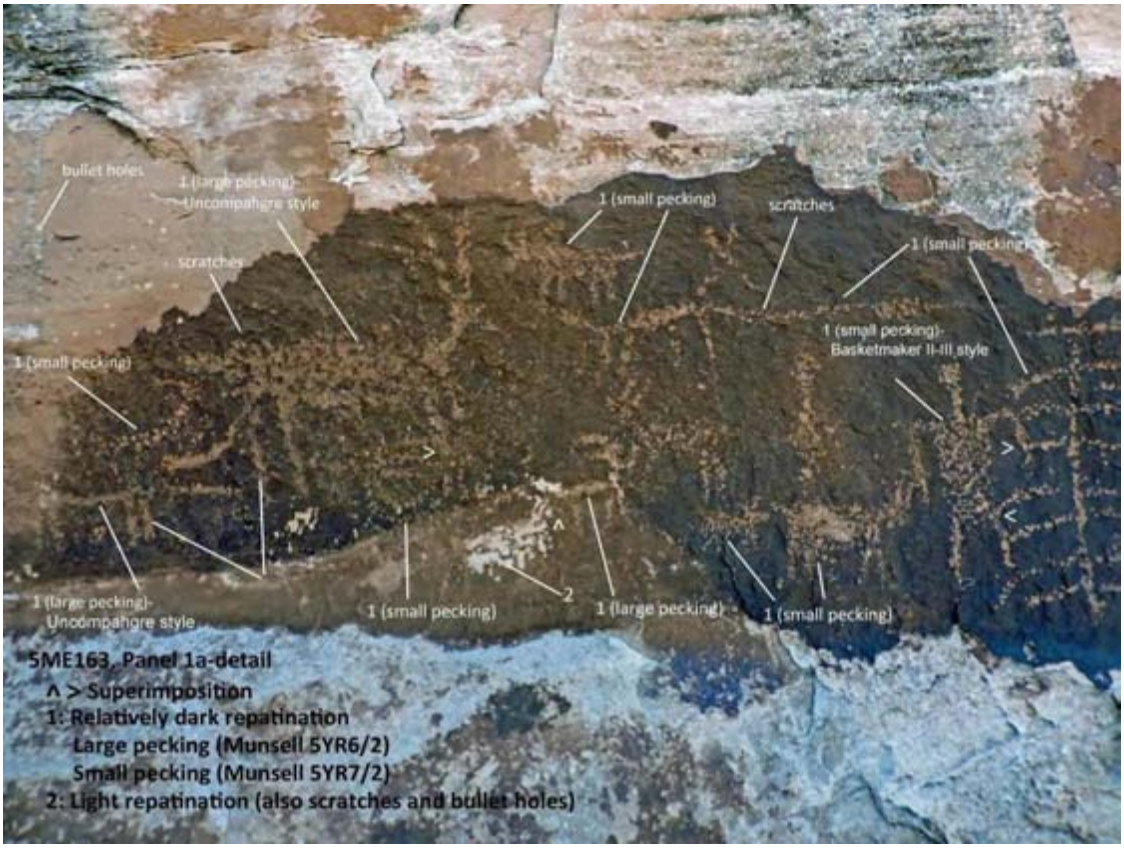
Panel 1b comprises Uncompahgre style petroglyphs with dark and medium-dark repatination and lightly repatinated late historic Ute style petroglyphs. A finely pecked animal with medium-dark repatination and upright ears and pointed tail may date from Basketmaker II-III times (Figure 44a-c). Uncompahgre style motifs include quadrupeds with upright ears,

antlers, and curved horns (bighorn), snakelike forms, lines, a possible bird, segmented paw prints, and two branched plantlike forms similar to one attributed to Basketmaker II-III in Panel 1a. A large segmented bear paw print with claws has been precisely over-pecked, probably by Ute judging from the light repatination level. Two time periods are indicated by superimpositions and repatination levels for Uncompahgre style motifs (Figure 44c-d). This suggests a significant gap in site occupation or visitation, which may track with population downturns indicated by the radiocarbon record (Conner et al. 2014).

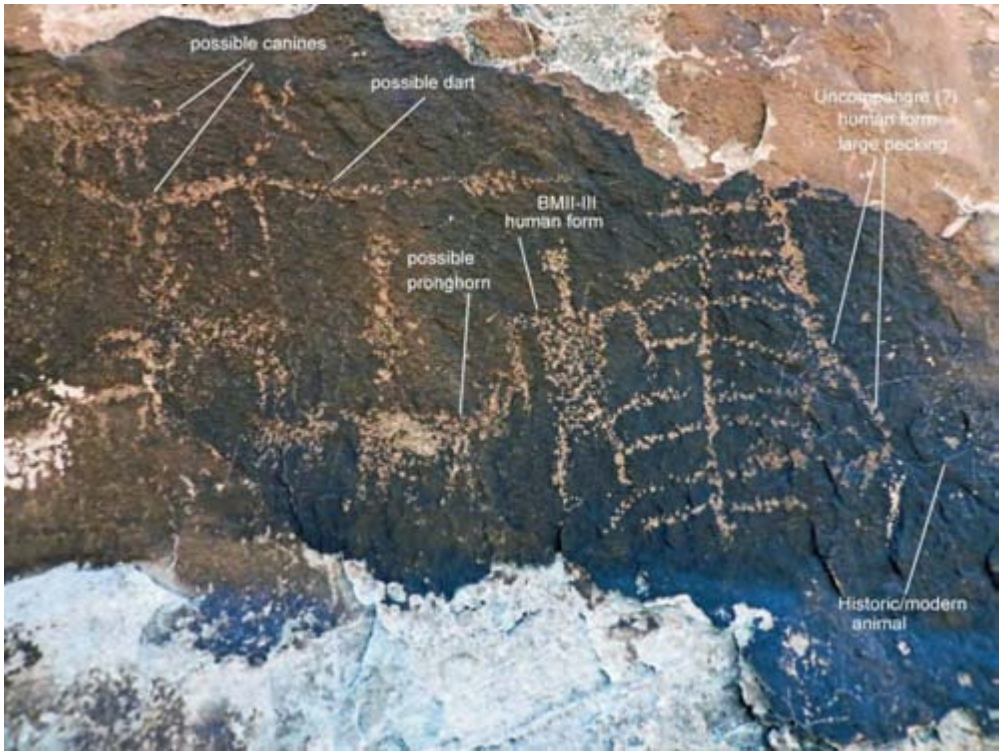
Ute style pecked, petroglyphs superimpose numerous Uncompahgre style images with similar types of representations including quadrupeds with upright horns or ears, curved horns (bighorn), antlers (deer or elk), a possible rabbit, and a segmented paw print (plus the over-pecked Uncompahgre motif). Other motifs comprise equestrians, human figures (pedestrians), a bull's eye, and a wheel-like form that closely resembles Abstract-Geometric style images at 5ME164 a short distance to the east. Mimicry of this type is reported for Ute rock art elsewhere in western Colorado and for Southern Paiute rock art in northern Arizona (Christensen and Dickey 2007; Cole 1990, 2013; Creasman 1982).

With regard to a Basketmaker II-III presence, it is significant that anthropomorphic figures similar to the one shown in Panel 1a occur across the Gunnison River, a likely extension of the projected West Grand Mesa trail. One of the figures across the river holds a crook-like form resembling wooden planting sticks and (smaller) prayer sticks of San Juan Basketmakers (Kidder and Guernsey 1919; Morris 1980) (Figure 45). Crook motifs are depicted in Basketmaker II-III style rock art in the western San Juan and middle Little Colorado River areas. They appear as individual items and are held or otherwise attached to human figures (Cole 1990, 2009).

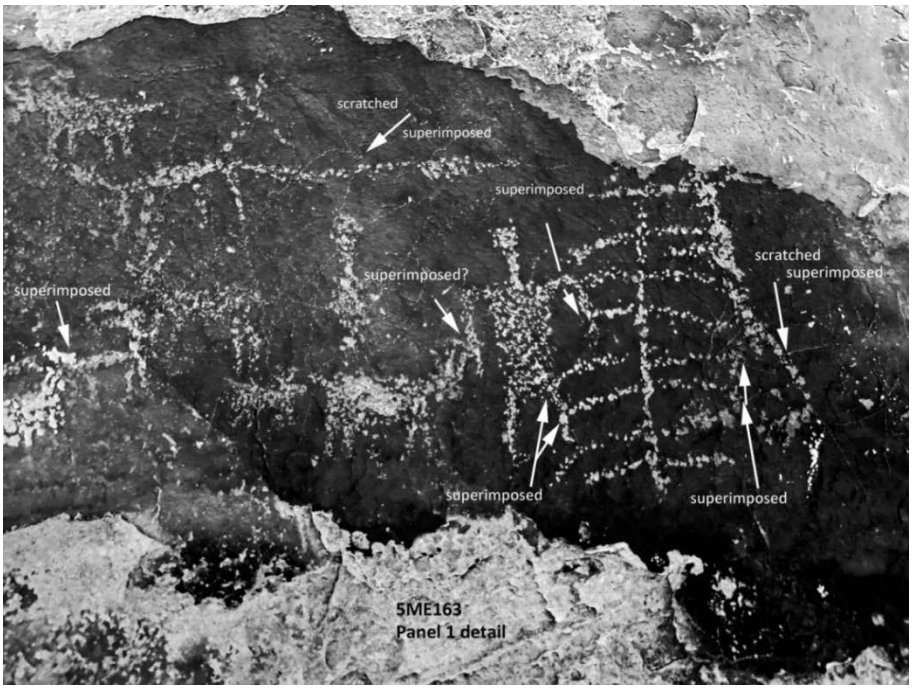
43a


bullet holes
1 (large pecking)-
Uncompahgre style
scratches
1 (small pecking)
scratches
1 (small pecking)
1 (small pecking)-
Basketmaker II-III style
1 (small pecking)
1 (large pecking)-
Uncompahgre style
1 (small pecking)
1 (large pecking)
1 (small pecking)
5ME163, Panel 1a-detail
^ > Superimposition
1: Relatively dark repatination
Large pecking (Munsell 5YR6/2)
Small pecking (Munsell 5YR7/2)
2: Light repatination (also scratches and bullet holes)

43b


possible canines
possible dart
Uncompahgre (?)
human form-
large pecking
BMII-III
human form
possible
pronghorn
Historic/modern
animal

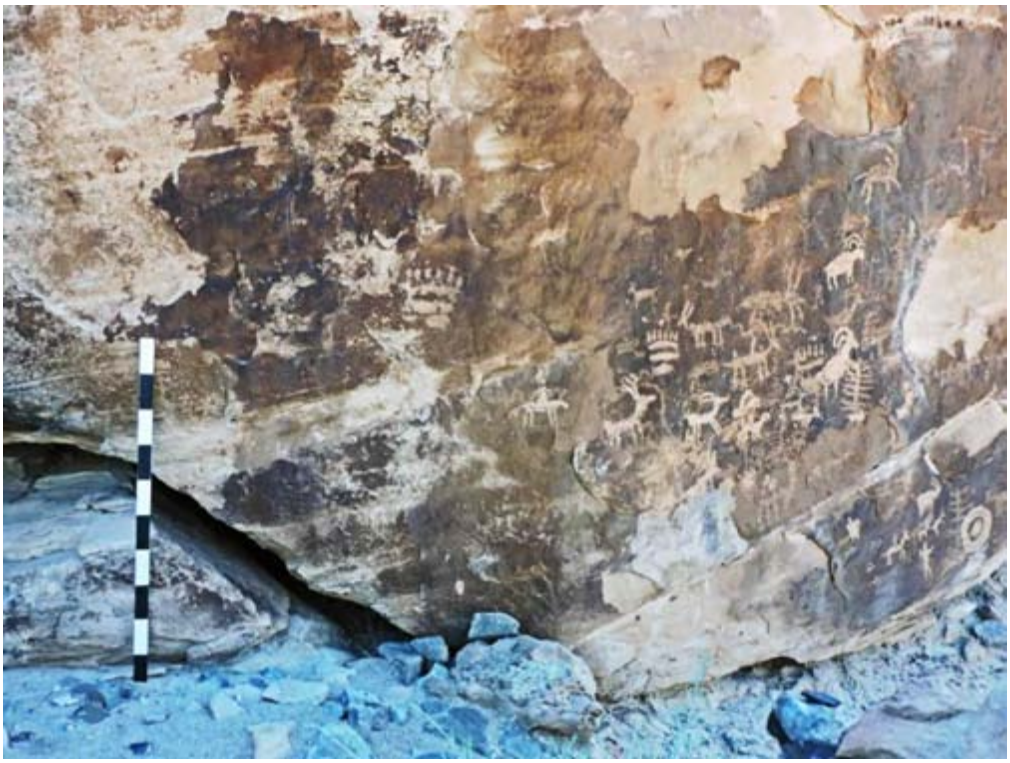
43c



43d

Figure 43a–d. 5ME163, Panel 1a: (a) overview; (b) left-center detail showing styles, pecking techniques, repatination levels, and superimpositions; (c) right-center detail of styles, motifs, and pecking techniques; and (d) superimpositions.

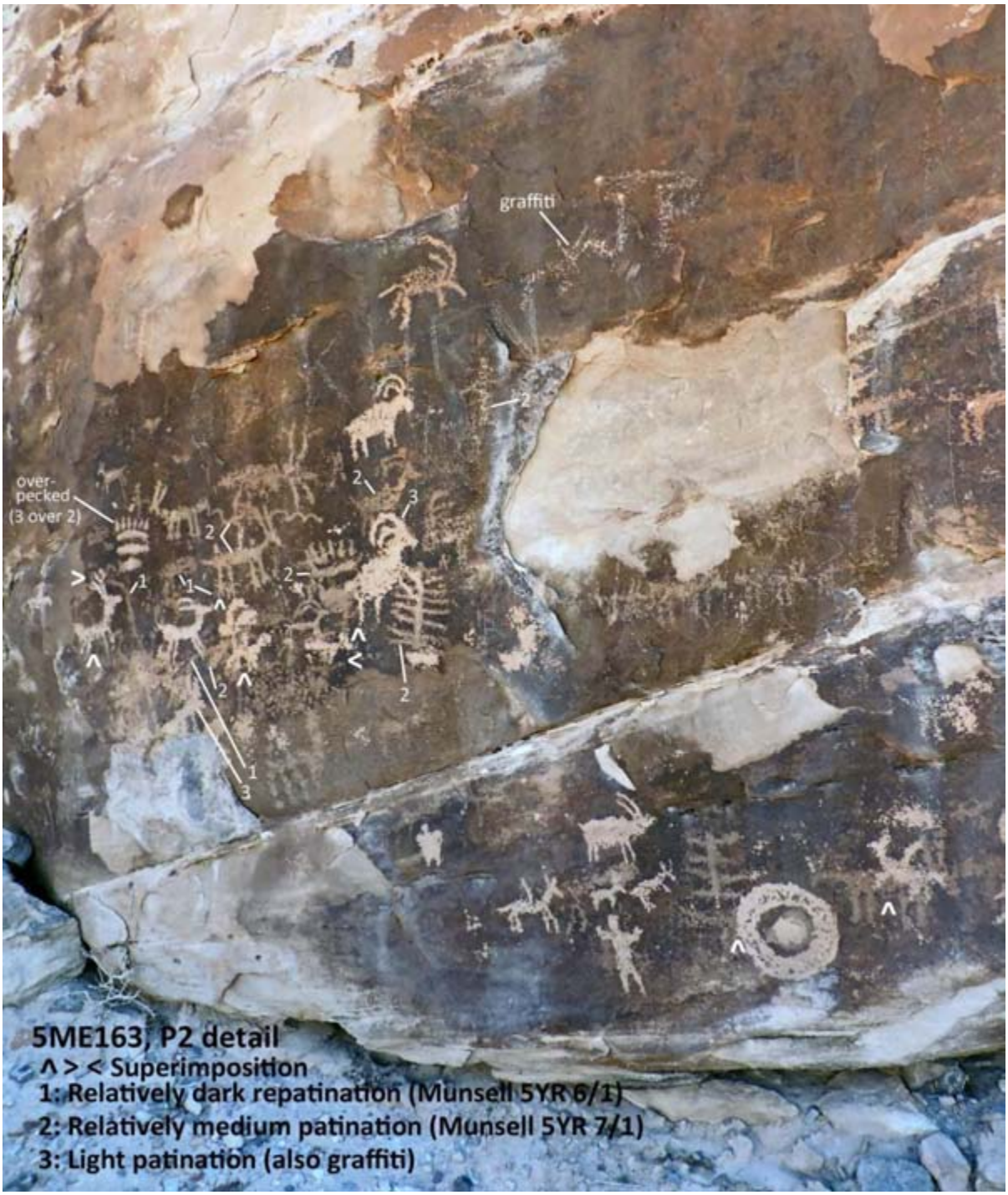
44a



44b


(fine, small pecking)
Light
Medium
Light over-pecking
Medium
Dark
Dark
Medium
Light
Dark
Medium
SME163, Panel 1b detail
Relatively dark, medium, light repatination
and superimposition

44c



44d

Figure 44a–d. 5ME163, P1b: (a) overview; (b) left-center with scale; (c) detail showing Uncompahgre style repatination levels and superimpositions; and (d) Uncompahgre and Ute styles repatination levels, superimpositions, and over-pecking.

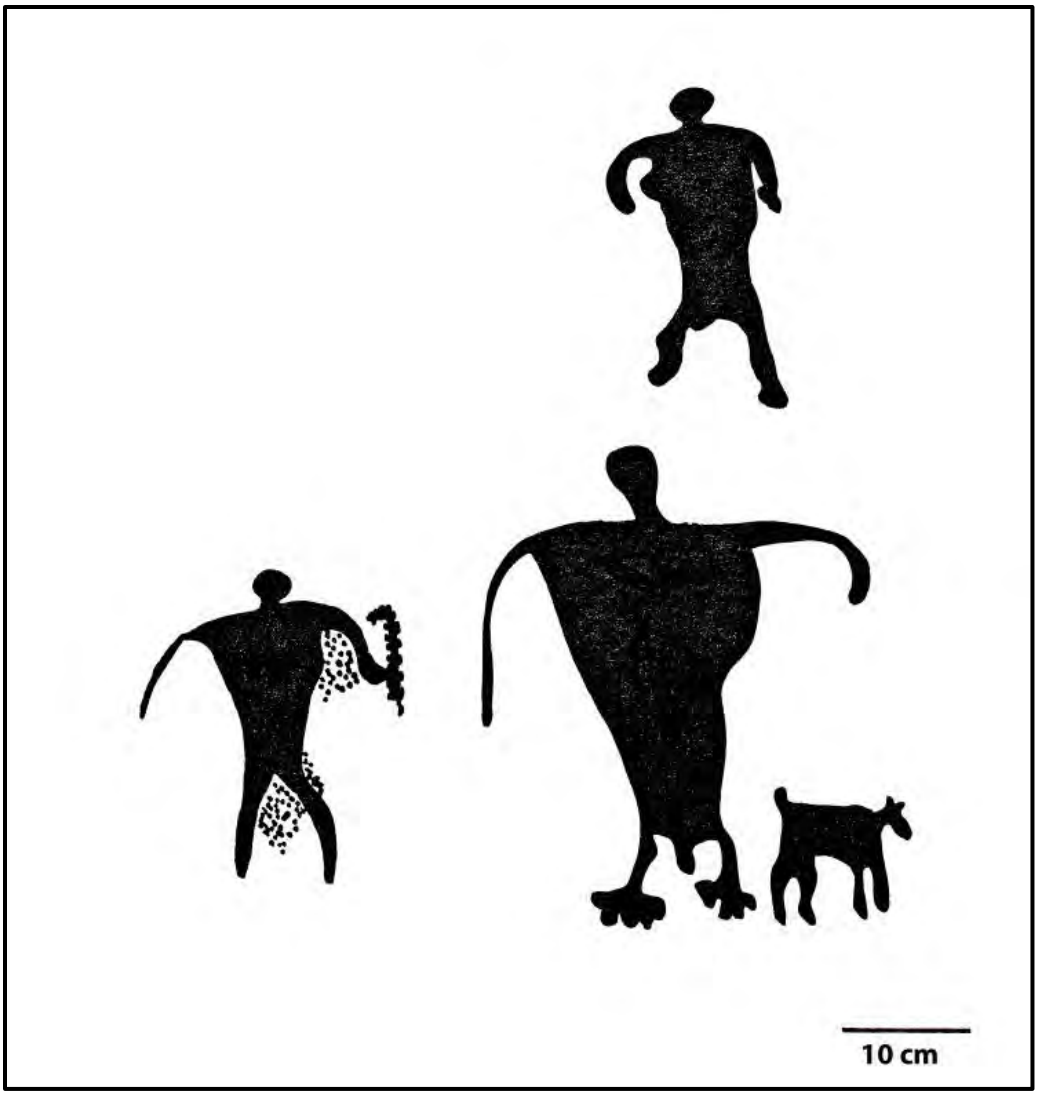


Figure 45. Basketmaker II-III style petroglyphs at site 5ME159 (across Gunnison River from 5ME163).

Regional Distribution and Cultural Dynamics

Rock art styles identified in the projected McDonald Creek and West Grand Mesa corridors are linked to Archaic, Fremont, Ancestral Pueblo, and protohistoric-historic Ute peoples of the Colorado Plateau and Intermountain region (Figure 1). The occurrence at a sample of sites in west central Colorado point to likely homelands and migration paths including the two examined in this study (Figures 46-49).

Uncompahgre style clearly dominates the region in prehistoric times and may have considerable time depth (Figure 46). Abstract-Geometric style occurs throughout the comparative area but the total number of sites is relatively small in comparison with Uncompahgre style imagery with which it occurs at some sites including 5DT355 and 5ME164 Figures 2d-e, 4c, and 47). As previously discussed, the two expressions were probably contemporaneous at some points in time and are likely to have been made by separate sodalities within a shared cultural tradition. Abstract-Geometric type rock art may have been made by various Archaic cultures across time and space.

The Abstract-Geometric style cuts across geographic and cultural boundaries in the western U. S. and possibly represents types of an ancient symbolic system that endured among various Archaic groups and descendent populations over time. It occurs with the Archaic-based Barrier Canyon style at sites in Utah and in the McDonald Creek corridor at 5ME5259 (Cole 2009). Barrier Canyon style is clearly distinct in subject matter and occurrence from Uncompahgre style. It appears only at the perimeters of west central Colorado despite wide distribution on the Colorado Plateau, from northwest Colorado to near the Arizona Strip in the south (Figure 47). An obvious explanation is territorial domination by makers of Uncompahgre style—the "locals" (Figure 46).

Basketmaker II-III and other San Juan Ancestral Pueblo-related groups also have a small presence in the study area but are well represented elsewhere in west central Colorado. They are concentrated along the Dolores and San Miguel rivers to the south with continuation into eastern Utah (Figure 47). San Juan relationships in these areas are manifested from Basketmaker II through Pueblo II times (~A.D. 100/300–1250) (Charles and Cole 2006; Cole 2009). Their entrée into the heart of the study area may reflect local (Uncompahgre style peoples?) interest in an agricultural lifeway or in establishing trade networks with related groups to the south and west. Panels of, otherwise, Uncompahgre style rock art showing Basketmaker-like broad-shouldered human forms may coincide with these events (Cole 1990, 2011a). Basketmaker and Pueblo routes into the study area apparently involved crossing the Uncompahgre Plateau from the south to reach the Gunnison River at the southern end of the projected West Grand Mesa trail (Figure 48).

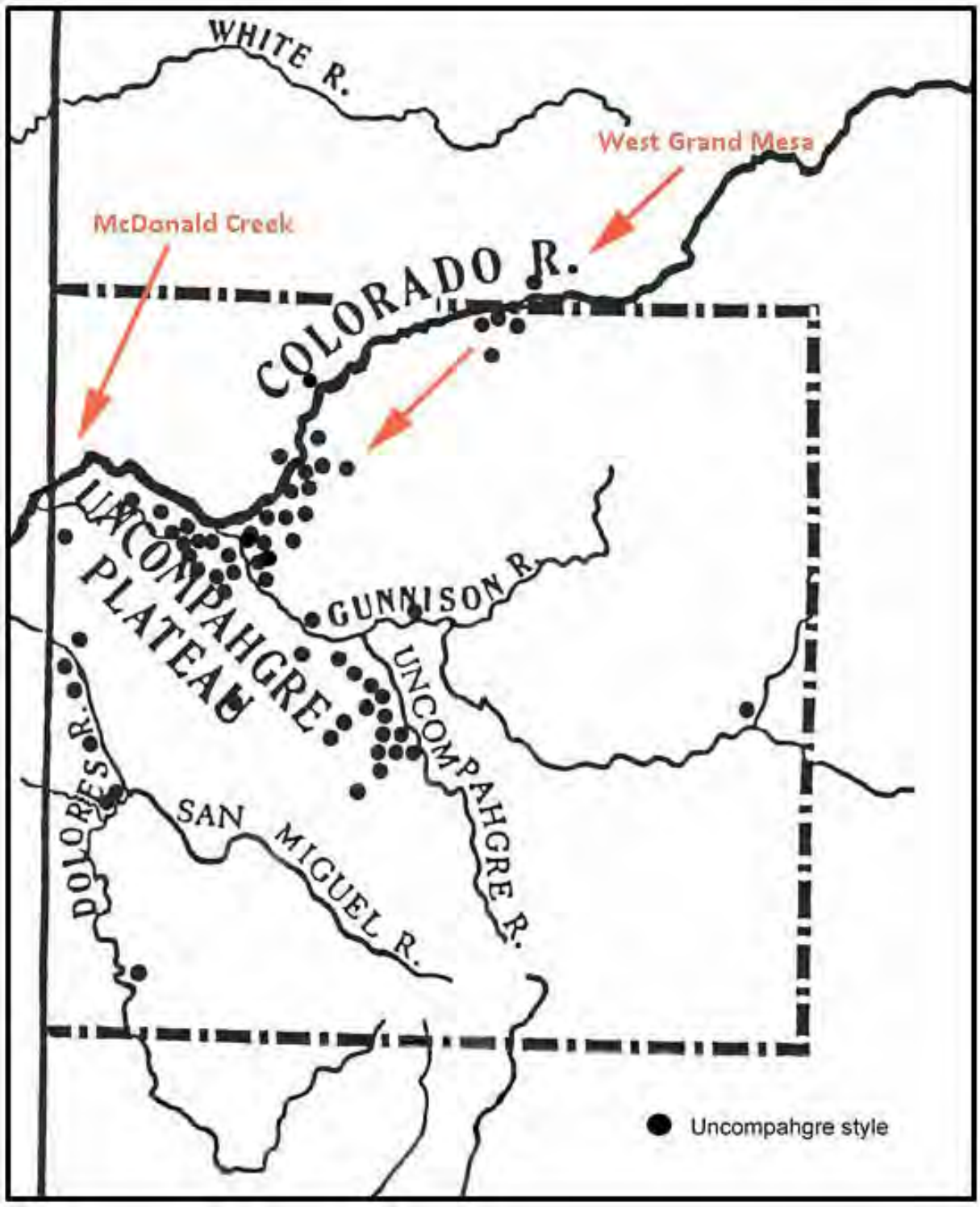


Figure 46. Approximate locations of projected McDonald Creek and West Grand Mesa trails and 64 sites with Uncompahgre style rock art in west central Colorado (Cole 1990, 2011a).

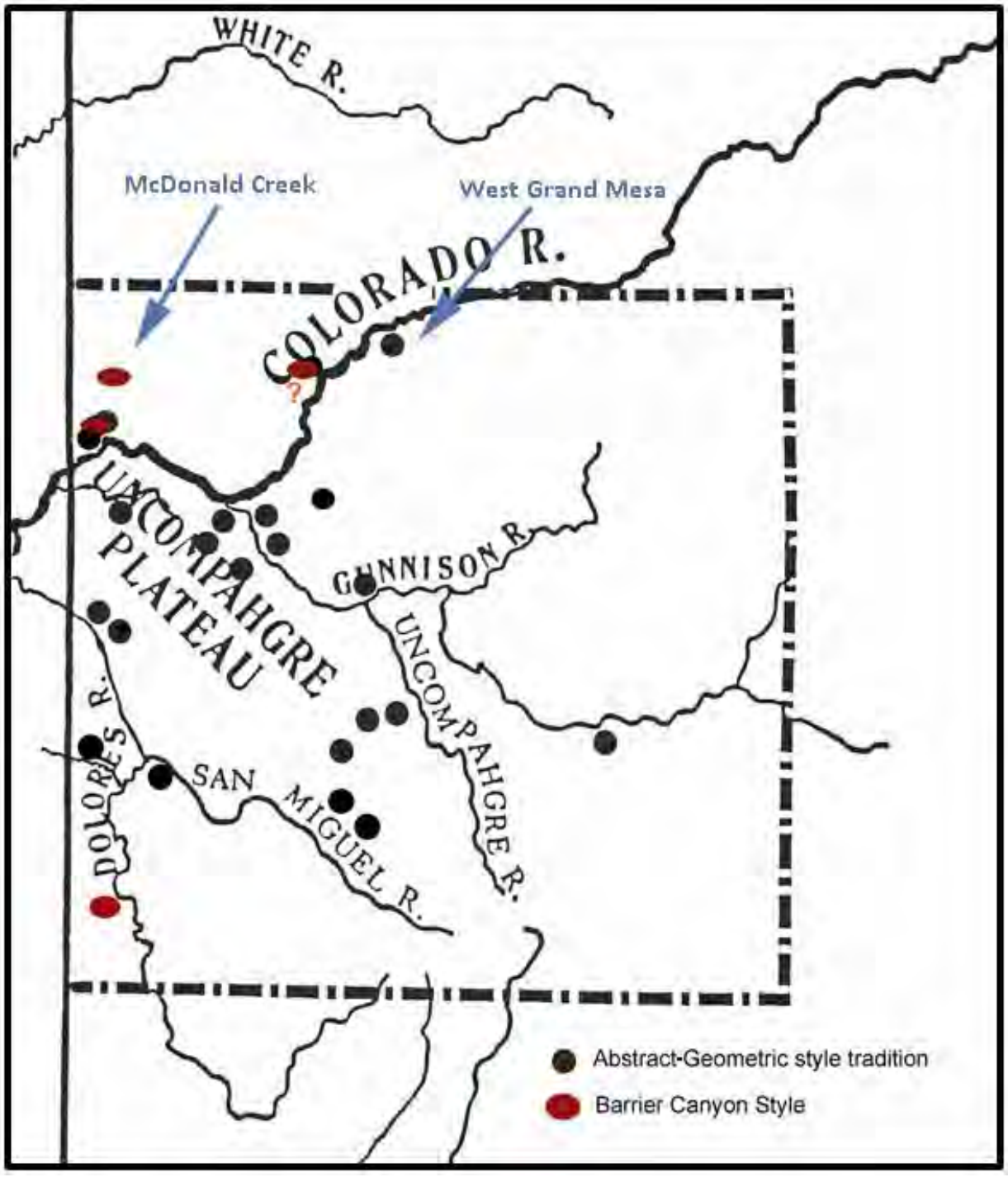


Figure 47. Approximate locations of projected McDonald Creek and West Grand Mesa trails and 22 Abstract-Geometric style sites and 4 sites (1 uncertain) with Barrier Canyon style rock art in west central Colorado (Cole 1990, 2011a).

Figure 48. Approximate locations of projected McDonald Creek and West Grand Mesa trails and 18 sites (3 uncertain) with Fremont style rock art; 22 Basketmaker II-III style rock art sites (1 uncertain); and four Pueblo I–II/III style sites (2 uncertain) in west central Colorado (Cole 1990, 2011a).

A Fremont route into the study area along the McDonald Creek trail is evident and the path may have been pioneered by ancestral populations including makers of Barrier Canyon Style, present at site 5ME5259, and possibly Basketmaker II-III style (5ME540) (Figure 48).Competition from Uncompahgre style groups is not evident, further indicating separate cultural developments and traditions were operative in the northwest part of the study area and surrounding areas to the west and north from Archaic to historical times (Figures 46 and 48). Fremont "control" of the canyon after approximately A.D. 400/600 is suggested by occupation of 5ME540, an obviously advantageous camp and habitation near pools of clear, seasonal water and rock shelters.

Stylistic attributes and related ideas and practices presumably traveled both ways and prominent locations and images would have enhanced communication and possibilities for trade, resource exploitation, and settlement. For the present study, this is most obvious with regard to Fremont use of McDonald Creek sites. Paintings near the upper end of the entrenched canyon at 5ME538 were placed in direct view of downstream travelers and those in the highly visible alcove near the mouth of the canyon (5ME529) potentially signified a ceremonial place and possible ritual destination for affiliated groups over time. These are likely to have been occupants of the Book Cliffs-Roan Plateau and Uintah Basin areas to the north and Little Dolores River-Glade Park area to the south on the Uncompahgre Plateau. Migrations from the north at approximately A.D. 600 and 900 (Bradley et al. 1986; Cole 1990, 2009, 2011a) may have established the pattern as indicated in the Formative era radiocarbon record (Conner et al. 2014).

Makers of Archaic Uncompahgre style and Basketmaker II-III style petroglyphs at 5ME163, a short distance from the Gunnison River, were also in an advantageous position to communicate presence on the landscape and signify sociocultural affiliations (Bernardini 2005; Quinlan and Woody 2003). Both styles also occur across the river (Cole 1990). Uncompahgre style petroglyphs at 5ME3768, on a prominent boulder on the major stream bank, may have communicated information about the route and settlements along the Colorado and Gunnison rivers over time.

Protohistoric and historic Ute rock art spans much of the prehistoric landscape but sites are interestingly few along the upper West Grand Mesa corridor and in drainages of the Dolores and San Miguel rivers (Figure 49). Most stylistically identifiable rock art is associated, directly or indirectly, with depictions of horses making it likely that it post-dates 1600–1750 (Baker 2013; Baker et al. 2007, 2009; Buckles 1971; Cole 2013; Keyser 2011). The distribution pattern may reflect contemporaneous use or occupation of those areas by Eastern Shoshone or Comanche among others in the north and Navajo to the south (Cole 1990, 2009; Keyser and Poetschat 2008; Keyser 2011; Schaafsma 1980).

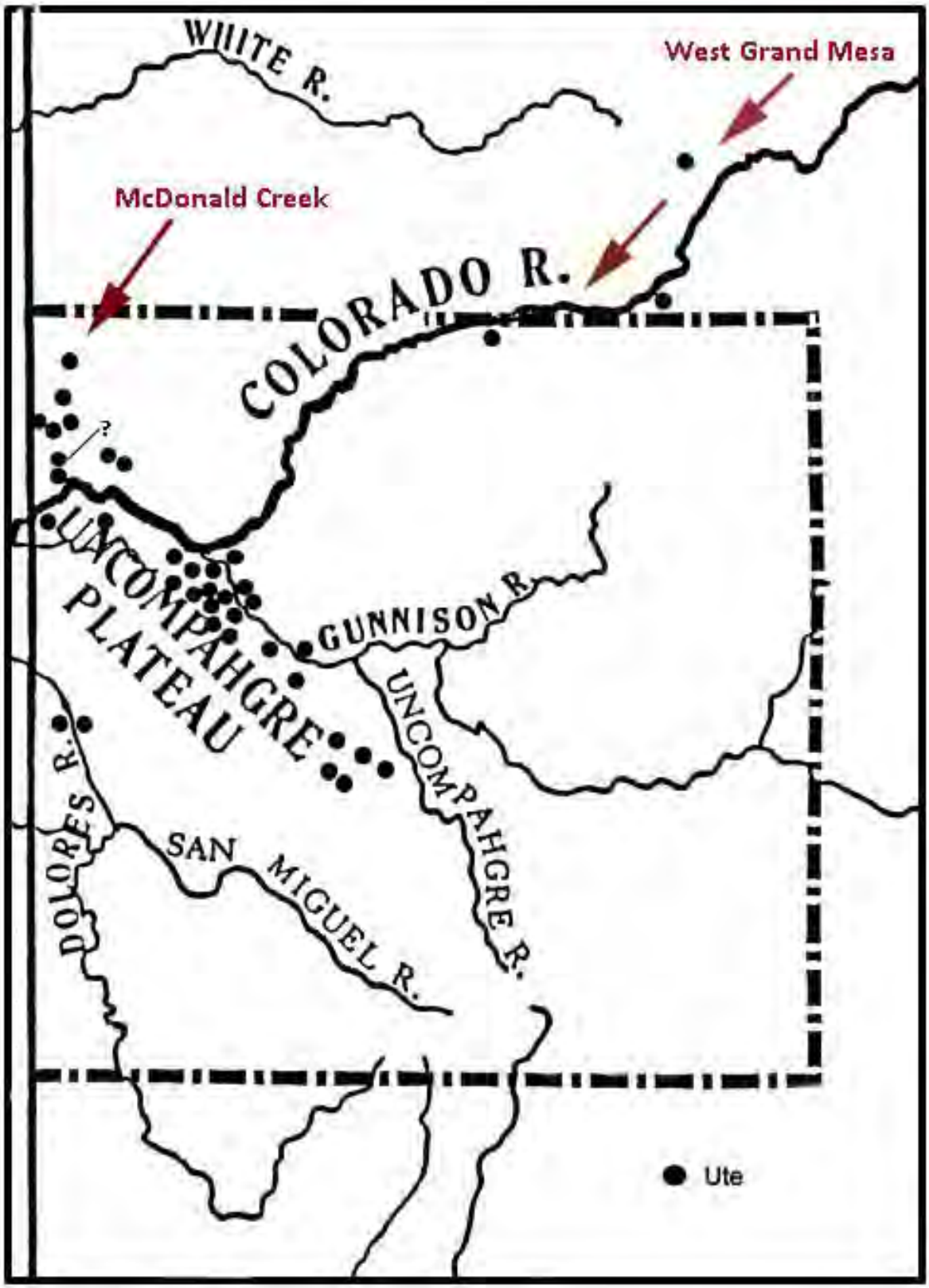


Figure 49. Approximate location of 41 sites with pre-1825/1850 and later historic Ute style rock art (1 uncertain) in west central Colorado (Cole 1990; Keyser 2011).

The makers of Uncompahgre style and the associated type of Abstract-Geometric Tradition rock art are central to identification and interpretation of prehistoric cultural populations and dynamics in west central Colorado. In conclusion and with regard to ongoing research in the study area (Conner et al. 2014), the following comments are paraphrased from an earlier investigation (Cole 2011a:4.39-4.40):

> Abstract/Geometric Tradition and Uncompahgre style rock art are attributed to Uncompahgre Complex or Technocomplex societies, groups of hunter-gatherers that shared a common landscape centered on the Uncompahgre Plateau and material culture attributes over time (Buckles 1971; Wormington and Lister 1956). Black (1991) sees the group as part of the Mountain Tradition, which is rooted in Great Basin patterns and emerged in the Colorado mountains as early as 7500 BC. The potentially associated rock art styles correlate well with the situation insofar as they strongly resemble Archaic-based expressions in the Great Basin and Intermountain Region and differ sharply from major Archaic and Formative, anthropomorphic-centered, rock art in neighboring areas of the Colorado Plateau. The increasingly isolated nature of Mountain Tradition populations described by Black is reflected in the geographic isolation and restricted landscape of Uncompahgre style and associated Abstract-Geometric type rock art. The Reed and Metcalf (1999) characterization of the Mountain Tradition as a "long-lived settlement and subsistence system" fails to address the distinctive landscape of the Uncompahgre Complex and associated rock art iconographies.

References Cited

Baker, Steven G.

2013 Exploring the Advent of the Eastern [Aka "Colorado"] Ute Archaeological Tradition. Symposium abstract, Rocky Mountain Anthropological Conference, Taos, New Mexico.

Baker, Steven G., Richard F. Carrillo, and Carl D. Spath

2007 Protohistoric and Historic Native Americans. In Colorado History: A Context for Historical Archaeology, Church, Minette C., Steven G. Baker, Bonnie J.Clark, Richard F. Carillo, Jonathon C. Horn, Carl D. Späth, David R. Guilfoyle, and E. Steve Cassells. Colorado Council of Professional Archaeologists, Denver.

Baker, Steven G., Jeffrey S. Dean and Ronald H. Tower

2009 The Old Wood Calibration Project and the Vanishing Ute Prehistory of Western Colorado. Paper presented at 9th Biennial rocky Mountain Anthropological Conference, Western State College, Gunnison, CO.

Bernardini, Wesley

2005 Hopi Oral Tradition and the Archaeology of Identity. The University of Arizona Press, Tucson.

Black, Kevin D.

1991 Archaic Continuity in the Colorado Rockies: The Mountain Tradition. Plains Anthropologist 36(133):1-29.

Blinman, Eric

2000 Mill Creek Archaeological Project Ceramic Report. Report to the Bureau of Land Management, Utah State Office, Salt Lake City. Office of Archaeological Studies, Museum of New Mexico, Santa Fe.

Bradley, John E., William R. Killam, George R. Burns, and Marilyn A. Martorano

1986 An Archaeological Survey and Predictive Model of Selected Areas of Utah's Cisco Desert. Utah Bureau of Land Management Cultural Resources Series 18, Salt Lake City.

Buckles, William G.

1971 The Uncompahgre Complex: Historic Ute Archaeology and Prehistoric Archaeology on the Uncompahgre Plateau in West Central Colorado. Ph.D. dissertation. University Microfilms.

Cassells, E. Steve
1997 The Archaeology of Colorado. Johnson Books, Boulder, Colorado.

Castleton, Kenneth B.
1978 Petroglyphs and Pictographs of Utah, Volume One (The East and Northeast). Utah Museum of Natural History, Salt Lake City.
1979 Petroglyphs and Pictographs of Utah,Volume Two (The South, Central, West, and Northwest). Utah Museum of Natural History, Salt Lake City.

Charles, Mona C. and Sally J. Cole
2006 Chronology and Cultural Variation in Basketmaker II. Kiva 72(2):167-216.

Christensen, Don D.
2007 Preformative and Early Formative Rock Art of the Kanab Creek Wilderness Area, Arizona. In American Indian Rock Art Vol. 33, edited by D. D. Christensen and P. Whitehead, pp. 127-144. American Rock Art Research Association, Tucson, Arizona.

Christensen, Don D., and Jerry Dickey
2007 An Overview of Rock Art on the Kanab and Kaibab Plateaus, Northern Arizona. Report on file at the Kanab National Forest, Fredonia and Williams, Arizona, Grand Canyon National Park, and the Bureau of Land Management, Arizona Strip, St. George, Utah.

Christensen, Don D., Jerry Dickey, and Steven M. Freers
2013 Rock Art of the Grand Canyon Region. Sunbelt Publications, Inc., San Diego, California.

Cole, Sally J.
1988 Ute Rock Art. In Archaeology of the Eastern Ute: A Symposium, edited by Paul R. Nickens, pp. 102-143 with Errata. CCPA Occasional Papers 1, Colorado Council of Professional Archaeologists, Denver.
1989 Rock Art at 5MN2341, The Harris Site. Appendix A, The Harris Site Excavation, by Gordon C. Tucker and the Chipeta Chapter of the Colorado Archaeological Society. Colorado Bureau of Land Management Cultural Resource Series 28, Denver.
1990 Legacy on Stone: Rock Art of the Colorado Plateau and Four Corners Region. Johnson Books, Boulder, Colorado.
1992 Katsina Iconography in Homol'ovi Rock Art, Central Little Colorado River Valley, Arizona. Arizona Archaeologist 25, Arizona Archaeological Society, Phoenix.
1993 Basketmaker Rock Art at the Green Mask Site, Southeastern Utah. In Anasazi Basketmaker, Papers from the 1990 Wetherill-Grand Gulch Symposium, edited by Victoria M. Atkins, pp. 193-220. Utah Bureau of Land Management Cultural Resource Series 24, Salt Lake City.

Cole, Sally J.

1994 Roots of Anasazi and Pueblo Imagery. Kiva 60(2):289-311.

1996 Middle Little Colorado River Rock Art and Relationships with the San Juan Anasazi. In River of Change: Prehistory of the Middle Little Colorado River Valley, Arizona, edited by E. Charles Adams, pp. 107-139. Arizona State Museum Archaeological Series No. 185, University of Arizona, Tucson.

2004a Origins, Continuities, and Meaning of Barrier Canyon Style Rock Art. In New Dimensions in Rock Art Studies, edited by Ray T. Matheny, pp. 7-78. Museum of Peoples and Cultures Occasional Papers Series 9, Brigham Young University, University of Utah Press, Salt Lake City.

2004b Archeological Documentation and Assessment of Rock Art in Mesa Verde National Park, 1999-2004. Final report of Colorado Historical Society State Historical Fund Project #2000-P1, Mesa Verde Museum Association, Mesa Verde National Park, Colorado.

2009 Legacy on Stone: Rock Art of the Colorado Plateau and Four Corners Region, Revised and updated. Johnson Books, Boulder, Colorado.

2011a Assessment of Prehistoric Rock Art for the GJFO RMPPA. In Class I Cultural Resource Overview for the Grand Junction Field Office of the Bureau of Land Management, edited by Michael S. Berry, pp. 4.1-4.51. Grand River Institute, Grand Junction, Colorado. Ms. on file at Bureau of Land Management Grand Junction Field Office, Colorado.

2011b Documentation, Analysis, and Interpretation of Rock Paintings and Petroglyphs at Falls Creek Shelters (5LP1434) Near Durango, Colorado. In Reevaluation of Basketmaker II from Falls Creek Shelters Project Final Report, pp. D-1-D-66. Colorado Historical Society State Historical Fund project, Mountain Studies Institute, Silverton, Colorado.

2013 Ute-Paiute Identity in Rock Art of Western Colorado and Eastern Utah South of the Colorado River. Symposium paper presented at the Rocky Mountain Anthropological Conference, Taos, New Mexico.

Conner, Carl and Phil Born

1976 United States Department of the Interior Bureau of Land Management, Antiquities Site Inventory form for 5ME538. Bureau of Land Management, Grand Junction Field Office, Colorado.

Conner, Carl, Phil Born, and John Lindstrom

1976 United States Department of the Interior Bureau of Land Management, Antiquities Site Inventory form and attachment for 5ME540. Bureau of Land Management, Grand Junction Field Office, Colorado.

Conner, Carl E. and Richard W. Ott

1978 Petroglyphs and pictographs of the Grand Junction District, Volume I. Ms. on file, Bureau of Land Management, Grand Junction Field Office.

Conner, Carl E., Nicole Darnell, Brian O'Neil, Richard Ott, Curtis Martin, Dakota Kramer, James C. Miller, Barbara Davenport, Sally Cole, Jim Keyser, Claudia F. Berry, and Michael S. Berry (ed.)
2011 Class I Cultural Resource Overview for the Grand Junction Field Office of the Bureau of Land Management. Grand River Institute, Grand Junction, Colorado. Ms. on file at Bureau of Land Management Grand Junction Field Office, Colorado.

Conner, Carl E., James Miller, Dakota Kramer, Curtis Martin, Brian O'Neil, Carl McIntyre, Courtney Groff, Jessica Hostrup, Hannah Mills, Cheryl Harrison, with Michael S. Berry
2014 Archaeological Monitoring and Data Retrieval for the Collbran Pipeline Project in Garfield and Mesa Counties, Colorado. Grand River Institute, Grand Junction, Colorado. Submitted to Bureau of Land Management Northwest Colorado District Office, Grand Junction, Colorado. Grand River Institute, Grand Junction, Colorado.

Creasman, Steven D.
1981 Archaeological Investigations in the Canyon Pintado Historic District, Rio Blanco County, Colorado: Phase 1, Inventory and Test Excavations. Reports of the Laboratory of Public Archaeology 34, Colorado State University, Ft. Collins.

Creasman, Steven D.
1982 Rock Art of the Canyon Pintado Historic District. Southwestern Lore 48(4):1-13.

Fahrni, Grant
2011 Basketmaker Chronology Near Moab, Utah. Southwestern Lore 77(2 & 3):73-79.

Flores, Nick, Natasha Krasnow, Aly Gabrenya, and Kristen Hansen
2012 Colorado Cultural Resource Survey Management Data and Prehistoric Archaeological Component forms for 5ME163. Colorado Historical Society, OAHP, Denver.

Graham, Carole L. and Sally J. Cole
2014 Final Report, Cottonwood Cave (5MN519) Assessment Project, Montrose, County, Colorado. Prepared for USDA Uncompahgre National Forest ARPA Permit No. NOR442 (expired 4/1/2013), History Colorado State Historical Fund Project No. 2012-AS-005, Dominquez Archaeological Research Group, Grand Junction, Colorado.

Grant, Campbell
1978 Canyon de Chelly: The People and Rock Art. University of Arizona Press, Tucson.

Greubel, Rand A., Bradford W. Andrews, and Alan D. Reed
2006 The Weimer Ranch Sites Revisited: Analysis of Materials from a Prehistoric Farming Community in West Central Colorado. Report on file at the U. S. Forest Service office, Durango, Colorado.

Guernsey, Samuel J., and Alfred V. Kidder
1921 Basketmaker Caves of Northeastern Arizona. Papers of the Peabody Museum of American Archaeology and Ethnology, Vol. 3 (2), Harvard University, Cambridge.

Guernsey, Samuel J.
1931 Explorations in Northeastern Arizona, Report on the Archaeological Fieldwork of 1920-1923. Papers of the Peabody Museum of American Archaeology and Ethnology 12(1), Harvard University, Cambridge.

Gunnerson, James H.
1969 The Fremont Culture: A Study in Culture Dynamics on the Northern Anasazi Frontier. Papers of the Peabody Museum of American Archaeology and Ethnology, Vol. 52 (2), Cambridge, Massachusetts.

Heizer, Robert F., and Martin A. Baumhoff
1962 Prehistoric Rock Art of Nevada and Eastern California. University of California Press, Berkeley and Los Angeles.

Heizer, Robert F., and C. W. Clewlow, Jr.
1973 Prehistoric Rock Art of California Vol. I-II. Ballena Press, Ramona, California.

Hovezak, Timothy D.
2003 Archaeological Testing at Site 42GR2929, Grand County, Utah. Report to the Bureau of Land Management, Utah State Office, Salt Lake City.

Hurst, C. T.
1940 Preliminary Work in Tabeguache Cave, 1939. Southwestern Lore 6(1):4-8.
1941 The Second Season in Tabeguache Cave. Southwestern Lore 7(1): 4-18.
1945 Completion of Tabeguache Cave II. Southwestern Lore 11(1): 8-12.
1946 The 1945 Tabeguache Expedition. Southwestern Lore 12(1):7-16.
1947 Excavation of Dolores Cave. Southwestern Lore 13(1):8-17.
1948 The Cottonwood Expedition, 1947, A Cave and a Pueblo Site. Southwestern Lore 4(1):4-19.

Hurst, Winston
2011 Ice Age Rock Art on the San Juan River? Blue Mountain Shadows 44 (Fall):5-6.
2011 Utah Gunfight Panel, San Juan River. Blue Mountain Shadows 44 (Fall): 58-59.

Ives, Gay A.
1986 Rock Art of the Dolores River Valley. In Dolores Archaeological Program: Research Designs and Initial Survey Results, pp. 235-375. U.S. Bureau of Reclamation, Denver, Colorado.

Justice, Noel D.
2002 Stone Age Spear and Arrow Points of the Southwestern United States. Indiana University Press, Bloomington.

Keyser, James D.
1975A Shoshonean Origin for the Plains Shield Bearing Warrior Motif. Plains Anthropologist 20:207-215.
1977 Writing-on-Stone: Rock Art on the Northwestern Plains. Canadian Journal of Archaeology 1: 15-80.
1984 The North Cave Hills. Part 1 of Rock Art of Western South Dakota. Special Publication of the South Dakota Archaeological Society 9, Sioux Falls.
2011 Horse and Rider Rock Art in Western Colorado. In Class I Cultural Resource Overview for the Grand Junction Field Office of the Bureau of Land Management. Michael S. Berry, editor, pp. 4.67-4.86. Bureau of Land Management, Grand Junction Field Office, Colorado.

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

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.

Kinnear-Ferris, Sharyl
2011 Basketmaker Age Woven Perishables of the Moab Region. Southwestern Lore 77(2 & 3):81-88.

Lister, Robert H., and Herbert W. Dick
1952 Archaeology of the Glade Park Area: A Progress Report. Southwestern Lore 17(4):69-92.

Lutz, Bruce J.
1978 The Test Excavations of 5ME217, A Rockshelter in Mesa County, Colorado. Report prepared for Grand Junction District Bureau of Land Management, Colorado.

Madsen, David B., and Michael D. Metcalf (editors)
2000 Intermountain Archaeology. University of Utah Anthropological Papers 122, University of Utah Press, Salt Lake City.

Malotki, Ekkehart, and Henry Wallace
2010 Depiction of a mammoth in the prehistoric rock art of southeastern Utah. Pleistocene Coalition News, Vol. 2, Issue 6(2-3).

Malville, J. McKim
2004 Sacred Time in Chaco Canyon and Beyond. In In search of Chaco, edited by D. G. Noble, pp. 86-92. School of American Research Press, Santa Fe, New Mexico.
2006 The Cosmic and the Sacred at Yellow Jacket Pueblo and Mesa Verde. In The Mesa Verde World, edited by D. G. Noble, pp. 85-91 School of American Research Press, Santa Fe, New Mexico.

Marwitt, John P.
1973 Median Village and Fremont Culture Regional Variation. University of Utah Anthropological Papers 95, University of Utah Press, Salt Lake City.

Matheny, Ray T., Deanne G. Matheny, Pamela W. Miller, and Blaine Miller
2004 Hunting Strategies and Winter Economy of the Fremont as Revealed in the Rock Art of Nine Mile Canyon. In New Dimensions in Rock Art Studies, edited by Ray T. Matheny, pp. 145- 193. Occasional Paper Series No. 9, Museum of Peoples and Cultures, Brigham Young University. University of Utah Press, Salt Lake City.

McDonald, Kae
1997 New Findings For An Old Site: Additional Research at Luster Cave, Grand County, Utah. Southwestern Lore 63(3):37-41.

McDonald, Kae, David Sabata and Katie Arntzen
2010 Colorado Cultural Resource Survey Management Data and Prehistoric Archaeological Component forms for 5ME580. Colorado Historical Society, OAHP, Denver.

Morris, Elizabeth Ann
1980 Basketmaker Caves in the Prayer Rock District, Northeastern Arizona. Anthropological Papers of the University of Arizona 35, University of Arizona Press, Tucson.

Olsen, Nancy
1985 Hovenweep Rock Art: An Anasazi Visual Communication System. Institute of Archaeology Occasional Paper 14, University of California, Los Angeles.

Quinlan, Angus, and Alanah Woody
2003 Marks of Distinction: Rock Art and Ethnic Identification in the Great Basin. American Antiquity 68(2):372-390.

Pederson, Joel L., Melissa S. Chapot, Steven R. Simms, Reza Sohbati, Tammy M. Rittenour, Andrew S. Murray, and Gary Cox
2014 Age of Barrier Canyon-style rock art constrained by cross-cutting relationships and luminescence dating techniques. Final proof manuscript.

Reed, Alan D.
2005 Settlement and Subsistence During the Formative Era in West Central Colorado. Southwestern Lore (Journal of Colorado Archaeology) 71(4):17-34.

Reed, Alan D., and Michael D. Metcalf
1999 Colorado Prehistory: A Context for the Northern Colorado River Basin. Colorado Council of Professional Archaeologists, Denver.

Robins, Michael R.
1997 Modeling the San Juan Basketmaker Socio-Economic Organization: A Preliminary Study in Rock Art and Social Dynamics. In Early Farmers in the Northern Southwest: Papers on Chronometry, Social Dyamics, and Ecology, edited by Francis E. Smiley and Michael R. Robins, pp. 73-120. Animas-La Plata Archaeological Project Research Paper 7. U. S. Department of the Interior, Bureau of Reclamation, Upper Colorado Region, Salt Lake City.

Schaafsma, Polly
1971 The Rock Art of Utah. Papers of the Peabody Museum of American Archae-ology and Ethnology 65, Cambridge, Massachusetts.
1980 Indian Rock Art of the Southwest. University of New Mexico Press, Albuquerque.

Schaafsma, Polly, and Curtis F. Schaafsma
1974 Evidence for the Origin of the Pueblo Kachina Cult as Suggested by Southwestern Rock Art. American Antiquity 39:535-545.

Simms, Steven R.
2008 Ancient Peoples of the Great Basin & Colorado Plateau. Left Coast Press, Walnut Creek, California.

Smith-McDonald, Elizabeth Kae
1989 A Re-analysis of Archaeological Materials From Roth and Luster Caves. M.A. thesis in the Department of Anthropology and Sociology, University of Colorado, Boulder.

Spangler, Jerry
2000 Radiocarbon Dates, Acquired Wisdom, and the Search for Temporal Order in the Uintah Basin. In Intermountain Archaeology, edited by David Madsen and Michael Metcalf, pp. 48-99. University of Utah Anthropological Papers 122, Salt Lake City.

Spangler, Jerry

2004 Categories and Conundrums: The Rock Art of Lower Nine Mile Canyon. In New Dimensions in Rock Art Studies, edited by Ray T. Matheny, pp. 119-143. Museum Of Peoples and Cultures Occasional Papers 9, Brigham Young University, University of Utah Press, Salt Lake City.

Spangler, Jerry D., and Donna K. Spangler

2003 Horned Snakes and Axle Grease. Uinta Publishing, Salt Lake City, Utah.

2007 Treasures of the Tavaputs. Published by Questar Pipeline, Utah State History, and Colorado Plateau Archaeological Alliance, Utah.

Stephen, Alexander M.

1969 Hopi Journal of Alexander M. Stephen, Two Parts, edited by Elsie Clews Parsons. AMS Press, New York.

Stevenson, Matilda Coxe

1904 The Zuni Indians: Their Mythology, Esoteric Fraternities, and Ceremonies. Twenty-third Annual Report of the Bureau of American Ethnology, U. S. Government Printing Office, Washington, D.C.

Stiger, Mark

2001 Hunter-Gatherer Archaeology of the Colorado High Country. University Press of Colorado, Boulder.

Stiger, Mark A., and Mark Larson

1992 Radiocarbon Date from the Cottonwood Cave Corn Cache and Problems Interpreting the Origins of Farming in Western Colorado. Southwestern Lore 58(2):26-36.

Talbot, Richard K., and James D. Wilde

1989 Giving Form to the Formative: Shifting Settlement Patterns in the Eastern Great Basin and Northern Colorado Plateau. Utah Archaeology 1989 2(1):3-18.

Terlep, Michael L.

2012A Spatial and Stylistic Analysis of Cup and Channel Petroglyphs from the Arizona Strip. M.A. Thesis in Anthropology, Northern Arizona University, Flagstaff.

Tipps, Betsy L.

1995 Holocene Archeology Near Squaw Butte, Canyonlands National Park, Utah. Selections from the Division of Cultural Resouces 7, Rocky Mountain Region, National Park Service, Denver, Colorado.

Toll, Henry Wolcott, III
1977 Dolores River Archaeology: Canyon Adaptations as Seen Through Survey.

Tucker, Gordon C.
1989 The Harris Site Excavation. Colorado Bureau of Land Management Cultural Resources Series 28, Denver.

Turner II, Christy G.
1963 Petrographs of the Glen Canyon Region. Museum of Northern Arizona Bulletin 38 (Glen Canyon Series 4), Flagstaff.
1971 Revised Dating for Early Rock Art of the Glen Canyon Region. American Antiquity 36:469-471.

Williamson, Ray A.
1987 Living the Sky: The Cosmos of the American Indian. University of Oklahoma Press, Norman.

Wormington, H. M. and Robert H. Lister
1956 Archaeological Investigations on the Uncompahgre Plateau in West-Central Colorado. The Denver Museum of Natural History, Proceedings No. 2. Denver.

Young, M. Jane
1985 Images of Power and the Power of Images: The Significance of Rock Art for Contemporary Zunis. Journal of American Folklore 98(387):2-48.

APPENDIX C: DOCUMENTATION OF UTE TRIBE PARTICIPATION/PUBLIC OUTREACH

APPENDIX D: SITE AND ISOLATED FIND FORMS AND THEIR LOCATION DATA