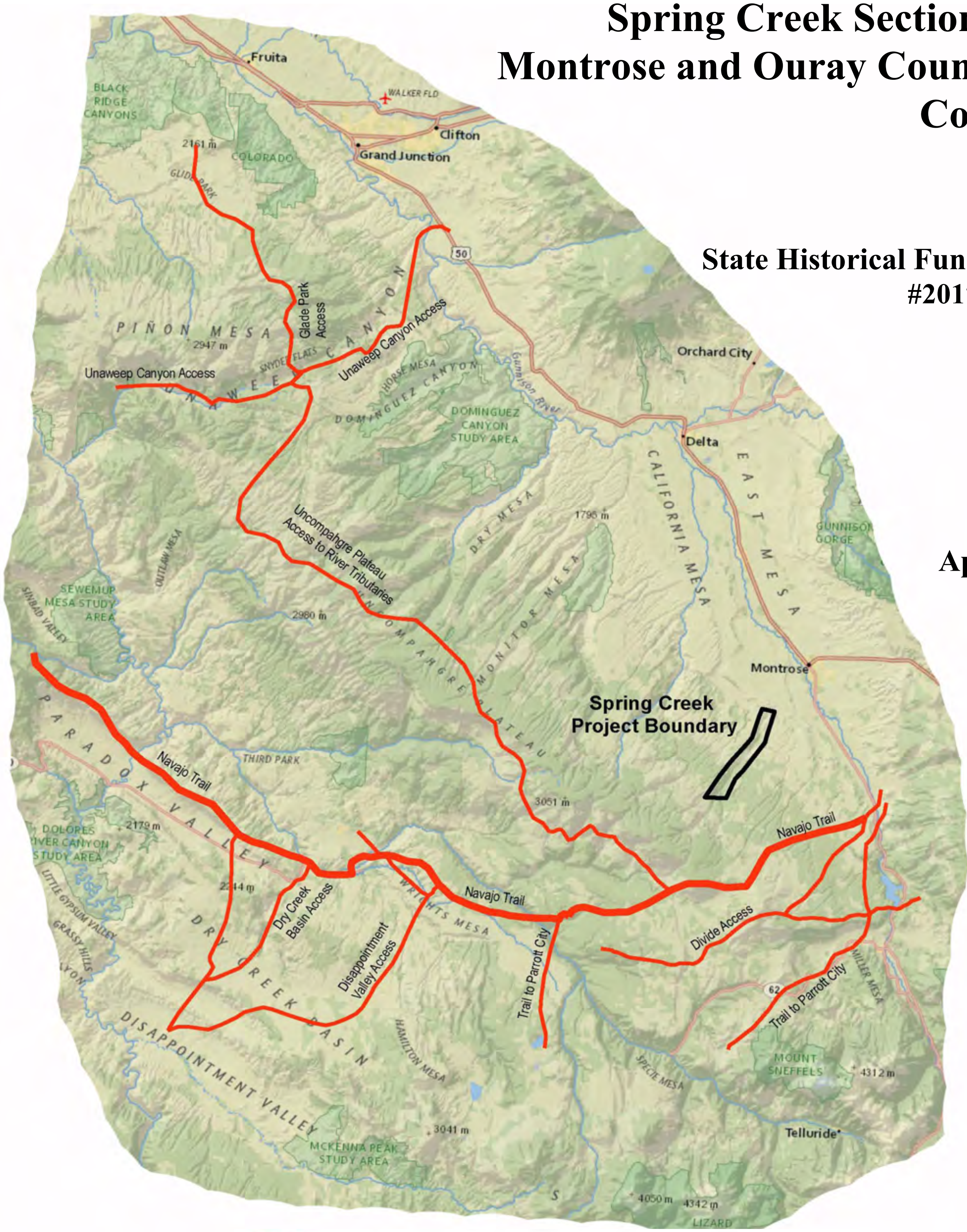
Ute Trails of the Uncompahgre Plateau: Spring Creek Section Montrose and Ouray Counties, Colorado



State Historical Fund Grant #2017-01-049

April 2020

DARG
Dominquez Archaeological Research Group

FOR OFFICIAL USE ONLY: DISCLOSURE OF SITE LOCATIONS IS PROHIBITED (43 CFR 7.18)

PUBLIC DISTRIBUTION COPY.

PORTIONS OF THIS REPORT MAY HAVE BEEN REDACTED AND PAGES MAY HAVE BEEN REMOVED TO PROTECT THE SITE LOCATIONS.

COVER MAP --

HAYDEN'S TRAILS FROM THEMATIC MAP 1881:
WESTERN COLORADO AND PARTS OF UTAH

FOR OFFICIAL USE ONLY: DISCLOSURE OF SITE LOCATIONS IS PROHIBITED (43 CFR 7.18)

UTE TRAILS OF THE UNCOMPAHGRE PLATEAU: SPRING CREEK SECTION MONTROSE AND OURAY COUNTIES, COLORADO

A STATE HISTORICAL FUND GRANT
SHF #2017-01-049

[BLM-UFO #18UN-01, OAHP #MC.LM.R781]

DARG#2016-08
7 APRIL 2020

PREPARED BY

CARL E. CONNER, PRINCIPAL INVESTIGATOR
BARBARA DAVENPORT, NICOLE INMAN
RICH OTT, JULIE COLEMAN, MIKE BERRY,
COURTNEY GROFF AND NATALIE HIGGINSON

✜ **DOMINQUEZ ARCHAEOLOGICAL RESEARCH GROUP. INC.** ✜
Grand Junction, Colorado 81502
BLM ARPA Permit No. C-67009

SUBMITTED TO

HISTORY COLORADO STATE HISTORICAL FUND

BUREAU OF LAND MANAGEMENT
UNCOMPAHGRE FIELD OFFICE

U.S.D.A. FOREST SERVICE, DELTA DISTRICT OFFICE
GRAND MESA, UNCOMPAHGRE AND GUNNISON NATIONAL FORESTS

Acknowledgements

First, I would like to thank History Colorado's State Historical Fund (SHF), Grand River Institute (GRI), and the U.S.D.A. Forest Service's District Office for the Grand Mesa, Uncompahgre and Gunnison National Forests (FS) for providing the funding for this project. Katie Arntzen and Breanne Nugent from SHF have provided their assistance and advise on many occasions during this project and others. I would also like to acknowledge the support of the Bureau of Land Management's Uncompahgre Field Office and the FS for their support and cooperation. Other federal offices that provided important ethnographic information are the BLM's- Grand Junction Field Office and Rocky Mountain National Park.

The files searches, fieldwork, research, and report preparation for this project was completed by staff and crew members of Dominquez Archaeological Research Group. I would like to acknowledge and thank them for their work and tenacity in meeting its many challenges. Foremost are the contributions by Barbara Davenport and Nicole Inman, and their assistant Natalie Higginson, for project organization, research and document production. Nicole completed the literature search presented in the Trails Section of the report and the daunting task of digitizing the roads and trails. Michael Berry created the database of Native American sites located on the eastern Uncompahgre Plateau. My thanks to Rich Ott and Julie Coleman for writing the ethnohistoric section and compiling the ethnographic bibliography. Courtney Groff contributed significant information for the lithic analyses of the artifacts. Thanks to other principal field crew members Natasha Conner, Masha Conner, and Nicky Thong.

Special thanks to Holly Shelton who assisted in organization and execution of education programs with the Ute Museum of Montrose and the Southern Ute Education Department.

Carl Conner, President

MANAGEMENT SUMMARY

Dominquez Archaeological Research Group (DARG) pursued this project, entitled Ute Trails of the Uncompahgre Plateau: Spring Creek Section, for the purpose of examining historic/prehistoric Ute Trails in Montrose County Colorado. This research project was funded through a cultural resource grant from History Colorado State Historical Fund (SHF Project #2017-01-049), with matching funds provided by Grand River Institute and the USDA Forest Service-GMUG. It was conducted under Section 110 of the National Historic Preservation Act (NHPA, 16 U.S.C. § 360), through Bureau of Land Management ARPA Permit No. C-67009, and by project authorization from the BLM Uncompahgre Field Office (BLM-UFO).

Prior to fieldwork, files were searched through the BLM-UFO office and the Office of Archaeology and Historic Preservation (OAHP) for known cultural resources within or adjacent to the project survey area. In addition, a review of the General Land Office (GLO) historic maps was completed. The searches revealed that 41 cultural resources (20 sites, 21 isolates) and 8 previous inventories are located within or overlap the project survey area. Five previously recorded resources (5MN576, 5MN6651, 5MN6652, 5MN6839 and 5MN7419) were revisited and reevaluated. Twenty-two prehistoric sites (5MN10981 through 5MN10998, 5MN11009, 5MN11010, 5MN11306 and 5OR2173), one trail 5MN10999/5OR2174, and nine prehistoric isolates (5MN11000 through 5MN11008) were newly recorded. Thirteen of the sites (5MN576, 5MN6652, 5MN7419, 5MN10982-5MN10985, 5MN10988, 5MN10992, 5MN10994, 5MN11109, 5MN11010, and 5MN10999/5OR2174) were field evaluated as eligible for listing on the National Register of Historic Places, and should be protected and preserved. The remainder of sites and all the isolated finds were evaluated as not eligible, and no further work is recommended.

ABSTRACT

This project examined the prehistoric and historic cultural landscape associated with Spring Creek Canyon by compiling baseline data from archaeological, ethnographic and ethnohistorical records of the eastern slope of the Uncompahgre Plateau, examining curated artifact collections, and conducting a reconnaissance survey that included site-revisits and new recordings. This information is being used in research goals that emphasize the identification and interpretation of regional patterns in prehistoric chronology and settlement, mobility and trade, and resource use and technology. Known historic trails that border Spring Creek Canyon are discussed as primary accesses between the lower and upper elevations of the Uncompahgre Plateau and as connections between the river drainages. A search of GLO maps, other historic maps, written and oral histories extended the digital recording of trails or sections of trails across the southern and eastern side of the Plateau. An ARCGIS file of that work will be shared with not only History Colorado, but also the Forest Service and Bureau of Land Management offices and the Tribal Historic Preservation Officer, to be used in the future identification of trails and to determine their associations with cultural resource sites.

Utilization of the Spring Canyon bottom by Native Americans as one of the main trails to the higher elevations was examined through recording the spatial patterning of the material remains from prehistoric activity in relation to their topographic and other environmental settings. An assessment of previous work in a broader portion of the Uncompahgre Plateau area was undertaken to determine site density and distribution, and previously assigned cultural affiliation. As well, a database of cultural resources located on the eastern portion of the Uncompahgre Plateau was created to better understand those attributes in a format that can be utilized by federal land management agencies and Ute Tribes to protect and preserve them. A reassessment of standardized site types was undertaken that resulted in the employment of more specific attributes to better define a site's purpose in landscape utilization. By so doing, the report proffers a contribution to the scientific understanding of the region and in the formulation of new strategies for future archaeological investigations.

Seventeen radiocarbon samples were secured and dated from thirteen sites within and near the study area and compared to data from the region. This was done in an effort to further define the temporal distribution of the sites along the east slope of the Uncompahgre Plateau. Sites exhibiting single components (or few components), and preferably containing diagnostic projectile points, were selected. Dates ranged from the Middle Archaic through Historic Numic occupations, with three distinct clusters that occur during the early Formative (or Late Archaic) ca. 200 BC to AD 300; the Middle Formative, ca. 600-1000 AD; and, the Early Numic period, ca. AD 1250-1640. The results of the radiocarbon data was added to the RC database created by Michael Berry.

TABLE OF CONTENTS

FIGURES

TABLES

PLATES

1.0 INTRODUCTION

Dominquez Archaeological Research Group (DARG) pursued this project, entitled Ute Trails of the Uncompahgre Plateau: Spring Creek Section, for the purpose of examining historic/prehistoric trails and their associated cultural resource sites in Montrose and Ouray Counties, Colorado. This research project was funded by cultural resource grants from History Colorado State Historical Fund (SHF Project #2017-01-049), Grand River Institute, and the U.S.D.A. Forest (GMUG). It was conducted under Section 110 of the National Historic Preservation Act (NHPA, 16 U.S.C. § 360), and authorized by Bureau of Land Management (BLM) ARPA Permit No. C-67009 and through project authorization by the BLM Uncompahgre Field Office (UFO). The research area is roughly defined as an 8.5 mile long, 1.0 mile wide area encompassing Spring Creek Canyon – beginning at the point where Spring Creek exits its canyon topography at the edge of Shavano Valley, about 5 miles southwest of the town of Montrose, extending to the southwest, and ending at the boundary of BLM and Forest Service lands (Figure 1.1).

The project area is situated in on the eastern side of the Uncompahgre Plateau, southwest of Montrose. Areas inspected included only BLM lands, although the files searches considered previously recorded resources within and near the project area. As a reconnaissance inventory, field work resulted in-field selection and inspection of 1450 acres within the generalized block of 6150 acres. The project area occurs within Township 47 North, Range 10 West, Sections 3, 4, 5, 7, 8, 9, 17, 18, 19 and 20; Township 48 North, Range 10 West, Sections 11,12, 13, 14, 15, 22, 23, 26, 27, 28, 32, 33, 34, and 35; of the New Mexico Principle Meridian. The project area can be located on the following USGS topographic quadrangles: Government Springs, CO (1973/1982), Montrose West, CO (1962/1983), and Pryor Creek, CO (1994). Figures 1.2-1.5 show the actual inventoried areas.

Initially, the work began with review of the records of the Office of Archaeology and Historic Preservation of the Colorado Historical Society (OAHP). Files were searched through the BLM-UFO, as well, for known cultural resources within or adjacent to the project survey area, and a review of the General Land Office (GLO) historic maps was completed. Fieldwork was conducted between the 22 July 2017 and the 26 May 2019 under the direction of Carl Conner, Principal Investigator. The field crew included Carl Conner, Courtney Groff, Rich Ott, Thoung Pham, Marie Ryabkova, and Natalia Conner. Carl Conner, Barbara Davenport, Nicole Inman, and Natalie Higginson assisted with all phases of the document reviews and the final report preparation.

The work was conducted to meet requirements of Section 110 of the National Historic Preservation Act (NHPA), 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. This intent was first established in the preamble to the National Historic Preservation Act upon its initial adoption in 1966. When the Act was amended in 1980, section 110 was added to expand and make more explicit the statute's statement of Federal agency responsibility for identifying and protecting historic properties and avoiding unnecessary damage to them.

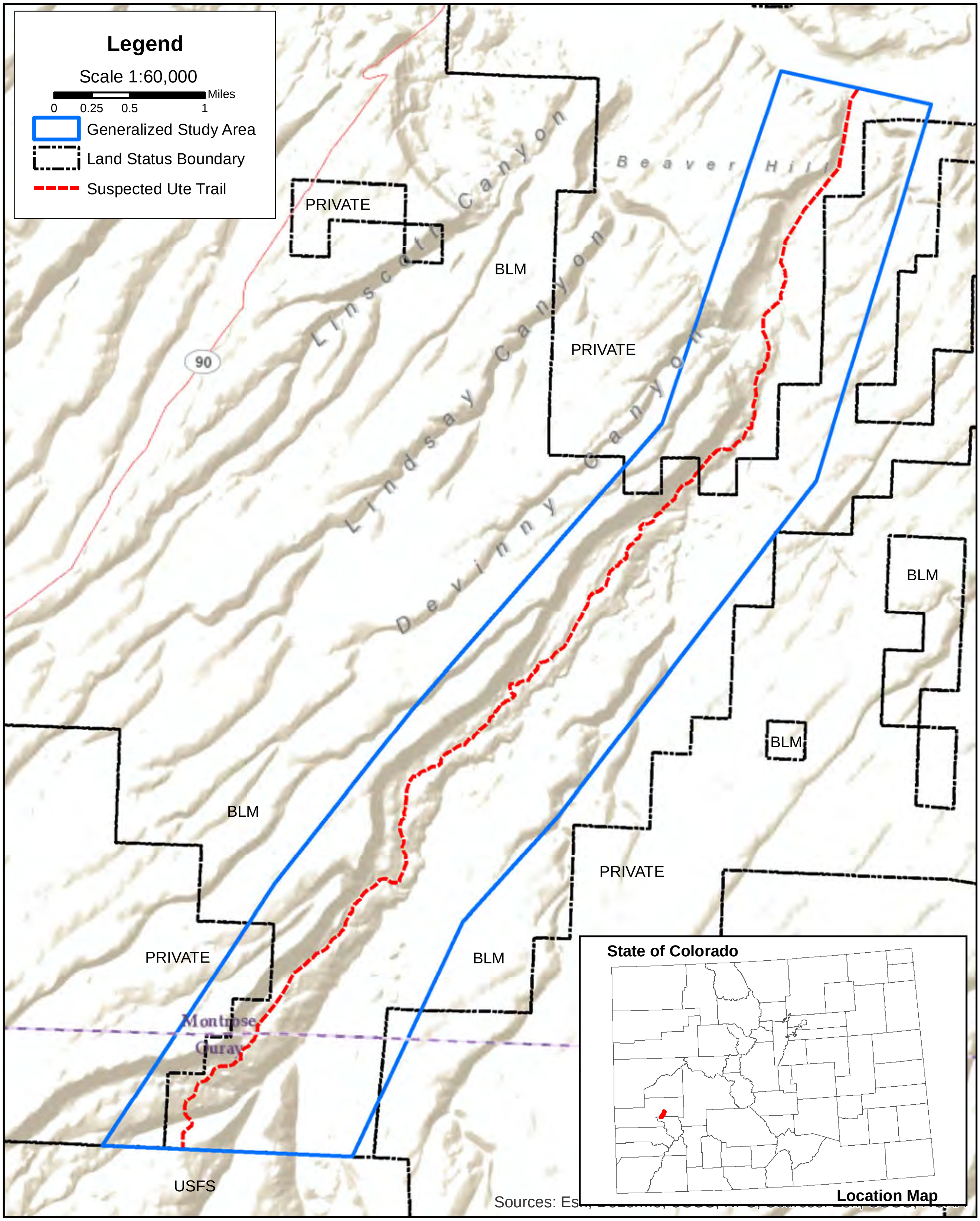


Figure 1.1 Generalized project location map for the Ute Trails of the Uncompahgre Plateau: Spring Creek Section in Montrose and Ouray Counties, Colorado. The project boundary is indicated. [DARG D2016-8, SHF 2017-01-049]

PAGE(S) REDACTED

1.1 Institutional Background

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. 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.

Our research strategy is 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) cross-disciplinary studies which integrate and synthesize information from multiple perspectives, including those of Native Americans. Our preservation goals are targeted foremost on improving the scope and quality of archaeological data, and on development of information systems that facilitate efficient, parity access across the professional research community, Native American stakeholders, and cultural resource managers. We proactively seek opportunities for collaborative public outreach and education, and have established on-going working relationships with numerous local, regional, and state-wide organizations supporting preservation and appreciation of cultural resources and heritage landscapes.

DARG has successfully conducted several major on-going projects that have significantly expanded baseline knowledge of western Colorado archaeology, notably including the Colorado Wickiup Project (CWP), the Colorado Radiocarbon Database Project, and the Ute Trails of Mesa County Project. In recognition for our work on the CWP, we received the 2014 Governor's Award for Historic Preservation. Our Ute ethnohistory and ethnobotany studies have opened important new channels of communication with Ute consultants and research partners, and through a series of recently conducted bison studies we have revealed a more complete picture of the occurrence of this important resource during the Early Numic and Historic Ute periods in western Colorado.

1.2 Project Background

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. Trails systems were important corridors linking primary river crossings and seasonal destination locales. DARG has opted to examine trail systems because, empirically speaking, these trails appear to tie together subsistence resources, activity loci, camp sites, and rock art panels. As well, trails were used by individuals and groups to come together for ceremonial purposes (a reaffirmation of human relationships such as the Bear Dance) or to move along a particular trail as part of a spiritual pathway by revisiting sacred sites (particular landscape localities or rock art sites). Essentially, they were the links between individuals and groups to their past, their mythology of the landscape, and the land itself.

Many of the Ute trails are indicated on early maps and described in ethnohistories of the region (Preuss 1848; Hayden 1881). These were undoubtedly key routes that connected Utes living in west-central Colorado with not only a variety of seasonally-productive procurement areas but also other Ute bands. A number of studies in recent years, 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-twenty 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. These conjoined systems constitute cultural landscapes that were, and continue to be, significant in the world view of the Numic speaking groups of western Colorado.

Our two previous trails projects, conducted in Mesa and Eagle Counties, examined routes selected on the basis of linear distributions of known archaeological sites and isolated finds in the records of the Bureau of Land Management and History Colorado's Office of Archaeology and Historic Preservation (OAHP). Historic maps and GLO records were also consulted in the selection of the study areas. Those records produced evidence of potential main trails utilized by Historic Utes and their predecessors for hundreds or thousands of years. The focus of the field surveys were the reexamination of known sites and, through both reconnaissance and intensive inventory, the documentation of additional cultural resources in the vicinities of the suspected trails. Those projects included public outreach that involved institutional participation by Utah State University for the Mesa Ute Trails and Colorado Archaeological Society for the Eagle Ute Trails.

1.3 RESEARCH DESIGN

The research design for this project differs from the previous studies in that it was based in part on the suspected location of an historic/prehistoric trail on the Uncompahgre Plateau reported in the journal for the Dominquez-Escalante Expedition of 1776. Essentially, their trail was suspected to follow along the Spring Creek Canyon rim or in the bottom, routes where few or no cultural resource inventories had been conducted. The general area to be examined (~6000 acres) was extensive and included steep canyon walls in much of the area surrounding the route. Accordingly, the most cost effective method considered was reconnaissance; which employed intuitive selection of old growth pinyon/juniper forest, and benches and other topographic features along the rim and in the canyon bottom considered suspect for camping, shelter, and possible rock art.

1.4 REPORTING CONVENTIONS

For chronometric data, temporal placement of archeologically defined cultures and events for the western slope of Colorado is achieved, primarily, through radiocarbon dating. For purposes of consistency and clarity, temporal data will be reported in terms of tree-ring calibrated years AD/BC in all chapters. The adoption of this convention avoids the narrative confusion that obtains when authors mix temporal references to AD/BC, BP, reported in calibrated and/or conventional radiocarbon years (often in the same paragraph). It also allows direct comparison to defined cultures and events in regions of the Southwest where tree-ring dating has been developed. Similarly, paleoclimatic periods and events (typically published in conventional radiocarbon years BP) are converted to calibrated years AD/BC to allow correlation of climatic and cultural patterns. All calibrated results were achieved using CALIB.EXE, version 7.0.4 using the terrestrial INTCAL04 data set (Stuiver et al. 2005). Dates with calibrated ages greater than or equal to 10,000 BC will be reported with comma notation. More recent dates will not be presented in comma notation.

Finally, when comparing temporal events to established cultural sequences or the known dating ranges of artifact types in adjacent regions, it is frequently the case (especially in the older literature) that the cited source was reported in uncalibrated radiocarbon years before present (RCYBP) or AD/BC representation by simply subtracting 1950 years from the RCYBP date (e.g., "The Smith Phase of Wyoming lasted from 5000 to 4000 BP," "The Smith Phase of Wyoming lasted from 3050 to 2050 BC."). In all such cases we have calibrated the dates given in the original publications, and report the most probable intercept dates.

Elevations will be reported in feet above sea level and comma notation will be used in all cases.

2.0 ENVIRONMENT

The project area is near the center 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. Large canyons such as Big Red, Tabeguache, Spring Creek, Roubideau, Escalante, Big Dominquez, and Unaweep expose numerous geologic layers.

This section presents summaries of the geology, soils, flora, fauna, climate and paleoclimate.

2.1 GEOLOGY

The project area is on the southeastern portion of the Uncompahgre Plateau, a southeast-to-northwest structural uplift on the northeast margin of the Colorado Plateau physiographic province. The Colorado Plateau is characterized by nearly horizontal geologic formations, deeply incised vertical-walled canyons, high elevations and sedimentary rock formations (Fenneman 1931).

The Uncompahgre Plateau is 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 (Young and Young 1977:61-63). In the study area, erosion has removed the overlying rocks down to the Cretaceous-age Morrison Formation and Summerville Formations, visible along the canyon walls. These are capped by Dakota Sandstone and Burro Canyon Formation. Large boulders from the canyon walls have been deposited on the canyon slopes and floor, and form many of the shelters for the camps.

The Summerville Member is known to contain deposits of black chert and mudstone. The Dakota Sandstone and Burro Canyon Formations also provide knappable raw lithic materials. The basal conglomerate of the Dakota Sandstone is known to contain cobbles of black, dove gray, or white chert up to three inches in diameter. It also contains an orthoquartzite that is fine to medium grained and moderately silicified with angular quartz grains. The Burro Canyon Formation also has a conglomerate containing chert, a variegated flint-clay, and a hard, dark green, cherty, medium-grained sandstone. The latter two break with a conchoidal fracture. The Burro Canyon chert generally grades from green to gray, though sometimes red chert nodules will appear in the conglomerate (O'Neil 1993: 21).

The Plateau exhibits a trellis drainage pattern (analogous to tree branching) exhibiting rectangular and angular patterns where faults, joints, and other linear structures occur. Numerous streams have cut the uplifted surface of the Uncompahgre Plateau to create deep canyons, steep slopes and rugged topography. The tributary streams have formed long, broad, interfluvial ridges and flats which are dip-slopes of the Burro Canyon and Dakota Sandstone Formations. In cases where several side canyons have penetrated an interfluvial mesa, “breaks” have formed. Benches occur along landslide complexes or at an intermediate step below the mesa top. These benches usually develop from the differential erosion of softer sediments.

This study focused on Spring Creek Canyon and its perennial drainage. Other drainages nearby include DeVinny Canyon to the west, and Tappan Creek, Happy Canyon and several unnamed, ephemeral drainages to the east. These streams drain northeasterly to the Uncompahgre River and lie between long, broad, interfluvial ridges and flats with elevation ranges from roughly 6200 to 7800 feet.

No resource is more critical than water in the arid environment of western Colorado. On the eastern Uncompahgre Plateau and in the Uncompahgre River Valley below springs and seeps are commonly found. Prehistoric and historic populations to occupy the region relied on the rivers and streams as their most reliable sources, but the oasis-like habitats that surrounded the springs provided not only clean water sources, but access to numerous plant and animal food resources.

Springs occur where impermeable rock layers are encountered or where fractures lead water to the surface. On the Uncompahgre Plateau springs occur in the Mesozoic rocks of the Wingate, Kayenta, Morrison, and Dakota Formations. Some springs are found within the Precambrian crystalline basement rocks in the Unaweep Canyon, Big Dominquez Canyon, Escalante Canyon and in the Gateway area. In those canyons and others, ground water is brought to the surface by what is best described as geological dikes in the canyon bottoms. The amount of surface water in such locations is dependant on the amount in the trellised ground water system of the Uncompahgre Plateau, which is circumscribed by climatic variables.

Springs and marshes occur along the Uncompahgre Valley near the river and in the smaller Shavano Valley (formed by a rift on the southeast edge of the Uncompahgre Plateau). That in Shavano is the result of flow from a higher elevation of the Plateau through the earth to a lower elevation. Springs and wetlands of both valleys have been affected by water diversion at higher elevations for collection and irrigation of the valleys’ fields.

2.2 SOILS

Due to the large size of the project area 21 different soil types are present; however, the bulk of the soils, about 76.5 %, are of four types. These include Barboncito-Rock outcrop complex, 3 to 20 percent slopes (15.2%); Arabrab-Evpark-Parklelei complex, 3 to 20 percent slopes (22.7%); Wellsbasin, extremely stony-Signalhill, very stony complex, 3 to 65% slopes (21.0%) and Walknolls-Rock outcrop complex, 20 to 60 percent slopes (17.6%) (NRCS Web Soil Survey, accessed 3/15/2018). The majority of the sites recorded with the study lie within either the Barboncito-Rock or Walknolls-Rock outcrop complexes. The Barboncito-Rock outcrop complex is a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipslopes of cuestas and summits of mesas. The Walknolls-Rock outcrop complex is also a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources. A few sites (n = <3 each) lie within Arabrab fine sandy loam, Chilson-Delson well drained, tan, fine sandy loams or Lazear soils from shales, loamstones, limestones, and sandstones.

The depositional characteristics of a region often determines the surface exposed cultural resources, as discussed by James C. Miller in Chapter 2 of *Archaeological Monitoring and Data Retrieval for the Collbran Pipeline Project in Garfield and Mesa Counties, Colorado* (Conner et al. 2014). Deposits of Late Pleistocene and Holocene age are mainly aeolian and alluvial. Aeolian deposits consist of ubiquitous loess sheet and shadow deposits aged to the Late Pleistocene and the middle and late Holocene, and relic clay dune cores from the early Holocene. Alluvial deposits include channel deposits associated with the many ephemeral streams draining the mesa, older lag deposits related to former terraces of the Colorado River, coarse lag in outwash gravel, and as sheet flow or sheet wash alluvium mixed with aeolian deposits. Colluvial deposits occur regularly across the landscape at the base angle-of-repose or steeper slopes, but do not figure prominently in archaeology.

With the study area's flat-topped ridges and deeply cut canyons, an understanding of the regional aeolian deposits is of primary importance. The bottom sheet in the aeolian sequence is Late Pleistocene in age, but it is imperfectly preserved. Sometimes in excess of two meters at higher elevations, it is usually absent in more exposed areas at lower elevations. Few surface exposures are visible. There is a lacuna – representing a major period of erosion – between the Late Pleistocene loess and following loess deposits, which began deposition after 6500 radiocarbon years before present (RCYBP).

Four loess sheets comprise the upper series. About two-thirds of the column height is the middle Holocene loess, deposited between 6500 and 4500 RCYBP. Two late Holocene loess sheets were deposited between 2800 and 2200 RCYBP and 1800 and 1000 RCYBP, respectively. Deflation between the intervals of deposition severely degraded and in some places stripped the earliest of these two sheets. The upper sheet is loess deposited during the Little Ice Age, between about 600 and 150 RCYBP, and some recent additions. This latest sheet is presently being deflated in most areas.

Deposit depth can be judged by the type of surface cover. Loess deposits more than a meter in depth and younger than 3000 RCYBP are commonly covered with big sagebrush and grasses, while considerable deposits of loess older than 3000 RCYBP are alkaline and typically support dense stands of greasewood. Surface exposures of the alkaline, older deposits on many ephemeral drainages are sometimes barren or only have greasewood. Thinner deposits over rocky substrates are normally inhabited by juniper and pinyon pine which require deep fractures in bedrock for water. Despite their thin nature, the deposits in pinyon-juniper forests normally have the complete loess sequence.

The floor of pinyon-juniper forests deserves special consideration since many areas in the study area are or were covered with pinyon-juniper forests. The evolution of forest floors is haphazard and it is difficult but not entirely impossible to correlate deposits within the forest to deposits in other parts of the forest or to deposits outside the forest boundary. In general, the bulk of new sediment contributed to forest areas is aeolian, but the chief geological agent reworking the deposits is alluvial. Rills form and reform in pinyon-juniper forests, exacerbated by downed trees. Falling trees divert established rills and old growth falls make small craters and pull up rocks, mixing the cultural deposits. As trees fall and decay and are replaced by new growth, new areas of erosion and deposition are constantly created, usually overlapping. Interpretations of cultural remains in pinyon-juniper forest remain difficult because of this mixing. Former forest floors are best identified by randomly occurring, upright rock slabs that are up to half a meter in size.

2.3 FLORA

Elevations of the study block range from 6180 to 8080 feet. The vegetation types from lower to higher elevations include: riparian ecosystems, sagebrush shrubland, pinyon-juniper woodland, ponderosa pine forest, and mountain shrublands.

Riparian habitats occur along Spring Creek where Cottonwood, box elder, willow, tamarisk (an invasive species) skunkbush, rabbitbrush, and greasewood are present. Associated marsh areas often occur along the streams where waters pond (and at lower elevation springs). These areas are most often dominated by gaminoids (grasses, sedges, rushes, and cattails). At higher elevations, the canyon benches have a mix of pinyon-juniper forest and open sagebrush parks with Gambel oak, ponderosa pine, mountain mahogany, and serviceberry occurring as the elevations increase. Because the soils are sandy, goosefoot (*chenopodia)*, Indian ricegrass, western wheat grass, needle and thread grass, Fendler three awn, galletta grass, and cheat grass are common. Besides sagebrush, shrubs present include antelope bitterbrush, rabbitbrush, and broom snakeweed.

The sagebrush/grassland community covers portions of the benches and basins in the study area. It merges with greasewood and saltbush in the lower 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.

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 has an annual precipitation range of 12 to 20 inches.

On a micro-environmental scale, a striking artifact distribution pattern exists within the study area; the relative lack of artifactual materials found within the open sage flat ecotone compared to the pinyon/juniper habitat. A majority of the sites recorded in the study area occur in the pinyon-juniper community or along its border with sagebrush-grasslands. It is assumed by these investigators that the boundaries between these two environmental zones have not altered radically over the past several centuries, or millenniums, and that this dichotomy of artifact distribution exists as an accurate indicator of prehistoric settlement patterns, as opposed to simply being a factor of differential post-occupational soil erosion or deposition. The benefits and attractiveness of forested areas for workshops and campsites over open ones are many; predominantly shelter from the elements, readily accessible firewood supply, and concealment from game animals as well as potential human foes.

Ponderosa pine can grow between 6000 and 9000 feet, but is generally found at the higher elevations of the project area. Throughout Colorado, it is the dominant species at the lower elevations of the montane zone. It has an open, clumpy forest structure and produces course woody debris that benefits many wildlife species and are relatively resistant to stand replacing fire events. The lower density of its canopy allows for more grasses, forbs and shrubs, which would have made it an attractive zone for natural resource procurement by Native Americans. Due to fire suppression in the last 100 years, spruce/fir forest has encroached into the ponderosa forests – increasing the canopy and reducing the ground cover, and increasing the incidence of insect infestations. From the late 1800's, because of its accessibility at the lower elevations, ponderosa pine has been an important source of lumber and other wood products (Benson and Green 1987). As discussed later in this document, the cutting and processing of ponderosa pine (yellow pine), a lean and erect conifer, was the main reason for the development of the Government Springs Road (which follows the "Old Navajo Trail") and the creation of the sawmill near Government Springs by the military posted at Fort Crawford, Cantonment on the Uncompahgre, 1880-1890.

The Transitional Zone mountain shrub community is dominated by Gambel oak, which covers many of the mountain slopes of western Colorado between the elevations of 7000-8500 feet. This oak (Quercus gambellii) generally grows in stands up to 8-10 feet tall, and can be so thick that it is impenetrable by large animals. In more open areas, rabbitbrush, big sage, mountain mahogany and service berry are common. Along streams, chokecherry and narrowleaf cottonwood are present (Young and Young 1977:96). The detritus from these bushes provide nutrients for forbs and grasses. This zone is an important food source for wild browsing animals, birds (wild turkeys), rodents (squirrels), and insects (caterpillars of the hairstreak butterfly). The berries and acorns of this zone were important food resources for Native Americans.

2.4 Fauna

The diversity of habitat within and surrounding the study area provides for a variety of wildlife inhabitants. Use of the area 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 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 nearby rivers provide suitable winter range – and often critical winter range for these animals. Although most of the mule deer population follow a migrational pattern, occasional small groups browse the area year-round.

The location of the project area within the winter range of the mule deer is probably the most important variable affecting site density and distribution. For nearly 5 months out of the year, between November and April (which is also the most likely time of food stress for prehistoric human populations), the mule deer are generally found between 6,000 and 9,000 feet in elevation, depending upon the severity of the winter (BLM, 1978: Map 2-8). However, it is the behavior of the mule deer, not just their presence, which has the most profound impact on prehistoric human behavior in terms of site type, distribution, and location.

Specific deer populations utilize the same winter range season after season, for generations. The movement between winter and summer ranges is generally slow and casual with the actual migration routes spread out and poorly defined in gentle and open terrain. However, where the terrain is rugged, the migration routes tend to be well defined and able to support high concentrations of deer, which may congregate in groups of 40 to 50 during the fall rut. South-facing slopes with pinyon-juniper, sage and some mountain shrub are preferred. Juniper berries are a favorite autumn food. Behavioral patterns are often pronounced and vary between the sexes. The females tend to move about during the day, grazing or browsing in the open and in the valley bottoms, while the males use the cover high on the sides of the ridges. Females will cross a clearing first, followed by a wary male. Where males prefer to rest near the ridge tops, the females tend to rest in the open or in the grass or brush of creek bottoms. In either case, the bedding zone is generally about 50 yards wide and is located near the edge of the cover in a classic use of the "fringe effect" (Grady, 1980:67-86). Thus, the topography, vegetation and elevation come together in the project area to provide an ideal fall/winter habitat for the mule deer.

Other large mammals present include elk, bighorn sheep, black bear, and mountain lion. Most of the elk during summer are high in the thick spruce/fir forests atop the Uncompahgre Plateau and winter on the lower slopes (generally below 9000 feet) bordering the rivers. 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; the canyons of Escalante and Big and Little Dominguez have populations that are regularly seen.

Carnivorous small mammals include the coyote and bobcat (both of which are found throughout the study area), 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. These fur-bearing mammals may be present in any of the vegetation communities, although they usually gravitate toward water sources.

The larger carnivorous animals include the black bear and mountain lion. The black bear population density in and around the study area is estimated to be 0.5 bear per square mile. Its range extends from the high peaks almost to the river bottoms. Historically, the grizzly bear has been recorded as well, but the black bear is the only bear species present in the area today. Mountain lion territory is essentially coincident with that of the black bear, although its numbers in and around the study area 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.

Sufficient habitat exists in the project 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 area and roost in old buildings, hollow trees, rock crevices, and caves.

Avian species known in the general area include waterfowl, raptors, upland game birds, and a variety of smaller birds. The most common game birds are blue grouse and turkey. Raptors reported in the vicinity include turkey vultures, redtailed and other hawks, golden and bald eagles, prairie and peregrine falcons, American kestrels (most common of the raptors), and several owl species. These birds prey on the abundant small mammals and aquatic resources.

2.5 Modern Climate

Presently, the project area has a cool semiarid climate where temperatures can drop to -10 degrees F during the winters and summer temperatures may reach 100 degrees F or more; there is a maximum of 160 frost-free days and the annual precipitation is about 12-16 inches in elevations below 6000 feet. Elevations between 6000 and 8000 feet have a maximum of 120 frost-free days and the annual precipitation is about 16 inches. The nearby higher elevations are characterized as cooler and moister. Annually, the temperatures at these upper elevations could average 5 degrees cooler, and the precipitation as much as 14 inches greater, than the surrounding low elevations (USDA SCS 1978: 6-8).

Elevations within and surrounding the project area range from range from about 5800 feet at Montrose to 10,000 feet at the crest of the Uncompahgre Plateau at the headwaters of Spring Creek. Modern plant zones and their precipitation averages for west-central Colorado as described by Young and Young (1968:36) include: 1) a spruce-alpine fir dominated Subalpine Zone (ca. 9,500-11,500 feet - below treeline and receives 30 to 35 inches of precipitation a year); 2) an aspen dominated Montane Zone mixed with Douglas fir in the higher elevations and Gambel oak along the lower elevations, often mixed with low sage parks (ca. 8,200-9,500 feet and receives precipitation from about 25 to 30 inches); 3) an oak-brush dominated Transitional Zone with occasional stands of Ponderosa Pine (ca.6,500-8,200 feet with an annual precipitation range of 18 to 26 inches); 4) an Upper Sonoran Zone that is dominated by pinyon pine and juniper [Its upper reaches extend to elevations up to 7,500 feet.] (generally ca. 5,500-6,500 feet; annual precipitation range of 12 to 20 inches), and by sagebrush, shadscale, rabbitbrush and cacti and yuccas in its lower reaches (ca. 4,350-5,500 feet with an annual precipitation range of 8 to 14 inches); and 5) a Riparian Zone along drainage corridors comprised of cottonwood trees, willows, and occasionally aspens, spruce and other, typically higher elevation species.

2.6 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 2.1. 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).

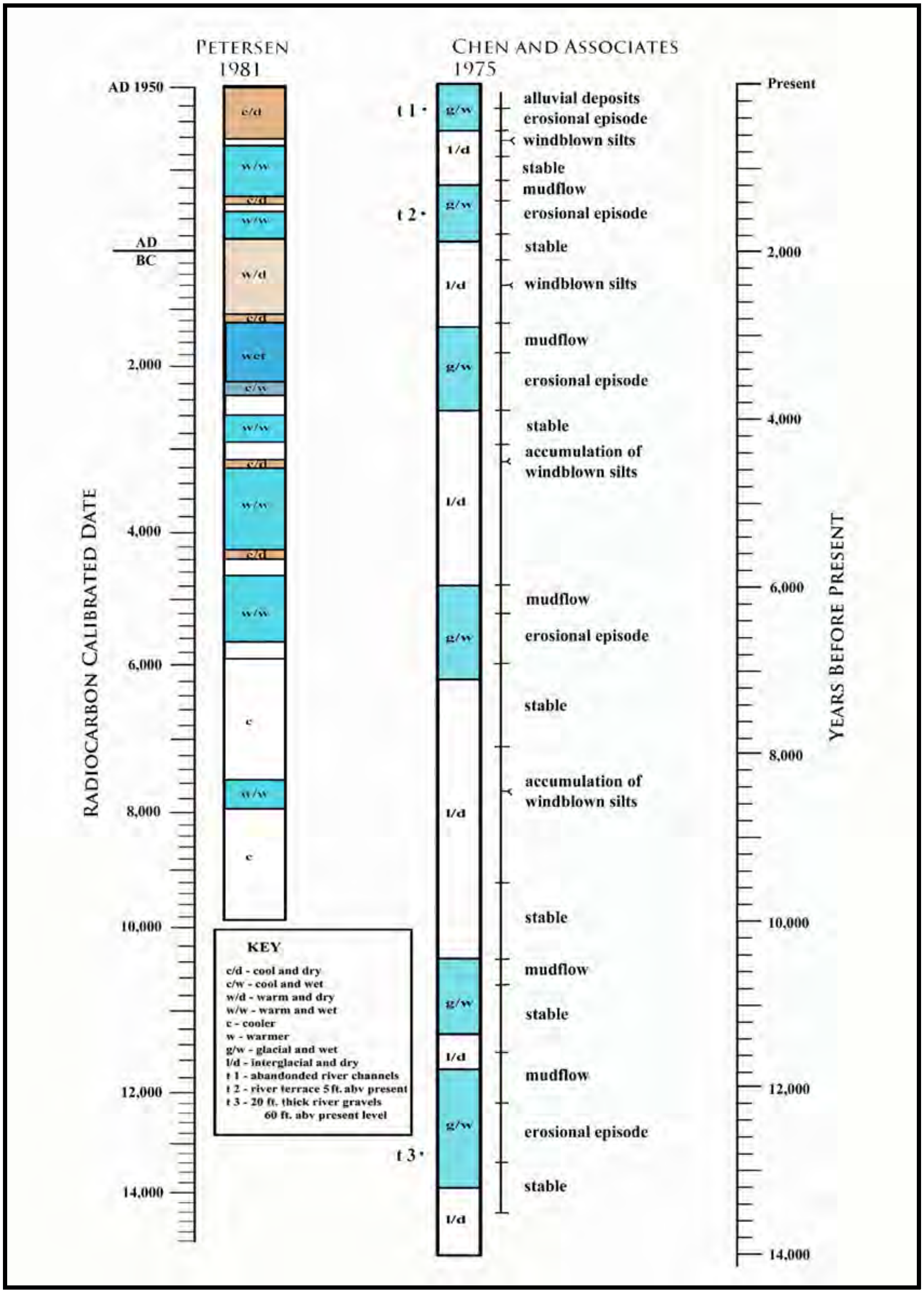


Figure 2.1. Illustration of regional climatic studies by Petersen (1981) for the La Plata Mountains and by Chen and Associates for Battlement Mesa Community (Conner and Langdon 1987:3-17).

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 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).

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.

In summary, the end of glacial conditions came around 13,400 BC (dates are calibrated). 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 determina-tions 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 thegeneral 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 2.2, averaged to decadal means.

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

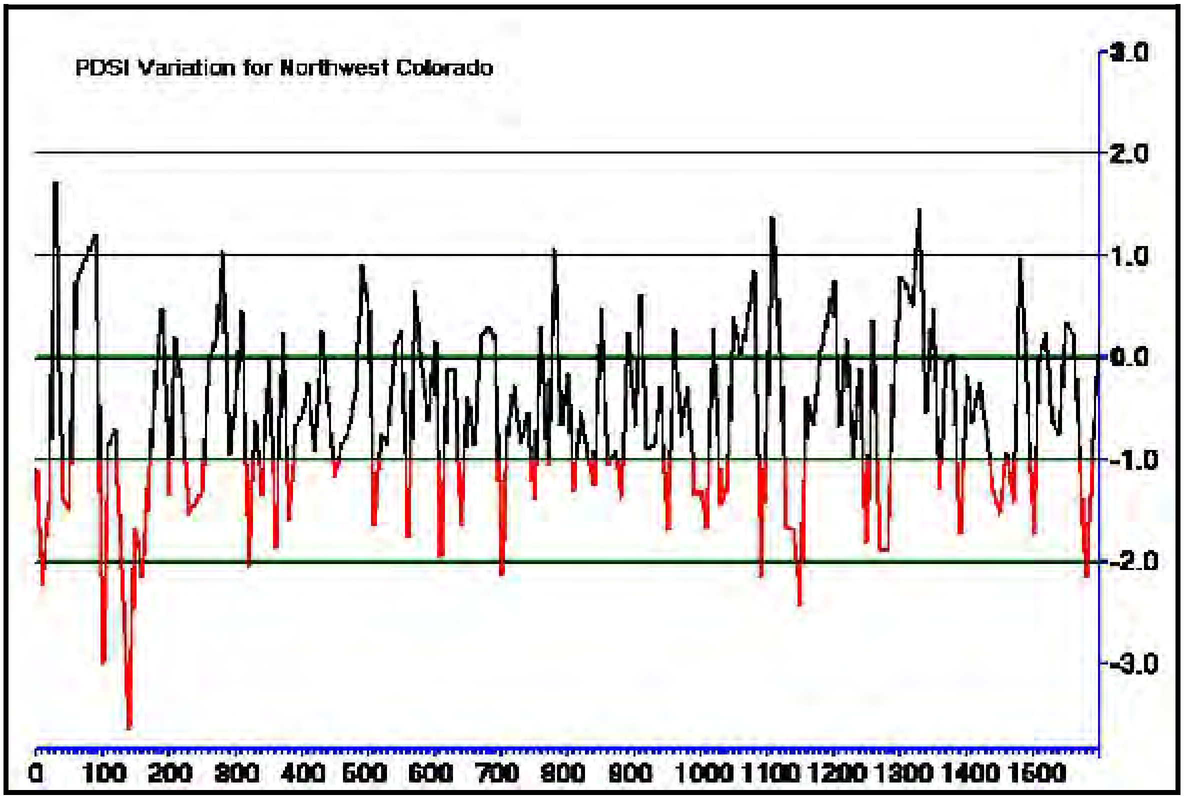


Figure 2.2. PDSI for Northwestern Colorado from 1- 1600 AD. Annual data decadally averaged (Cook, as presented in Berry and Benson 2008).

radiocarbon record. This situation is ultimately resolvable and should be a high priority for government agencies.

The time depth of the high resolution climate data is not as great as the geologic-climatic model, but the two are in agreement as far as they overlap. To reiterate, the PSDI data extend from 0 to 1600 AD which overlaps with the deposition of the second and third late Holocene loess deposits and Lightning equivalent alluvium. The periods of drought identified by radiocarbon ages from loess, represented by unconformities, correspond well to the periods movement or abandonment) cannot be addressed given the current state of the cultural of increased drought depicted on Figure 2.2, falling within a few decades of the predictions of the PSDI. The correlation of the predictions from both lines of evidence give a first indication of boundary conditions required to initiate wide scale deflation and the pattern of drought conditions that relate to the formation of lacunas in the stratigraphic record. The periods of erosion correspond to repeated drought cycles persisting for decades on the PSDI. During the deposition of the second late Holocene loess, the episodes of drought are represented by regularly spaced, negative spikes, suggesting an astronomical cause such as the solar cycle.

It is more difficult to assign parts of the Lightning equivalent alluvium to events reported in the PSDI data because the stages of deposition and erosion recorded in the stratigraphy of Lightning equivalent deposits are not well dated - Lightning equivalent deposits on Douglas Creek have seven terrace segments of different ages not to mention overbank deposits (Miller and Nelson 2010). However, periods of fill in alluvial valleys correspond to periods of deflation in loess and reworked loess stripped by sheet flow alluviation or deflated and redeposited in alluvial valleys is a significant part of the source material for Lightning equivalent deposits. This suggests the PSDI data can be employed to predict the probable ages of the different phases of deposition of Lightning equivalent alluvium.

Significant to interpreting past environmental changes in the region were the wood samples recovered during the excavations at sites 5GN810 and 5GN2140 in the Gunnison Basin. Features 1, 7 and 10 of 5GN810, Feature 1 of 5GN2140, and natural tree burns TB 1 and TB2 were identified as *Pinus ponderosa*. These samples were radiocarbon dated between ca. 4700 and 2500 BC. Carbon from ponderosa pine has been found in other dated hearths in the Curecanti area; e.g., a slab-lined hearth in site 5GN212, which dated ca. 5480-4900 BC, and Feature 1 of site 5GN247, which dated ca. 3620-2470 BC (Stiger, 1981:22, 38). Sagebrush was found to be the fuel for Features 2, 4 and 5 of 5GN810, and isolated feature 5GN2367. Their minimum age range is roughly ca. AD 200-700.

These findings concerning environmental change in the area are comparable to that of Markgraf and Scott (1981) for the Alkali Creek Basin, located just north of the Gunnison Basin. Their study indicates the presence of montane pine forest, at an elevation about 9000 feet, until ca. 2600 BC when sagebrush became dominant. Ponderosa forest is not found presently in the Gunnison Valley, but it appears likely that a mixed pine forest existed in the Gunnison Basin until at least 2600 BC when a changing environment--compounded by forest fires and perhaps human use of a dwindling resource--removed them completely from the area. This temporal boundary roughly corresponds to a dry/cool episode of the Neoglacial period. The same period of cooling and drying of the climate appears to have been occurring on the Plateau, as indicated by a retreat of the Ponderosa forest to higher elevations.

3.0 Study Objectives, Strategies and Methods

Our research strategy for this and past studies has 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 are 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 pro-actively seek opportunities for collaborative public outreach and education, and have established on-going working relationships with numerous local, regional, and state-wide organizations supporting preservation and appreciation of cultural resources and heritage landscapes.

Our methodology in examining archaeological data for this project employs a landscape perspective. Landscape cannot be fully understood without reference to a world view that integrates place and space and the production of meaning. Underlying this is an understanding that temporally assignable sites obtain meaningful interpretations of their potential social relationship to others through examination of their position in the physical landscape (Ashmore and Knapp, 1999:170).

A landscape perspective has several implications for methodological approaches to inventory. Most standard archaeological surveys have been organized according to complex spatial sampling schemes or are based on the needs of federal agencies to manage potential impacts to cultural resources. However useful this approach has been and continues to be for the preservation of cultural resources on an individual basis, it has had the unfortunate consequence of disembedding archaeological sites from their social contexts and oft times reduces their evaluative contexts. Sites obtain their meaning by virtue of their relations to other sites and physical features in a pre-existing social landscape (Ashmore and Knapp, 1999:170).

3.1 Objectives

Our primary objective for this and the previous projects is to trace the occurrence of trails within the defined project area through the documentation of archaeological sites and isolated finds. The use of the trails depends on the mobility of the particular cultural group. 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. In the identification of archaeological resources along a trail, a regional perspective may be developed in terms of a particular group's mobility, planning, and survival strategies (Binford 1985:19). To those ends, this study was designed to examine research questions of resource procurement, ecological adaption, and settlement through documentation of artifacts and collection of ^{14}C data from small, single component or low component sites within an area representative of the east side of the Uncompahgre Plateau.

Integrating archaeological, ethnographic, and ethnohistorical data, promotes the development of an argument for strong continuities in distinctive ideological landscapes. While not denying that the process of settlement has a ecological component, the shift in interpretive emphasis towards an ideological approach has the advantage of placing communities in a broader social context. The development of new insights – for relationships between aboriginal populations and the landscape, and for the history of the Ute people – are part of the study objectives.

3.2 HUNTER-GATHERER SUBSISTENCE STRATEGIES

Most of the prehistory of the region has relied upon the categorization of resources being the result of occupations by hunter-gathers. Methodological approaches in the examination of archaeological phenomenon similar to that of the eastern Uncompahgre Plateau have been employed in the Great Basin and Green River Basin (Thomas 1983; and Ebert 1985). Through earlier findings, expectations of field surveys are that camp sites will present expressions of the following hunter-gatherer subsistence strategies (Ebert 1992:134):

1. A strategy of high residential mobility in which foragers exploited the area, using serially occupied residential camps from which foraging trips of a day or less were undertaken.
2. A strategy of seasonal fusion and fission, in which large multifamily residential camps were occupied during one portion of the year. Foraging as well as logistic forays were undertaken from these camps. At other times the camps broke up into small, residentially

mobile foraging groups.
3. A strategy of minimal residential mobility coupled with high logistic mobility, represented by large permanent residential bases with high investment in facilities and highly specific, repeatedly used logistic field camps and staging locations.
4. A strategy (or more realistically a component thereof) consisting of temporary camps of highly mobile and logistically organized special-purpose groups passing through the area, with neither residential bases nor procurement activities related to the area at all.

As well, Thomas has indicated that the archaeological record can be expected to be a composite overlay of episodes of behavior resulting from the many uses of a place, and that it may be difficult to distinguish overlaid field camps from residences simply through the functional interpretations of all items found (Ebert 1992:134).

Findings from monitoring and excavations along the Collbran Pipeline provided new perspectives on the prehistoric occupations of the region and provided methodological direction for this and future studies (Conner et al. 2014a). The first and most obvious is that various styles of houses (pithouses, house pits, sheltered houses and surface structures) were constructed throughout the Archaic occupation of the mountains of Colorado. All exemplified sophistication in that they demonstrated a commitment in time and effort, and exhibited a multi-generational knowledge base. These Archaic sites with substantial architecture likely functioned as base camps that were used year-round or at least for most of a year. This is where food was stored, where women, children and the infirm were positioned, and from which resource gathering forays were staged. It also appears that most represent a hamlet type orientation for sheltering small groups. Many of these house localities display reoccupation over hundreds of years, as illustrated by excavations at 5GF1185 (Conner et al. 2014b). This implies periodic abandonment or shifts in base cap locations in response to environmental conditions.

The finds from regional, early Middle Archaic houses (ca. 5000-4000 RCYBP) have included obsidian from sources located as far away as New Mexico and Idaho, which indicates either a sophisticated trade network or long distance travel during that time. Similarly, the Late Archaic pithouses of the Battlement Mesa Complex have evidence of trade for or resource procurement of Gilsonite [non-trademarked mineral name is uintaite or uintahite], a form of natural asphalt found only in the Uintah Basin of Utah. It is a product the aboriginals heated and used to line baskets.

Seed-based procurement, processing and likely manipulation of cheno-ams and Indian ricegrass is central to the proposed sedentary economies of the Archaic period. Additionally, the reliance on these seed plants and the methods of manipulation likely contributed to the acceptance, dispersal and development of high altitude maize during the Late Archaic-Early Formative transition.

In summary, the debates over the various types of hunter-gatherer methods of procurement strategies typically involve two culturally defined types: residentially mobile foragers, a term that applies to mobile groups that rely on seasonal rounds, and logistically mobile collectors, a term for sedentary or semi-sedentary groups who relied on, manipulated and stored seed resources. The return to a seasonal-round strategy for a collector based culture during environmental extremes is insufficient to describe the latter's response to dramatic changes in effective moisture. Their abandonment and reestablishment of a base camp in response to resource depletion or environmental change was a horizontal movement to a similar environmental niche for the former and a vertical movement in elevation for the latter. That is, during dry periods the Archaic collector moved to higher elevations or down along permanent drainages, and during wet periods movement was to the lower elevations near secondary water sources (springs, small drainage catchments, etc.). Such would be in response to the increased ground water and seed resources there, along with an associated increase in faunal resources. Seasonal vertical movement between the higher and lower elevations was probably greater during periods of dry extremes.

The description for the Late Archaic sedentary culture – the Battlement Mesa Complex – fits well the elusive Basketmaker I category, the original Pecos classification for Ancestral Puebloans. However, it is best to move away from defining the regional Archaic cultures according to either the Great Basin (i.e. the Stewardian model) or Southwest classifications, and refocus on the Mountain Tradition concepts proposed by Kevin Black (1991).

3.3 METHODS

The intent of the present inventory was to employ a landscape-oriented field methodology based on reconnaissance survey because it allows a larger area to be assessed from the perspective of the human groups that may have utilized it. The survey focused on the identification of cultural/environmental resource clusters or "destination localities" as the defining factors in the identification of a travel corridor. Data sets were created and utilized to identify and assess the environmental niches that may have attracted the Native Americans to a particular locality within the canyon, such as: prominent topographic features, contributing geologic factors, water resources, wildlife and vegetation distribution. Because no cultural resources had been previously documented in the canyon, this study was a test of previous work by DARG in trail identification to either confirm or dismiss the consideration of Spring Creek canyon as a main travel corridor.

Sites and isolated finds encountered by the study were recorded to standards set by the BLM and the OAHP. All cultural resources that qualified as sites, such as prehistoric open camps, open lithic scatters, occupied overhangs/rock shelters, and evidence of historic occupation, were evaluated for determining eligibility for nomination to the National Register of Historic Places (NRHP).

A site is defined as a 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 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 will be 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 and are stored at DARG in Grand Junction, Colorado. A final report of the findings was to be completed and the documents submitted to the BLM and OAHP.

For research and management purposes, data produced by previous surveys were aggregated in order to reveal patterns of cultural processes over time, and were used to estimate locations of unrecorded resources. To that end, this project incorporated data from previous cultural resource recordings as an aid in determining reconnaissance survey locals within the Spring Creek canyon area – one that exhibits physical diversity within a mid-elevation range. The purposes were not only to engage this approach in the identification of archaeological sites, but also demonstrate a continuity among the materials left at different locations by representatives of the same people. All site types of the potential database were to be considered in defining relative anthropological contexts to answer questions of land use settlement, ecological adoption, and resource procurement (Binford 1985:19).

Artifact Categories

A basic element of thinking archaeologically is through classification. Classification helps to cope with complexity and to look at certain attributes that are pertinent to the scientific questions at hand.

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 were 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, were also noted.

Limitations of lithic debris or flake analysis are dependent upon an understanding of the limitations posed by surface assemblages. The most important is that surface remains have been cast off, cached, or lost by the aboriginal occupants. Meaning that all the formal and transportable tools in good condition were taken by the occupants when they left. Therefore, detritus from the construction or refurbishing of tools is not always a true representation of all the lithic materials types employed by a particular group. For example, if a particular chert cobble is reduced on site, one might be inclined to conclude that this was the material type of preference for a tool kit, when in actuality the tool kit might include quartzite, obsidian and other chert(s) represented by the tools that were removed (carried off). Therefore, the lithic surface assemblage is most likely not representative of materials that make up the occupant's tool kit nor does it provide an accurate accounting of the materials being utilized. A better assessment of those materials would be an analysis of the percentages exhibited by cast off tools.

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 add 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).

Lithic Material Resources (Courtney Groff)

Uncompahgre Plateau is host to a somewhat exceptional array of lithic resources. Stratigraphic units present include; Chinle, Wingate, and Kayenta (Triassic), Entrada, Summerville, and Morrison (Jurassic), and Brushy Basin and Dakota (Cretaceous). Precambrian rock is exposed in the deep canyon bottoms, and farther west on the Plateau is the Permain-age Cutler Formation, which overlies the Precambrian basement rock.

Toolstones encountered in sites on the Plateau include quartzite, basalt, chalcedony, chert, and quartz. Some of the quartzite artifacts are known locally to come from the Dakota Formation (Cretaceous). This quartzite is distinguished by the presence of highly refractive quartz grains. Colors are most commonly light gray to white, but slightly darker grays, and "salt and pepper" colors are known to exist as well. Few examples of a very dark gray quartzite with high refractivity are represented. Materials of this sort are not known to the author to be from the Dakota Formation; however, it is possible. Perhaps this material is an oxidized/heated example of Dakota Formation quartzite. It is more likely however, that the majority of other quartzite materials were procured from local gravel deposits. Basalt is also available as cobbles in local river gravel deposits, as well as in basalt flows capping the Grand Mesa to the northeast (a source of the cobbles in the river gravels).

The term chalcedony is used for archaeological purposes in this instance, and not necessarily by mineralogic or petrologic standards. Based on easily observed properties, translucent, light colored cherts are commonly referred to as chalcedony by archaeologists; however, the term is reserved exclusively for fibrous quartz by petrologists (a property not visible without microscopic thin sections) (Leudtke 1992). One trait of chalcedony that is visible to the naked eye is its botryoidal habit on external surfaces; unfortunately, characteristics such as this are not normally observable in archaeological contexts, as the outer surfaces (cortex) of lithic materials usually does not appear in high instances due to the nature of cultural modification observed in most sites. Occurrences of "chalcedony" occur throughout vast locations in Colorado (Eckles 1997), and exact sourcing without petrographic and chemical evaluation is difficult. It is important to note, however, that the chalcedony "blebs" occurring within Burro Canyon chert are, petrologically speaking, chalcedony. Radiating, fibrous grains are evident in thin sections of this material collected from nearby outcrops (Price 2015).

A variegated chert from the Burro Canyon Formation (Cretaceous) is common on the north end of the Plateau One known location for this material was observed during the re-analysis of the Taylor site in natural outcrops just three miles to the north (Groff 2016:20). This chert is distinguished by the presence of light gray to white chalcedony "blebs" and occurs as layers interbedded with shale and sandstone. It is most commonly translucent dark gray and black; however, light brown, opaque tan, and opaque, mottled light gray and black examples exist as well. The quality of this material is highly variable. Some examples exhibit impurities, resulting in uneven and unpredictable flaking patterns, while others are quite uniform and fracture evenly to produce well worked tools. This material was apparently utilized most commonly to produce formal tools such as projectile points, bifaces, scrapers and drills.

A unique material that is present in small quantities on the Plateau is an opaque "conglomeratic" chert. Although this material has not noted with the nearby outcrops of Burro Canyon chert on the north end of the Plateau, similar material has been observed on the south end near Tabeguache Creek. Positive identification of provenience for this material in the Tabeguache area has yet to be made; however, it is believed to be from the Burro Canyon Formation as well. This chert varies from matrix supported, granule sized (2-4mm) clasts to clast supported, smaller pebble sized clasts. This toolstone is of surprisingly good quality.

Three examples of crystalline quartz artifacts were encountered in the Taylor Site materials (Groff 2016:21). Crystalline quartz is readily available in the Precambrian basement rock that is visible throughout much of the canyon. This material was probably not widely used due to its commonly unpredictable flaking patterns; however, the artifacts recovered from the Taylor site are of good quality and fairly intricate detail.

Two "exotics" are present on the Plateau, which most likely represent trade items conveyed into the area – or even long range procurement. Obsidian flakes and diagnostics recovered from sites in west-central Colorado have been analyzed and found to originate primarily from the Jemez Mountains of New Mexico and in smaller amounts from quarries in Idaho, Utah, and Wyoming. It is the authors' experience that this material is commonly found in Ute and Middle Archaic sites in the region. Similarly, "pumpkin chert," identifiable by an opaque orange to red color, waxy luster, and often black manganese dendrites, is from the Madison Formation (Mississippian), with known quarries near the Yampa River (Cross Mountain area) and Kremmling. Like obsidian, this material is most commonly found in Ute sites regionally.

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 stones 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 biscuit root 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 featured dated to the Opal phase (5600-3400 BC). Two extremely large features (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 sifting/sorting 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).

3.4 Archaeological Visibility

Archaeological visibility is a major concern in documenting and evaluating cultural resources. Most of the diagnostic artifacts recovered from the surface are from aeolian deposits or in the pinyon-juniper forest are Late Archaic or younger, generally less than about 3000 years old. A major factor in exposure is deflation which can easily strip away the relatively unweathered post-3000 year old deposits and leave artifacts on the deflated surface. Deflation in the middle to late 20th Century (exacerbated by development and grazing) has exposed the deposits, and probably older cultural deposits, too, but non-diagnostic, utilitarian artifacts could represent almost any period in the past. Another possible reason for higher frequency of sites after 3000 years ago is a hypothesized increase in aboriginal population during the period, but visibility of older cultural components is a problem and could also explain the disparity.

The fact remains that deposits older than about 3000 years old simply do not have good surface exposure because of deposition since. Aeolian deposits older than 3000 years ago are exposed in rill cuts, at the edge of sharp topographic breaks, or in disturbances caused by construction. Over broad areas in the surrounding areas, the sage-steppe is underlain by over a meter of aeolian sheet deposits, and the entire sequence of aeolian deposits is generally present. Surface exposure of older deposits over the surface is otherwise restricted to small deflated areas, and then only the upper contact of the early to middle Holocene deposits are usually exposed.

The problem is much the same in alluvial deposits, and perhaps worse. Besides being more heavily vegetated, which significantly reduces ground visibility, relatively recent sheet wash and loess deposition cover most older deposits on the flood plains of the major trunk streams. The only view of the older deposits is provided by the arroyo incisions, and in the major trunk drainages, the view afforded by the incisions does not expose the entire alluvial sequence. The truncated view probably spans the last part of the early Archaic to the present.

3.5 ARCHAEOLOGICAL PRESERVATION

Preservation is another critical archaeological problem on different levels: on the macro-scale, preservation of entire site is the issue; on the meso-scale, preservation of a site's facilities and activity areas; and on the micro-scale, the preservation of the artifacts.

Most surface sites associated with aeolian deposits, except, very recent sites, have been exposed by erosion. Exposure by deflation and erosion caused by sheet flow alluviation and rill formation locally removes the relatively unmodified post 3000 years old loess and exposes the upper contact of the earlier loess deposits. Artifacts are left on the contact separating the pre-3000 and post-3000 year old deposits. This presents a conundrum: are the observed artifacts part of a post 3000 years old component that is heavily eroded, a pre-3000 years old component that is just being exposed, or both? In areas where deeper exposures of loess deposits are viewable due to rill or slope erosion, artifacts situated on the sloping surfaces present an equally perplexing problem, especially for components with relatively few artifacts: what stratigraphic level did they erode out of? It remains difficult to answer these questions without deliberate, controlled excavations.

Two processes – other than massive erosion – can alter whole sites: frost heaving and clay swelling. Frost heaving has affected some older deposits. Primary evidence for this is platy- and prism-shaped granule- and small pebble-sized particles oriented vertically, i.e. perpendicular to bedding, and mineral coats on the lower margin of the particles. The coats are formed by mineral exclusion during ice formation. Clay and moisture content, edaphic conditions, and temperature and duration of freeze are important factors (Tabor 1929). This process generally affects deposits older than 3000 or 4000 years since the process had its most widespread affect in the middle Holocene, between 6500 and 3500 years ago. However, it may not affect the recovery of useful archaeological data. Frost heaving (like clay swelling) does not alter the position of everything, and is limited to the upper (water saturated) parts of the stratigraphic column: a single period of use in the affected horizon still has all the durable remains from the altered component, so still provides information.

Another factor that has a widespread if not well understood effect on archaeological deposits is clay swelling. Smectite clays, such as montmorillonite, increase volume after absorbing water in the interlayer spaces. Clay swelling at or near the surface after a light rain produces lateral expansion of the surface layer and results in distinct if ephemeral lineations. Deep wetting in columnar-jointed sediment (i.e., strata with relatively high clay content) is more dramatic and culminates in vertical expansion that forms "pedestals." Lateral expansion can move surface artifacts around the surface, but only a very small distance at a time; this is one of the important processes that produce fire altered rock scatters from the original hearths and middens. Columnar swelling can displace artifacts vertically, but again, just a small distance at a time, and may not result in significant movement over a long period.

On the micro-scale, artifact classes are the important consideration. Stone tools are almost unassailable by surface and subsurface environments, although in hyper-alkaline subsurface environments silica activity increases and near pure silica rock essentially begins to dissolve. Of course, the same chemical conditions destroy opal phytoliths. Artifacts composed of organic substances are destroyed by oxidation; pollen and non-durable artifacts fall in this category. Bone – calcium phosphate or bone apatite – is most easily destroyed in surface or near surface environments, and lasts only a decade or two at most (Behrensmeyer 1978), but is almost infinitely survivable in many subsurface environments if buried quickly enough.

3.6 ARCHAEOLOGICAL LANDSCAPES AND TRAILS

This and previous trails' studies employ 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, Bevin and Conolly 2004).

The importance of trails for prehistoric societies depends on their needs for mobility (Earle 2009:256). Trails 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 (ibid.).

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 have been identified using the overwhelming amount of data in the archaeological record for Colorado, which are manifest in the documentation of individual sites and isolated finds completed as part of the

Section 106 process (BLM and OAHP). From those records, it is apparent that lower 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 similarly spreads.

4.0 Files Search and Literature Review for Spring Creek Area

A review of previous inventories and cultural resources was carried out using a spatial query of the OAHP Compass database; projects and cultural resources within the present inventory boundary were reviewed and summarized. Archives research was conducted for this project in which General Land Office (GLO) maps, census data, cemetery records, newspapers and were reviewed for documentation of the historic uses of the area.

4.1 Files Search Data

A total of 560 acres, or about 9% of the general project area, has been inventoried at either the intensive or broad level for cultural resources; however, those inventories occurred over 15 years ago (Figure 4.1). Twenty-three sites and 21 isolated finds were identified within the present study boundary (Tables 4.1 and 4.2). One is a historic site that consists of two linear segments of an historic road and the remainder are categorized as prehistoric camps or open lithic manifestations, and isolated finds. Table 4.3 lists the previous cultural inventories within the current project area.

Table 4.1. Resource types within the project area.

Resource Type	Total Number	Historic	Prehistoric	Multicomponent
Isolate	21	0	20	1
Site	23	1 (2 segments)	21	1

Table 4.2. Previously recorded cultural resources within the project area.

Site Number	Resource Type	Eligibility	Land Status
5MN0047	Prehistoric Open Camp	Not Eligible - Field	Private
5MN0049	Prehistoric Open Camp	Needs Data - Field	Private
5MN0058	Prehistoric Open Camp	Needs Data - Field	Private
5MN0059	Prehistoric Open Camp	Needs Data - Field	Private
5MN0060	Prehistoric Open Camp	No assessment	Private
5MN0577	Prehistoric Open Lithic	Field not eligible	BLM
5MN0578	Prehistoric Open Lithic	Field not eligible	BLM
5MN0579	Prehistoric Open Lithic	Field not eligible	BLM
5MN0581	Prehistoric Open Lithic	Field not eligible	BLM
5MN0687	Prehistoric Open Lithic	Officially not eligible	BLM
5MN0688	Prehistoric Open Camp	Officially not eligible	BLM

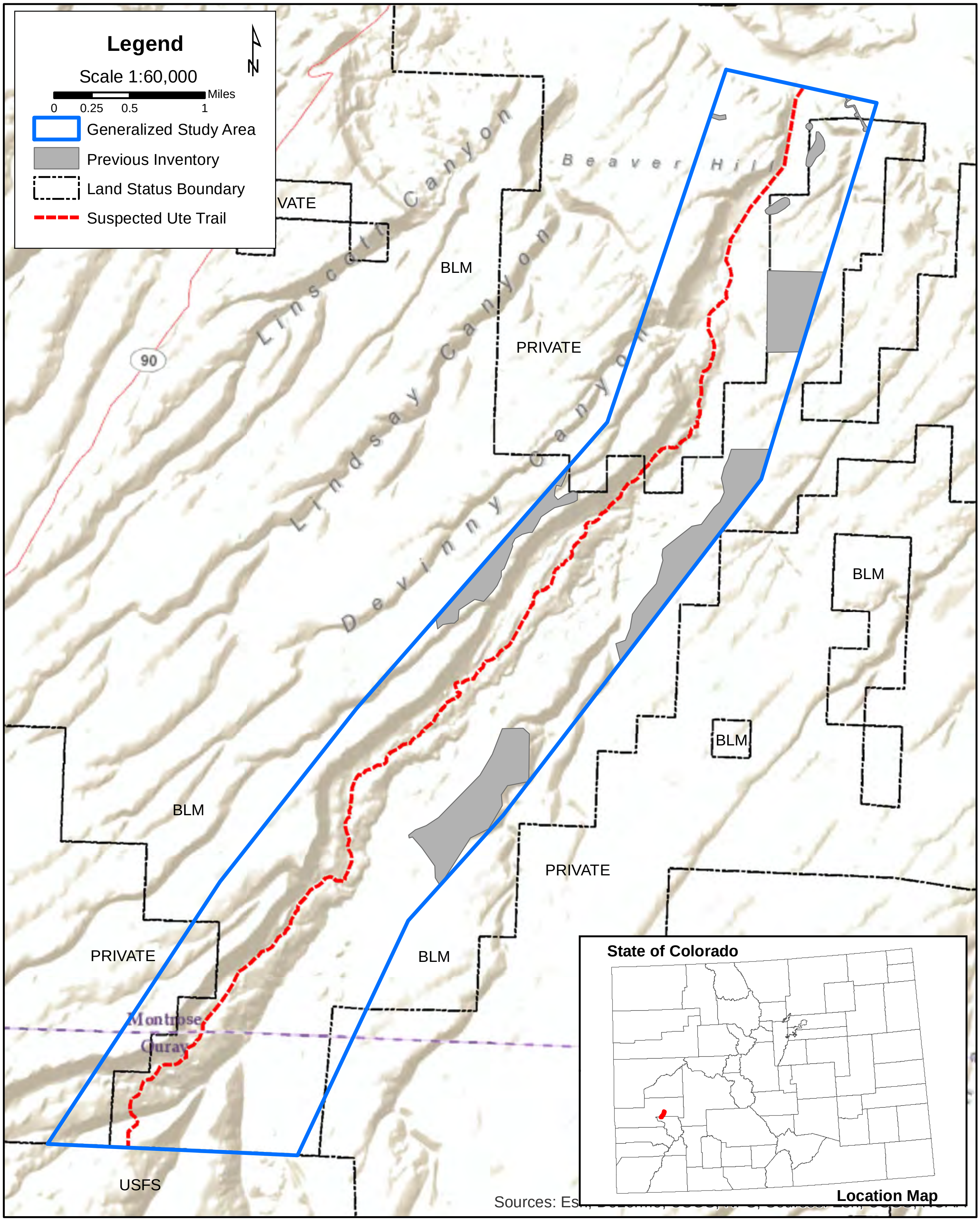


Figure 4.1 Generalized project location map showing previous inventory within the general study boundary. [DARG D2016-8, SHF 2017-01-049]

Site Number	Resource Type	Eligibility	Land Status
5MN0689	Prehistoric Open Lithic	Officially not eligible	BLM
5MN1021	Prehistoric Open Lithic	Officially not eligible	Private
5MN1022	Prehistoric Open Lithic	Field not eligible	Private
5MN1095	Prehistoric Open Lithic	Field not eligible	BLM
5MN1096	Prehistoric Open Lithic	Field not eligible	BLM
5MN1097	Prehistoric Open Lithic	Field not eligible	BLM
5MN1098	Prehistoric Open Lithic	Field not eligible	BLM
5MN2991.1	Old Paradox Historic Road Segment	Officially eligible	BLM/Private
5MN2991.4	Old Paradox Historic Road Segment	Field needs data	Private
5MN4657	Prehistoric/Protohistoric	Field needs data	Private
5MN5628	Isolated find	Not Eligible - Field	
5MN6651	Prehistoric Open Camp	Officially not eligible	BLM
5MN6652	Prehistoric Open Camp	Officially eligible	BLM
5MN6824	Isolated find	Not Eligible - Field	BLM
5MN6825	Isolated find	Not Eligible - Field	BLM
5MN6826	Isolated find	Not Eligible - Field	BLM
5MN6827	Isolated find	Not Eligible - Field	BLM
5MN6828	Isolated find	Not Eligible - Field	BLM
5MN6829	Isolated find	Not Eligible - Field	BLM
5MN6830	Isolated find	Not Eligible - Field	BLM
5MN6835	Isolated find	Not Eligible - Field	BLM
5MN6836	Isolated find, historic isolated find	Not Eligible - Field	BLM
5MN6837	Isolated find	Not Eligible - Field	BLM
5MN6839	Isolated find	Not Eligible - Field	BLM
5MN6840	Isolated find	Not Eligible - Field	BLM
5MN6841	Isolated find	Not Eligible - Field	BLM
5MN6842	Isolated find	Not Eligible - Field	BLM
5MN6843	Isolated find	Not Eligible - Field	BLM
5MN7419	Open camp	Eligible - Officially	BLM
5MN7425	Isolated find	Not Eligible - Field	BLM

Site Number	Resource Type	Eligibility	Land Status
5MN7508	Isolated find	Not Eligible - Field	BLM
5MN7512	Isolated find	Not Eligible - Field	BLM
5MN7513	Isolated find	Not Eligible - Field	BLM
5MN7522	Isolated find	Not Eligible - Field	BLM
5MN7419	Prehistoric Open Camp	Officially eligible	BLM
5MN9392 5OR1052	Dave Wood Road	Officially eligible	BLM/Private/ Montrose County

Table 4.3. Previously conducted cultural resource inventories within the project area.

OAHP Project Number	Project Title
MN.LM.R165	Title: Class III Cultural Resources Inventory for the Beaver Hill Hazardous Fuels Reduction BLM Uncompahgre Field Office, Montrose County, Colorado (04un78) Author: Walker, Patricia and Robert D. Dello-Russo Date: 12/2004 Contractor: Escondida Research Group, LLC.
MC.LM.R517	Title: Class III Cultural Resources Inventory for the Upper Dave Wood Hazardous Fuels Treatment BLM Uncompahgre Field Office Montrose and Ouray County, Colorado Author: Buchanan, Patricia and Robert Dello-Russo Date: 11/2003 Contractor: Escondida Research Group, LLC
MN.E.R8	Title: Archaeological Survey of Western Area Power Administration's Curecanti-Montrose 115-kV Transmission Line Montrose County, Colorado (01UB084) Author: Firor, James Date: 7/2001 Contractor: Alpine Archaeological Consultants, Inc. for Western Area Power Administration and the Department of Energy
MN.LM.NR183	Title: Right of Way for an Access Road (96UB042), Montrose County, Colorado Author: Pfifer, Teresa Date: 05/31/1996 Contractor: Bureau of Land Management, Uncompahgre Basin Resource Area
MN.LM.NR211	Title: US West Telephone Line (97UB008) Author: Pfifer, Teresa Date: 03/13/1997 Contractor: Bureau of Land Management Montrose

OAHP Project Number	Project Title
MN.LM.NR3	Title: Montrose County Rip-rap Procurement (Spring Creek Canyon Area) (UB84011) Author: Rupp, Frank G. Date: 06/06/1984 Contractor: Bureau of Land Management, Uncompahgre Basin Resource Area
MN.LM.NR21	Title: Owens Road Right of Way Author: Scott, Douglas Date: 06/11/1982 Contractor: Bureau of Land Management, Uncompahgre Basin Resource Area
MC.LM.R224	Title: Cultural Survey for the Uncompahgre Environmental Statement Author: Martin, Curtis W. Date: 05/01/1977 Contractor: Mesa Verde Research Center for the Bureau of Land Management

---

4.2 Archival Records Search

Archives research was conducted for this project in which General Land Office (GLO) maps, census data, cemetery records, newspapers and were reviewed for documentation of the historic uses of the area. The GLO map of T47N., R9W., (1885) shows the Government Springs Road, the road from Montrose to Placerville along the Uncompahgre River, the boundary for a US Military Reservation that contained Fort Crawford, and numerous unnamed trails. The map of T48N., R. 10W., (1884) shows Spring Creek, with the Dave Wood Road to the east and the Old Paradox Road to the west, along with others. At the north end of Spring Creek, a ditch is present.

Three phases of settlement occurred within the project area. Six individuals filed cash entry claims on property within the project area prior to 1900 and eight filed between 1900 and 1930. The early patents were cash entry, while the those filed between 1910 and 1930 were either Homestead entry or homesteads for the purpose of stock raising. Three individuals acquired land after 1950 through sales and exchanges (Table 4.4).

Table 4.4. Cash Entry Patents and Homestead Claims

PATENTEE	DATE	TYPE
John H. Wilber	9/27/1889	Cash Entry
Luther E. Davis	9/9/1890	Cash Entry
George F. Simmons	12/3/1890	Cash Entry

PATENTEE	DATE	TYPE
Albert Endsley	11/3/1891	Cash Entry
Alford Keller	4/17/1891	Cash Entry
Charles A. Palmer	1/11/1892	Cash Entry
Alexander Harsh	12/14/1914	Homestead Entry
Charles M. Ryan	7/8/1919	Homestead Entry
Harry F. Brouse	10/15/1923	Homestead Entry
Edward Mahannah	12/18/1923	Homestead Entry - Stock raising
Fred N. Burbank	9/9/1924	Homestead Entry - Stock raising
Harry M. Devinny	2/25/1925	Homestead Entry - Stock raising
George H. Fink	7/26/1927	Homestead Entry
Frank C. Krebs	11/14/1928	Homestead Entry - Stock raising
Ed. J. Garrison	5/16/1956	Sale - Title 32 Chapter 7
James Wallace Kitchell	8/18/1958	Exchange - Private - Taylor Act
Tad Paxton	5/23/1961 & 9/27/1961	Exchange - Private - Taylor Act

Spring Creek Settlers

Scant information was located regarding John H. Wilber. He presence in the Montrose area could not be verified with the US Federal Census. There is a note in a local newspaper stating that two men, "Charley Watson and ex-Postmaster Arthur of Telluride" were joined by J.H. Wilber, who would be accompanying them to the Klondike (Montrose Press 1898).

Luther Davis (b. 1845 d. 1916) was located in the 1900 federal census records and indicate he was working the restaurant industry in Montrose, Colorado in 1900. He married Elizabeth Davis (b. 1851) in 1894. A brief newspaper article mentions a Luther Davis who was working at that time on improvements to his ranch in Riverside, which is located south of Montrose, between Horsefly Creek to the west and Highway 550 to the east (Montrose Daily Press 1915:3). He is buried in Grand View Cemetery, Montrose. It is suspected that he may be the brother of Russell Davis.

Albert Endsley (b. 1845) was recorded in Federal census records from 1880, which indicate he was working as a prospector and living in Rico, Ouray County, Colorado.

Charles A. Palmer (b. 1861 d. 1934) is buried in Grand View Cemetery, Montrose. It was stated on Find-A-Grave database, that Palmer first married Hattie M. Dillon on March 4, 1886 in Montrose, Colorado. Charles was born April 1, 1861 in Nebraska and died June 4, 1934 in El Reno, Canadian County, Oklahoma. He married Serena E. Frazier Dillon Palmer about 1905 (b. 1851 d. 1914).

In 1918, a court action was brought with regard to land patented within the project area. The plaintiff, Charles W. Langford brought the action against George F. Simmons, Joseph Simmons, the unknown heirs of George F. Simmons, The Colorado Land and Loan Company, Albert Endsley, George E. Keith, Geo. E. Kirth, Carrie Ferguson Bever, J.W. Goldsmith, the Public Trustee of Montrose County, Colorado and W. W. Rowan. "The said action is brought to quiet the title in plaintiff to SE 1/4 SE 1/4, Sec. 11 and the S1/2 SW1/4, Sec 12, all in Tp. 48 N., R. 10W., NMPM, together with all water and water rights, ditches, and ditch rights thereunto belonging or in anyway appertaining, excepting 11.46 acres more or less as described in deed recorded page 419, book 138, Montrose County records...." (Montrose Press 1918). This lawsuit would have been filed to establish the ownership of real estate, which would declare by a court ruling that there is only one clear owner of the title. It appears that Mr. Langford won that suit, based on a newspaper publication from 1919 which stated that, "L.B. Little has filed a suit against Charles W. Langford. Attorney John L. Stivers is attorney for Mr. Little. It is a foreclosure case" (Montrose Daily Press 1919:1). A month later Langford is reported to have sold 11.46 acres in Section 12, Township 4S., Range 10W. to Mr. Little for $1.00 and "other valuable consideration" (Montrose Daily Press 1919:5). It appears that after the foreclosure, the Langford's moved to Delta.

Alexander Harsh's obituary was announced in 1922:

> Montrose Man Dead at Age of Ninety-two. At the venerable age of ninety-two years, Alexander Harsh was called by death Friday afternoon about five o'clock at this home in Spring Creek canyon. He has been living here with his son, L.V. Harsh. At the time of his death, a daughter, Mrs. Anna Severn, of Illinois, was with him, having been called here on account of his illness.
>
> Mr. Harsh had been sick for several months, following a fall in which he fractured his hip. He was born April 4, 1830, in Ohio, coming to Colorado about fourteen years ago. His wife died several years ago (Daily Journal 1922:4).

Charles M. Ryan (b. 1857 d. 1925) is buried in Cedar Cemetery, Montrose, Colorado. He was married to Clara A. (Land) Ryan (d. 1934). They had one son, Archibald Sedgwick Ryan (b. 1895 d. 1955) who served in World War I. Charles M. Ryan was active in local and state politics. He lost a bid for sheriff in 1899 (Montrose Enterprise 1899:8). He was named as a candidate for representative in September 1902 (Montrose Enterprise 1902:1) and won this seat in the Colorado State Legislature (Weekly Courier 1903:7). He ran and lost his candidacy for state senator in 1906 (Montrose Press 1906:1). In 1921, he was mentioned as being the stock brand inspector for southwestern Colorado and held that position until his death in 1925

(Montrose Daily Press 1921:2; Surface Creek Champion 1925:1). The Ryan family is also mentioned in within a discussion of Harry Vorhees Monell. Mr. Monell attended the first school built in Montrose and remembered Clara Land as the first schoolteacher. She later became Mrs. Charles Ryan (Harry Vorhees Monell:40).

Fred N. Burbank (b. 1889 d. 1971) is buried in Grand View Cemetery, Montrose, Colorado. His wife was Lena M. Burbank (b. 1895 d. 1972).

Harry Meade Devinny (b. 1865 d. 1945) married Lydia Jane Stear in 1892. US Federal census records indicate they were both born in Pennsylvania. In 1910, they were living in Montrose, Colorado. Harry was working as a blacksmith at that time. They had five children living at home, John J., Avis D., Vernon V., Hazel A., and Pearl L. At the time the 1920 census was taken, Harry was working as a carpenter in the bridge industry and they were living on S. Second St., in Montrose with three children, Hazel, Pearl L., and Lee R. By 1930, Harry was back to work as a blacksmith and was living with his wife in Oak Grove, which is located west of Montrose on Spring Creek Mesa. Only one child, Lee, remained at home. Both Harry and Lydia were living in Oak Grove in 1940. Harry is buried in Cedar Cemetery, Montrose, Colorado. His military marker indicates he was an artificer in the Spanish American War. Devinny Canyon, located in the vicinity of the project area, takes its name from this family.

4.3 Regional Radiocarbon Data

In 2011, Claudia F. Berry compiled and analyzed radiocarbon data for three areas in western Colorado in a Class I overview completed for the Bureau of Land Management's Grand Junction Field Office (Berry 2011:3.1-3.23). One of those areas was the southern Uncompahgre Plateau. She utilized Reed and Gebauer's (2004) reported radiocarbon dates from sites included in their Class I investigation for the Uncompahgre Plateau Archaeological Project (UPAP). That report included 47 sites with a total of 172 radiocarbon dates. Of these dates, six have been given a credibility level of "None" because of their extremely large standard errors, rejection by the excavator, or results on non-cultural phenomenon (Figure 4.2).

Claudia's findings were somewhat skewed through use of dates from Reed and Gebauer (2004), because many came from the excavations of the Weimer Ranch excavations of Formative Era sites. Notably, only 26 radiocarbon dates fall within the period prior to ca. 1200 BC, and as Figure 4.2 demonstrates, several relatively long periods of time exist for which there are no radiocarbon dates whatsoever. The longest discontinuity in the record occurs between about 8400 BC and 6000 BC, a period of over 2000 years. Similar, but shorter discontinuities occur in the record from 5500 BC to 4800 BC, and from 3950 BC to 3550 BC. Both the paucity of radiocarbon dates and their intermittency suggest very small populations throughout the early prehistory of the UPAP, particularly prior to 3500 BC. (She noted that the possibility exists, however, that the sampling error accounted for the very low number of dates.) Importantly, she emphasized the evidence of a Late Paleoindian occupation of the region derived from carbon dates recovered from the Broken Leg Site (5SM2443), which yielded a pooled average of 8240 – 8380 BC.

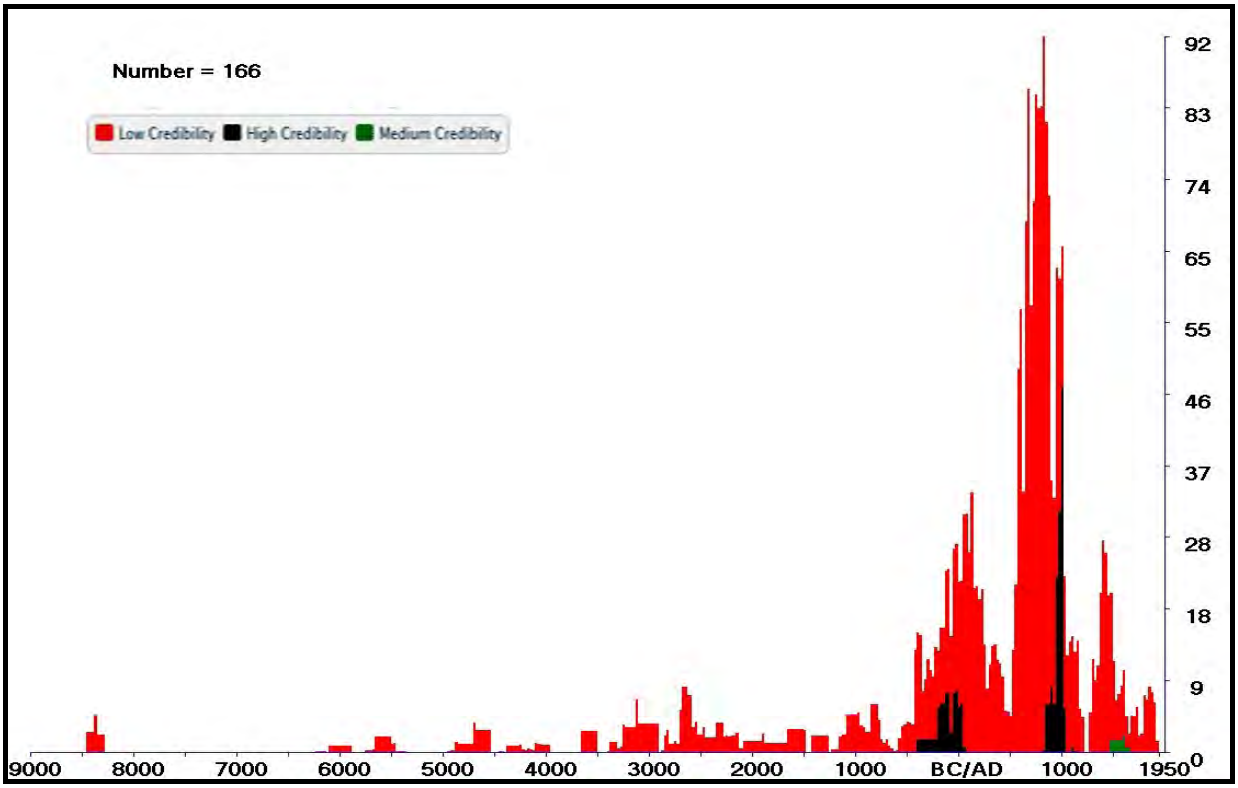


Figure 4.2. Bar Chart of Radiocarbon Dates from the Southern Uncompahgre Plateau as reported in Reed and Gebauer (2004).

In 2019, Michael Berry expanded on Claudia's earlier work in *The Uncompahgre Plateau Project: Projectile Point Typology and Chronometry* (State Historical Fund Project #2018-02-035), which brought together 247 dates from the whole of the Uncompahgre Plateau (available on the Colorado Radiocarbon Database, *www.dargnet.org/net/RCGraph*) and the processing of an additional 41 radiocarbon samples from the Buckles' collection (held by the Canyons of the Ancients Visitor Center). Berry's analyses of the radiocarbon data employed Bayesian theorem and frequentist methods combined with kernal density estimation modeling (KDE Model) for his chronometric interpretations (Berry 2019:48). The importance of his analyses is established in the narrowing the temporal distribution of calibrated radiocarbon dates for the Plateau and the identification of high points in the record of regional prehistoric occupation.

KDE models for the overall data set for the Uncompahgre Plateau and a graphic focused on the pre-1000 BC data are presented in Figures 4.3 and 4.4 (from Berry 2019, Figures 19 and 20, pp. 49 and 50). The blue lines reflect the KDE smoothing function, and the thickness of the blue line represents the one-sigma error level. The post-1000 BC era displays two probability peaks: 1 AD and 750 AD; and, the pre-1000 BC era exhibits five peaks: 10,750 BC, 9000 BC, 6000 BC, 4750 BC and 1500 BC (ibid.)

Figure 4.3. KDE Model of Uncompahgre Plateau Radiocarbon Dating (Berry 2019:Fig.19, p.49). [$\mathbf{A_{Model}}$ **=70.8** $\mathbf{A_{Overall}}$**=98.3 N=252**]

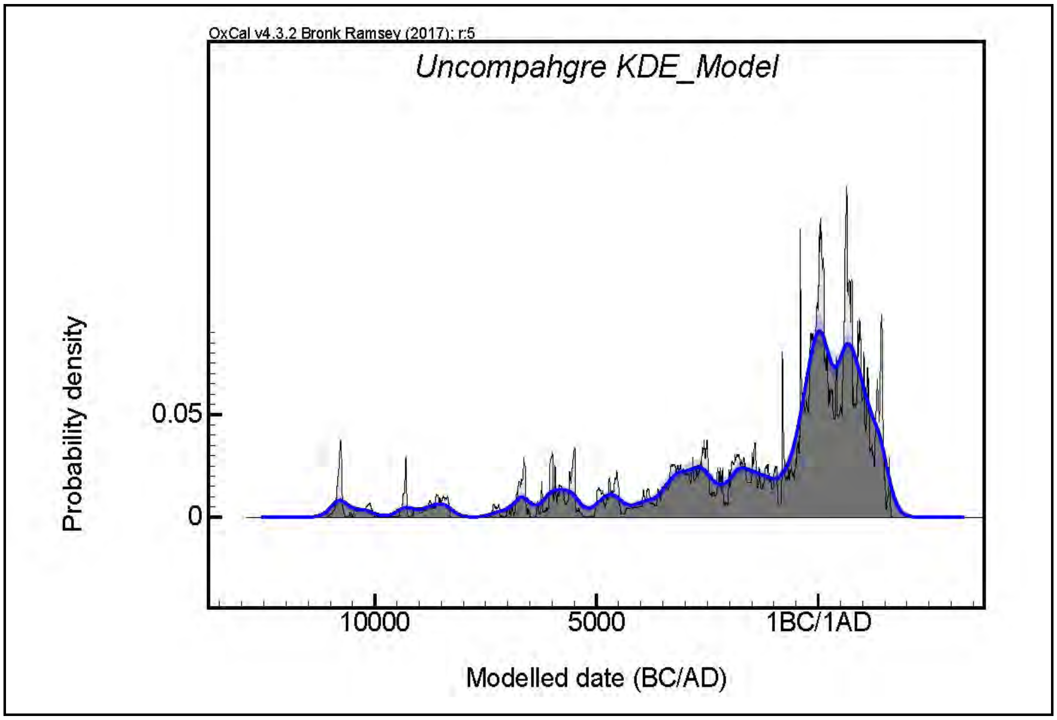
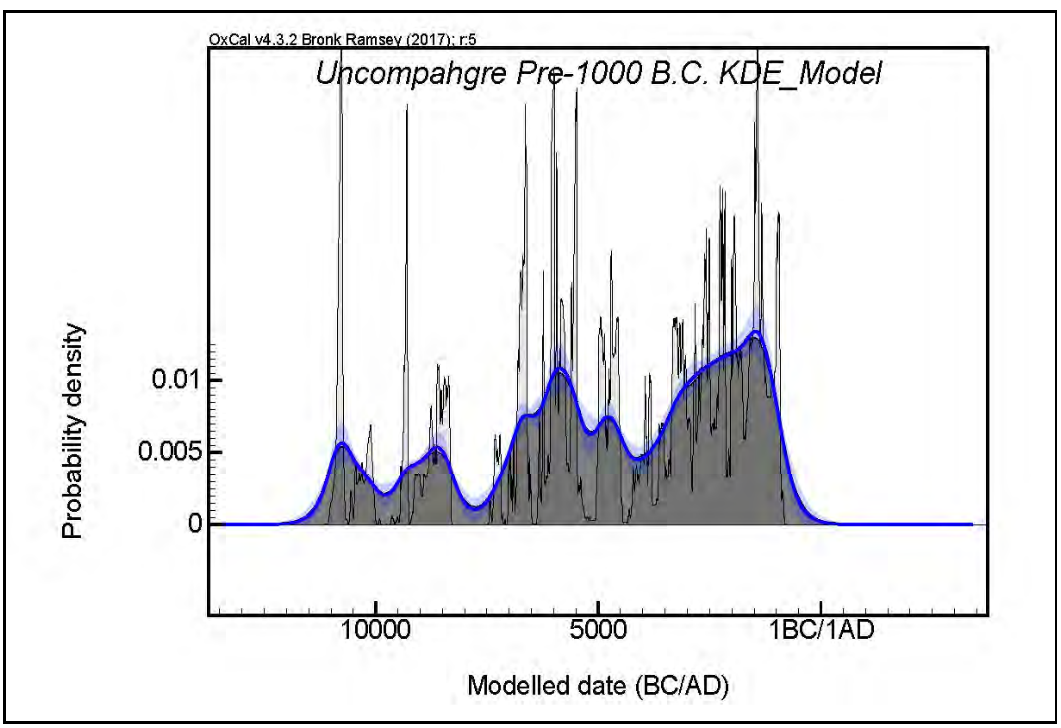


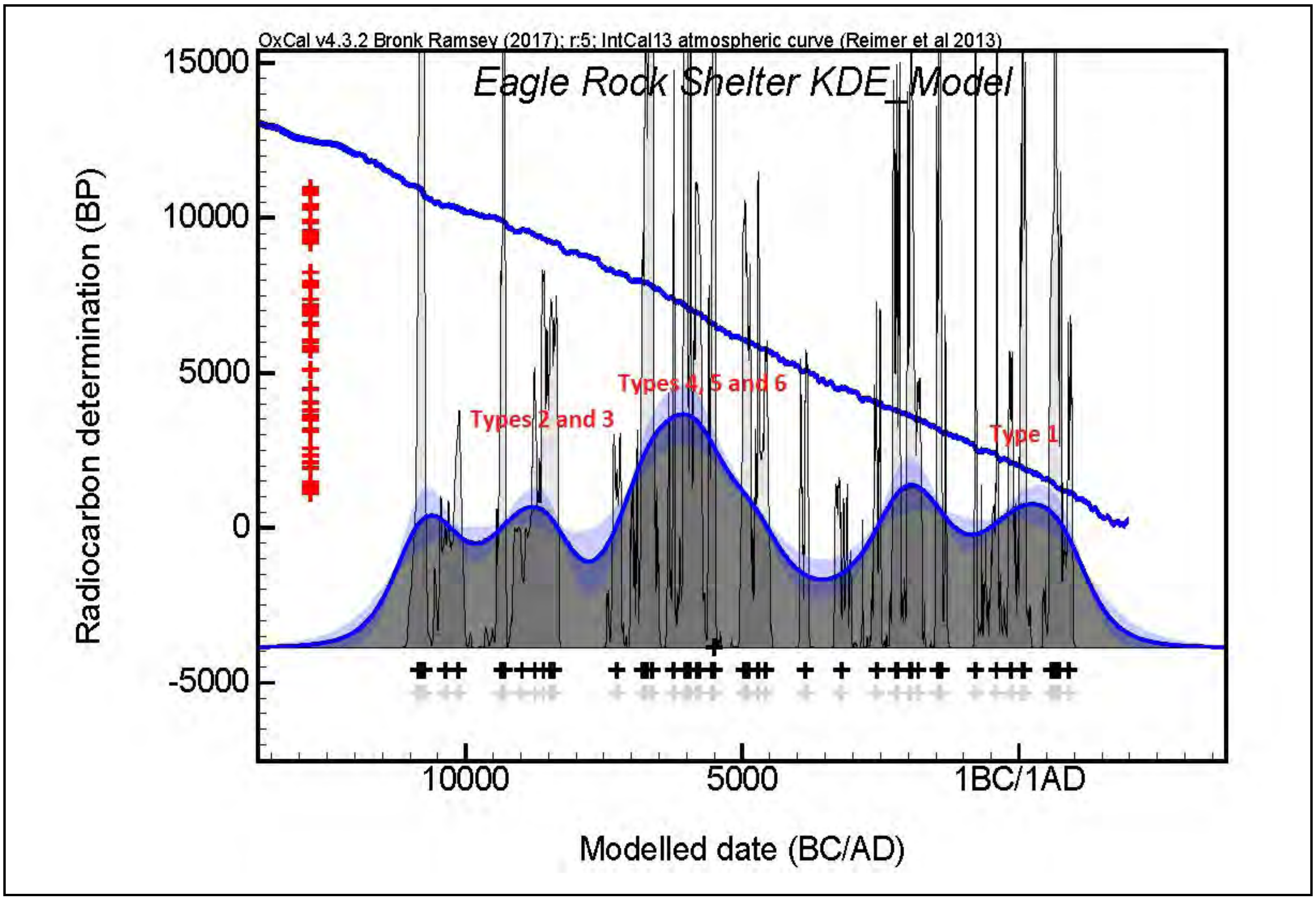
Figure 4.4. KDE Model of Pre-1000 B.C.(Berry 2019:Fig.20, p.50). [$\mathbf{A_{Model}}$ **=100.1** $\mathbf{A_{Overall}}$**=99.6 N=70**]



Berry (2019) also created a comparative KDE model for the radiocarbon data of the Uncompahgre Plateau derived from that of the Eagle Rock Shelter located east of the town of Delta (Gardner 2017). Excavations at that site were conducted as a multi-year project initiated in 2007. Results of those excavations revealed deeply stratified cultural materials within and in front of the shelter amounting to twenty separate levels dating from 11,000 BC to 750 AD. Berry's KDE model depicts five distinct probability peaks of occupation at 11,000 BC, 9000 BC, 6250 BC, 2000 BC and 250 AD for this rock shelter (Figure 4.5), which roughly correspond with those compiled for the Uncompahgre Plateau.

Figure 4.5. KDE Model of Eagle Rock Shelter Radiocarbon Dating (Berry 2019:Fig.23, p.55)

AModel =98.1 AOverall=98.8 N=52



4.4 Previous Large Projects in the Spring Creek Vicinity

Aside from the earlier reconnaissance work done by Husher in the mid-to-late 1930s (1939) and Wormington and Lister in the late 1940s and early 1950s (1956), the earliest known inventory of the eastern expanse of the Uncompahgre was made by William Buckles in the late 1960's (Buckles 1971). Figure 4.6 shows the general distribution of his sites (ibid.: Fig.1, p.5), and Figure 4.7 is a closeup of the southeast portion of that map showing sites within and near the northeast portion of the project area. Sites designated 5MN47, 5MN48, 5MN49, 5MN58, 5MN59, and 5MN60 were recorded as part of his Spring Creek investigations – most of which are found in the north portion of Spring Creek Canyon on private land (5MN48 is located across Shavano Valley). Because of their occurrence on private land, they were not relocated as part of this project; however, their descriptions were scrutinized for relevant information. Notable are 5MN47, 5MN48 and 5MN58.

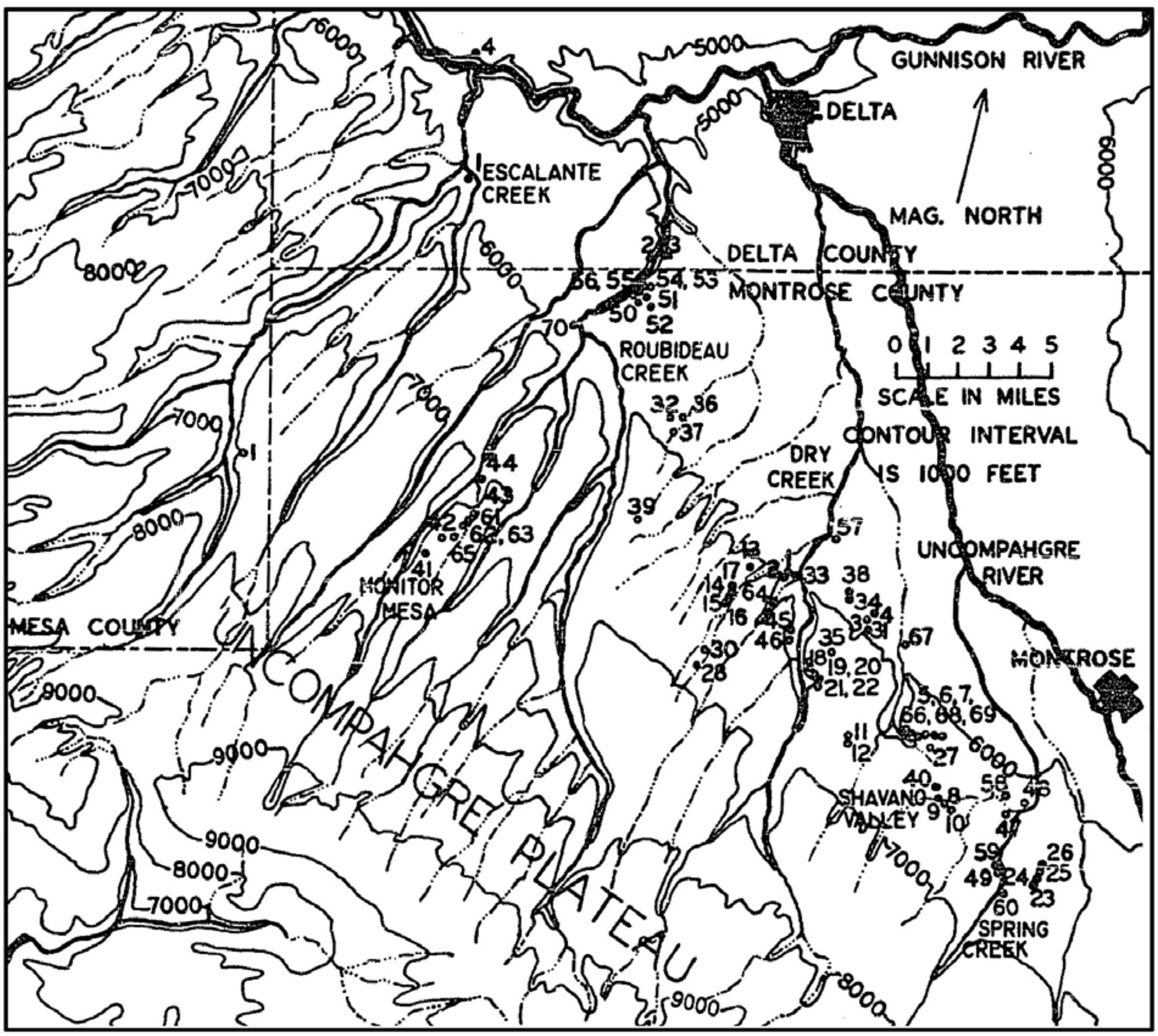


Figure 4.6. Map showing the general distribution of sites recorded by Buckles (1971:Fig.1,p.5).

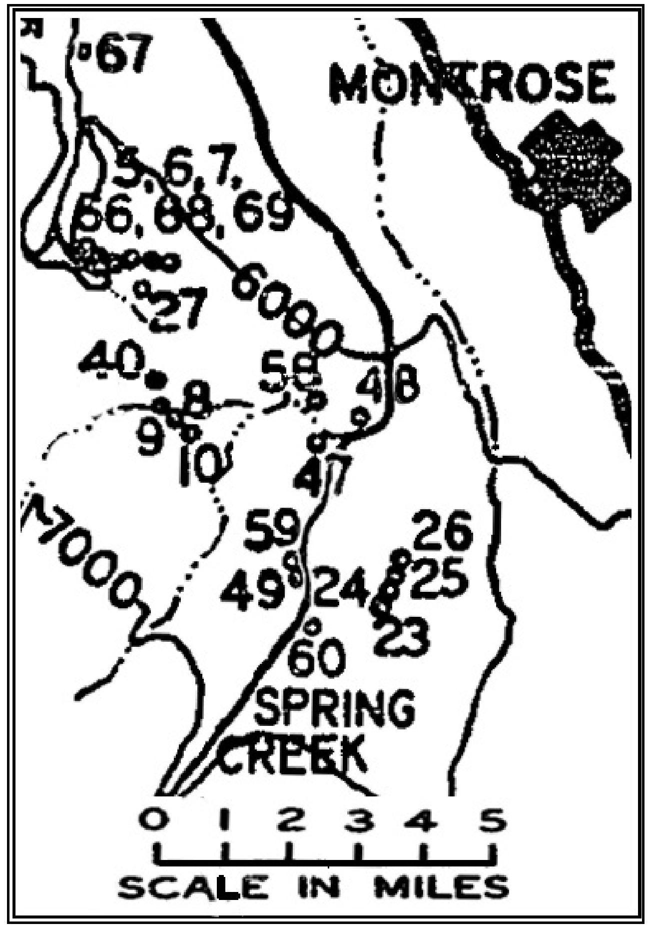


Figure 4.7. Closeup of map showing the distribution of sites on private land recorded by Buckles in the north-most portion of and near Spring Creek Canyon (from Buckles 1971:Fig.1,p.5).

The former two are located on pinyon/juniper wooded benches above the main drainages and contained Uncompahgre Brown Ware ceramics. In previous luminescent dating of these ceramics, post-AD 1350 marks its appearance in the region. Though once thought to occur during the Formative Period, luminescence dating of sherds from sites on Colorado's west slope indicate the appearance of Uncompahgre Brown Ware generally postdates AD 1350 and does not exceed AD 1650 [5ME4970, AD 1508 - 1644; 5ME16097, AD 1400 - 1520; 5GF620, AD 1450 - 1528; 5RB144, AD 1510 - 1590; and 5RB2929, AD 1470 - 1530]. Noteworthy is the fact that the luminescent date for Uncompahgre Brown Ware recovered from 5ME16097 is supported by a radiometric date of 370±40 BP (Cal BP 470 and Cal AD 1480) derived from a hearth feature at the site. Additional luminescence dates that generally support the earliest presence of this ceramic type can be found in Reed et al. (2001: Chapter 41, p.9), and they indicate AD 1300 should not be ruled out. In the archaeological record for the period after AD 1300, Desert Side-notched and Cottonwood Triangular projectile points are predominant – both of which were recovered from 5ME16097 (Conner et al. 2014:5.5.17). In related context, 5MN4657 is a Ute site located on a pinyon/juniper forested ridge south of Shavano Valley near the mouth of Spring Creek Canyon. It contains glass beads (which would place it temporally in the post-1840 Historic Ute period) and grayware ceramics (Baker 1996).

The latter of the three is the Caddy Site (5MN58), a midden consisting of dark-grey ash with charcoal and a scatter of artifacts in an area roughly 20m in diameter. It was recorded on the south side of a cliff in the Canyon bottom on private land. Being so, it was disturbed by an irrigation ditch, a road, and an ensilage pit. Fortunately, excavation of the remaining site provided diagnostics that ranged from the Early Archaic Pinto points to Middle and Late Archaic corner-notched types (Buckles 1971:1032-1037). A small side-notched point was also recovered that brings forward the potential occupation of the site into the Late Formative period. At the Eagle Rock Shelter (Hadden and Gardner 2016), a deeply stratified rockshelter located east of the town of Delta, an AMS date on the leather binding of a Pinto point yielded a date of Cal 6680 to 6500 BC (7790±40 BP, Beta-354236). According to Holmer (1986:97-99), the range for Pinto Shouldered type points in the Great Basin is 6300-4200 BC, which implies an earlier emergence for the point type on the Colorado Plateau. Additional excavations at 5MN58 could provide support for this theory.

Rock shelter sites were the focus of the Wormington and Lister (1956) reconnaissance of the Uncompahgre. In contrast, Buckles examined and recorded many open camps as well as rock shelters because of his emphasis on Historic Ute archaeology. Four shelters were recorded southeast of the Spring Creek study area on private land and apparently on the northwest side of Tappan Creek canyon: 5MN23, 5MN24, 5MN25 and 5MN26.

Site 5MN23 – like many other shelters on the Uncompahgre – had been dug into by amateurs, who recovered two burials. Buckles described them as "primary burials," one of which had been covered by several milling stones placed in inverted positions. It was not clear if the individuals had been buried together or at separate times (Buckles 1971:1040). Bone and stone artifacts were recovered from the cultural fill of the shelter but were not described.

Testing of the other three shelters yielded few artifacts from their interiors. 5MN24 appeared to contain only shallow deposits over shale bedrock and was not tested, but a few butchering tools were collected from the slope in front. Site 5MN25 was tested by the excavation of an approximate 4-foot long trench situated perpendicular to the shelter's back (ibid.:1042). It revealed a shallow basin hearth associated with a general ash and charcoal layer [essentially the floor of a single component site]. A carbon sample retrieved from that site was processed during *The Uncompahgre Project* and dated 1250±20 BP [AD 694-772, 1 sigma] (Berry 2019:46). Similarly, site 5MN26 was tested by Buckles using a trench perpendicular to the shelter's back. A rock-lined "fire-pit" approximately 8-inches deep was found with a corresponding ash and charcoal deposit (representing a probable extensive horizontal level in the shelter) at its top (op. cit.:1043). Two carbon samples retrieved from that site were processed during *The Uncompahgre Project* and dated 1140±20 BP and 1110±20 BP, [avg. 1125 BP, AD 890-980] (Berry 2019:46). Unfortunately, no ceramics were recovered from either of the two dated sites, although their dates roughly bracket the Pueblo I period. The lack of artifacts on the floors within the shelters suggest they may have been walled with poles and utilized as house structures similar to the McClane Rockshelter, 5GF741 (Berry et al. 2013).

Another of Buckles' sites that bears review as it relates to prehistoric occupations in the valley bottoms is the Shavano Spring Site, 5MN40. It is located in Shavano Valley about 2.5 miles north west of the mouth of Spring Creek Canyon (Buckles 1971:958-1003). Excavations there occurred in two units – Unit 1 near a spring and Unit 2 at a slightly higher elevation and on the border of the pinyon/juniper forest. The surface collection of Unit 2 included two Desert Side-notched points and one Cottonwood Triangular type, and "two glass pony beads, probably of Ute Indian use. The points ... are considered to be very recent in ages, occurring in Late Prehistoric or Historic contexts. Similar points have been defined as [ones] used by Numic speakers elsewhere"(ibid.:967). The pony beads are a larger type of bead traded into the region, and according to Steve Baker's multi-phase model of Ute culture history for the Eastern Ute bands of western Colorado, represent trade from the pre-1820s (Baker et al. 2007:38-41).

Level 4 of Excavation Unit 1 was radiocarbon dated from charcoal recovered from Feature 2, a fire pit. The date was 2100 ± 220 BP [cal BC 420 - 94 AD, at 1 sigma] or 150 BC ± 220 years. In Level 4, an apparent architectural feature was identified by the presence of two possible post holes, but the investigation into such was discontinued. A cache pit was also identified in this level that intruded into Level 5 that was 19 inches in diameter and 15 inches deep, and contained a broken basin metate. This level possibly relates to the early Basket Maker II occupation of the region.

Level 5 of Excavation Unit 1 "appears different enough to suggest an intrusive cultural tradition" (op. cit.:989). It was identified by a reddish tan stratum and contained a distinctive assemblage of tools as well as three fire pits. According to Buckles, the stratum was easily identifiable, undisturbed, and provided a fairly discrete correlation of artifacts and features. He tentatively defined the tool assemblage as a Shavano Spring variant of the Roubideau Phase based upon projectile points and other similarities to Roubideau Phase Assemblages of Levels 5 through 9a at the Christmas Rock Shelter. Charcoal from Feature 5 in the level was dated 2695 ± 180 BP [cal BC 1112 - 744, at 2 sigma (82%)] or 745 ± 180 BC, indicating a possible time gap between this assemblage and the overlying stratum (ibid.:992). The date from Level 5 is comparative to the date derived from two pithouse structures located along the Colorado River between De Beque and Parachute. The pithouse at site 5GF126 dated 2770±60 BP and another at 5ME16786 dated of 2620±40 BP. Those dates could indicate multiple regional occupations of the same group; however, they are statistically the same at a 95% level and have a mean pooled radiocarbon age of 2666.154 BP (CALIB 7.0.4 analyses). When the date from the Shavano Spring Site is added, the three remain statistically the same at a 95% level and have a mean pooled radiocarbon age of 2667.107 BP. Equally interesting is the comparison of points from 5MN40 Unit 1 Level 5 and 5GF126 as illustrated in Plate 4.1 and Figure 4.8.

Plate 4.1. Projectile points from 5GF126, pithouse.

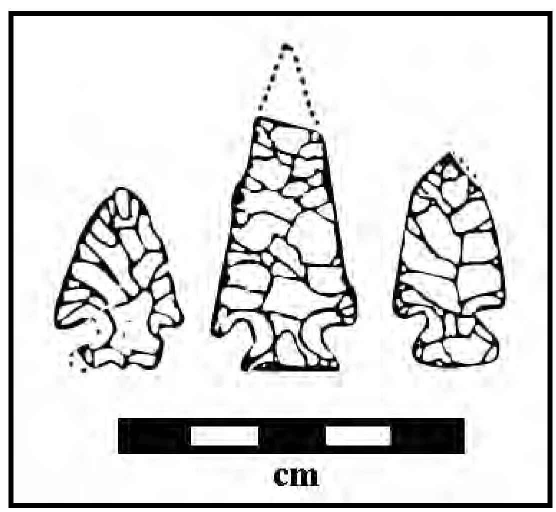


Figure 4.8. Illustration of projectile points from 5MN40, Unit 1 Level 5 (Buckles 1971:979, Fig.134.

Over the past 25 years Grand River Institute (sister organization to DARG) has participated in many cultural resources inventories for the BLM-UFO and Forest Service on the top and along the slopes of the Uncompahgre Plateau. Four of these were selected from surveys completed along the east side of the Uncompahgre Plateau in the vicinity of Spring Creek Canyon and one from north of the town of Nucla. They were selected to highlight the types and distributions of sites within the pinyon/juniper belt of the benchlands (elevations between 5000 and 8000 feet) on either side of the Uncompahgre Plateau. They contain important background information concerning numbers and types of cultural resources per acre, and also a sampling of the types of temporally diagnostic artifacts found around the Plateau. Table 4.5 provides some of the essential details of those surveys.

Table 4.5. Several of the inventories conducted by Grand River Institute in the vicinity of Spring Creek Canyon (southeast portion of the Plateau) and north of the town of Nucla (southwest portion of the Plateau).

OAHP No.	Title/Authors/Date	Acres/Finds/Location
MN.LM.R276	Title: Class III cultural resource inventory for the Montrose County Shavano Gateway Recreation Area in Montrose County, CO Authors: C. Conner, B. Davenport, N. Inman, N. Higginson, and C. Groff Date: 9/12/2018	East side of UP 1010 acres (BLM)/ 43 Sites, 16 IFs/ 1 site per 23 acres
MC.LM.R778	Title: Class III (intensive) cultural resource inventory of the Dry Mesa Vegetation Management Project in Mesa and Montrose County, Colorado, for the B LM-UFO Authors: C. Conner, B. Davenport Date: 10/12/2017	East side of UP 169 acres (BLM)/ 12 sites, 23 IFs/ 1 site per 14 acres
MC.LM.R368	Title: The Uncompahgre Plateau Project Spring Creek/Dry Creek Watershed DOW Class III Cultural Resources Inventory in Montrose and Ouray Counties, CO (GRI No. 2331) Authors: C. Martin, C. Conner, N. [Inman] and B. Davenport Date: 10/10/2003	East side of UP 1005 acres (BLM)/ 21 sites, 129 IFs/ 1 site per 48 acres
MN.LM.R122	Title: Class III Cultural Resources Inventory of the Proposed Campbell Creek Vegetation Treatment Area [West Campbell Creek Phase II Treatment Project] in Montrose Co., CO Authors: C. Conner, B. Davenport, N. [Inman] Date: 8/8/2002	West side of UP 1164 acres (BLM)/ 41 sites, 129 IFs/ 1 site per 28 acres

OAHP No.	Title/Authors/Date	Acres/Finds/Location
MN.LM.R59	Title: Camelback Area Class III Cultural Resources Inventory in Montrose County, Colorado, for the BLM-UFO Authors: C. Conner, B. O'Neil, B. Davenport Date: 12/30/1995	East side of UP 1280 acres (BLM)/ 65 sites, 35 IFs/ 1 site per 20 acres

Combining the numbers of resources and acres inventoried of those listed in Table 4.3, the average site per acre ratio is 1 site per 25 acres; the isolated find ratio is 1 IF per 14 acres. In examining the types of sites documented, the record becomes muddled for the open lithic and open camp types because they have been variously interpreted by the recording archaeologist(s). As well, through time and experience, the same archaeologist may find new characteristics that separate the two categories, so it is best to combine data of those two types. Sheltered camps, open architectural sites and rock art are categories that seem somewhat easier to quantify because of existing attributes. However, like any conclusions drawn about an archaeological site, archaeologists are limited by what remains to determine its "type" and function.

The numbers and types of projectile points from each of the those five projects were examined to determine temporal as well as potential geographic distributions. One hundred seventy-seven projectile points were collected during the five inventories (curated at the Canyons of the Ancients Museum, Dolores). Their numbers per survey and assigned temporal distributions are illustrated in Figure 4.9. The percentages of the various point types that were collected are shown in Figure 4.10.

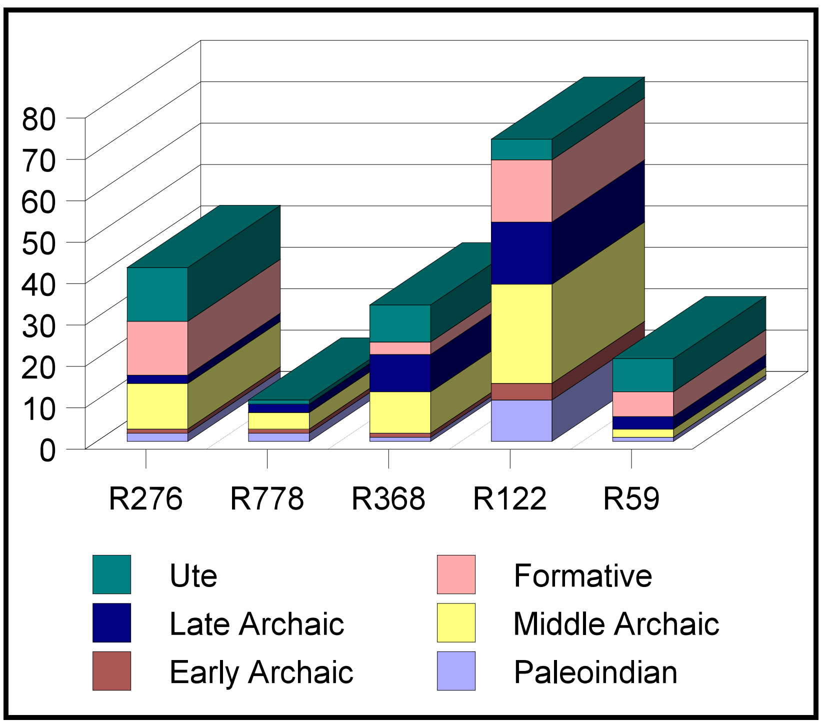
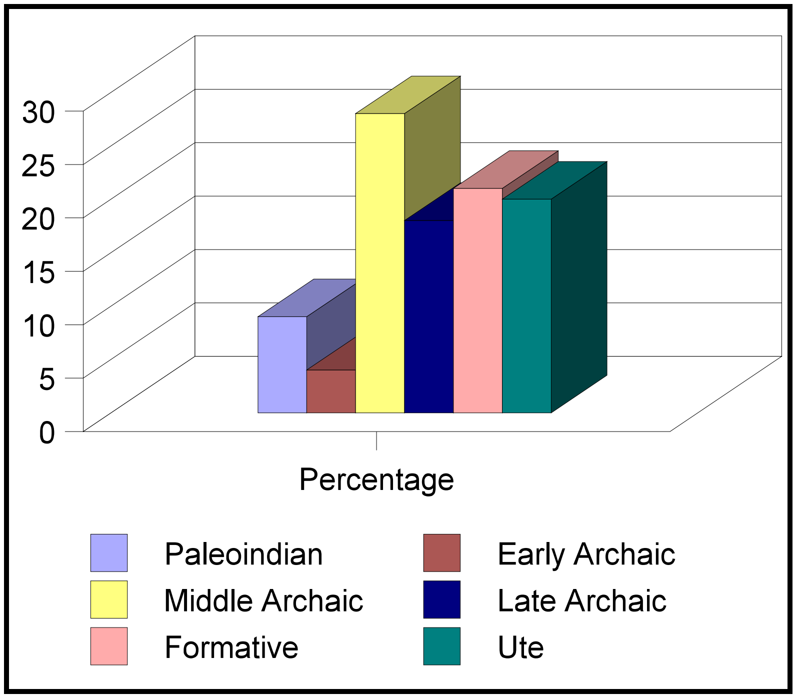


Figure 4.9. Bar graph illustrating the relative numbers of temporally assigned types of projectile points recovered during the inventories listed in Table 4.5.

Figure 4.10. Bar graph illustrating the overall percentages of types of projectile points recovered during the inventories listed in Table 4.5.



The assigned temporal associations for these points, which were surface collected, seem relatively evenly distributed for the past 3200 years (encompassing the Late Archaic, Formative, and Ute periods). A marked increased is apparent for the Middle Archaic types (ca. 3600-1200 BC), then a significant drop in the numbers for the Early Archaic types (ca. 5400-3600 BC) [see Figure 5.1 for temporal chart]. The Paleoarchaic period is not represented. Paleoindian points exhibit a relatively high number, but it is notable that the types present have been variously categorized as Foothill-Mountain, Late Paleoindian (James Allan, Lusk, Frederick), and Pryor Stemmed, which taken together represent a period of about 3000 years (ca 9600-6500 BC). The most frequently classified Paleoindian types, however, are James Allan and Pryor Stemmed. These points have temporal associations of 9,350–7,900 BP [ca. 8500-7730 BC] – excluding the Fourth of July site (Pitblado 2003:112) – for the former, and 8,450–7,800 BP [ca. 7530-6620 BC] (ibid.:120) for the latter. Except for the category of Foothill-Mountain that has a relatively long temporal association, Early and Middle Paleoindian points were not recorded during the five inventories.

5.0 CONTEXT FOR PREHISTORY AND HISTORY
Prehistoric and Historic Native American Culture History, and Non-Native Settlement History

5.1 PREHISTORIC AND HISTORIC NATIVE AMERICAN CULTURE HISTORY

In general, overviews of the prehistory and history of the region are provided in documents published by the Colorado Council of Professional Archaeologists entitled: *Colorado Prehistory: A Context for the Northern Colorado River Basin* (Reed and Metcalf 1999). Local and regional archaeological studies suggest nearly continuous human occupation of northwest Colorado for the past 12,000 years. Manifestations of the Paleoindian Era, big-game hunting peoples (ca. 11,500 - 6400 BC); the Archaic Era hunter/gatherer groups (ca. 6500 - 400 BC); the Formative Era horticulturalist/ forager cultures (ca. 400 BC- AD 1300); the Protohistoric Era [Late Prehistoric] pre-horse hunter/gatherers (Early Numic [Ute, Shoshone, Comanche], ca. AD 1300 - AD 1650) and historic horse-riding nomads (Late Numic, ca. AD 1650 - AD 1881) have been documented.

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 5.1. 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** (calibrated) and **BP** (Before Present) contexts, which is important in the understanding of tables and information presented in BP dates.]

Diagnostic projectile points for the various representative temporal periods are illustrated in this section and parsed out as they pertain to the individual periods. Primary references used for the classifications of those points have included Buckles 1971, Frison 1991, Holmer 1986, Holmer and Weder 1980, Irwin-Williams 1973, Loosle 1988, Metcalf and Black 1988, Moore 1981, Reed and Horn 1992, Tipps 1988, and Wormington and Lister 1956. The figures provide basic illustrations of the projectile point types found regionally, which can be used as a guide for identification with the understanding there is variability in all the types.

5.1.1 PALEOINDIAN ERA

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

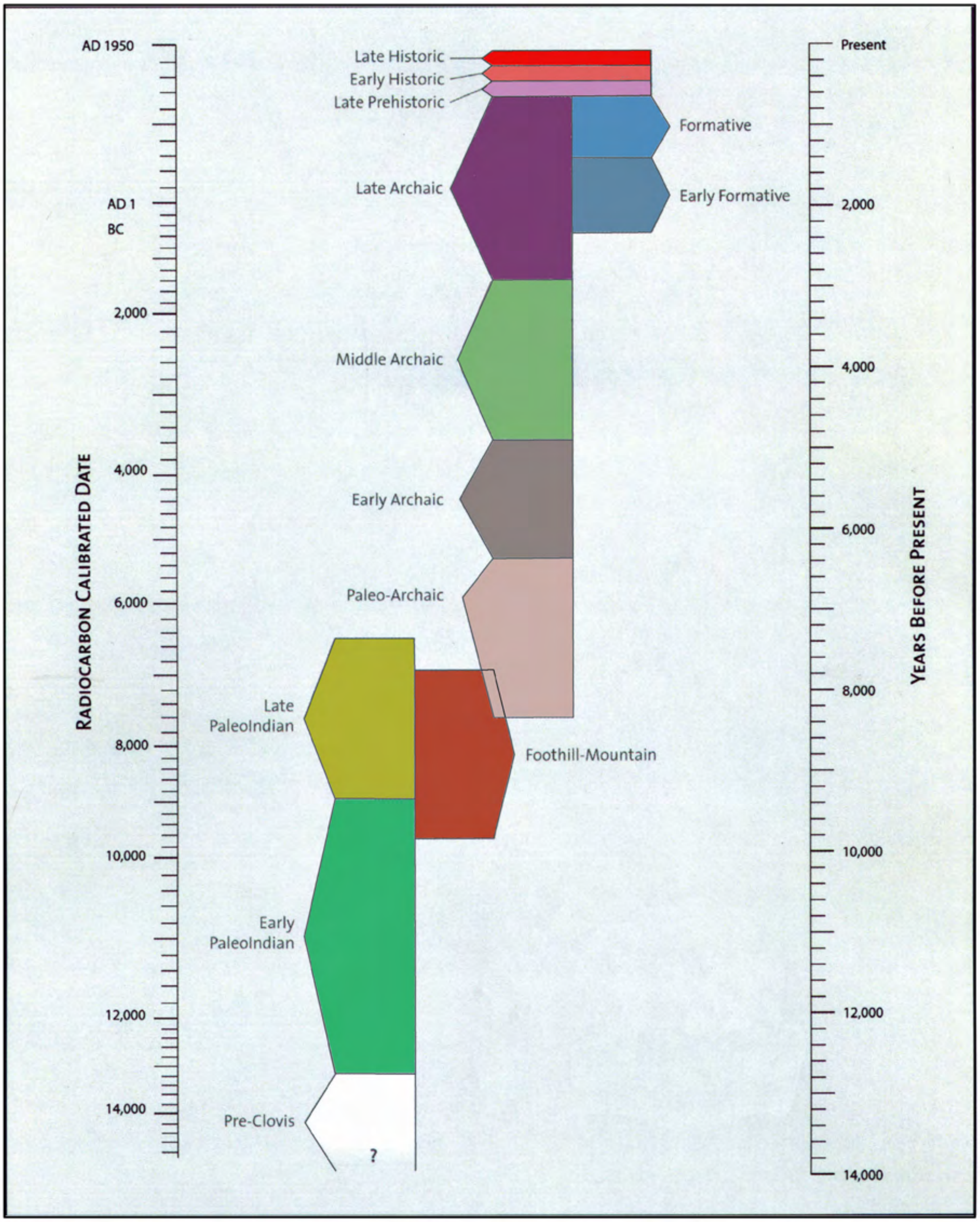


Figure 5.1. Temporal chart emphasizing the overlap of the subsistence strategies employed by diverse cultural groups over the past 16,500 years.

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). Such finds suggest a pre-Clovis colonization of the Americas.

The better documented later colonists to the Americas are termed Paleoindians. They were highly mobile groups of hunter-gatherers that traversed broad territorial ranges. Evidence of their mobility is found in their provisioning of high quality lithic materials from distant quarries, production of portable tool-kits emphasizing wood and lithic processing while having low numbers of grinding tools, construction of short-term residences (occupied for a few weeks to a few months) with little evidence of food storage, and an economic focus on the hunting of Pleistocene megafauna.

The Paleoindian period spanned 6,000 years from 13,500 - 6500 BC. They were hunters and gatherers who exploited seasonally available plant resources and hunted the last remnants of the herds of Pleistocene megafauna such as mammoth and Bison antiquus. Surface evidence in the form of diagnostic projectile points indicates five technological adaptations are present: Clovis Complex (ca. 11,200-10,900 BC), Folsom Complex (ca. 10,900 -10,000 BC), and Cody Complex or Plano Tradition (ca. 9000 - 6300 BC). Overlapping the Folsom and Cody periods is the Foothill-Mountain Complex, dating ca. 9500-7000 BC (Frison 1991:67-71, 75, 80). Currently, data from the early Paleoindian period is limited in west-central and northwest Colorado, and excavation data is nearly non-existent. However, in recent years excavations in the Gunnison Basin and Middle Park areas have documented Middle Paleoindian occupations. Based upon surface finds representing the late Paleoindian period, three co-traditions appear to be operating in the region: the Plano Tradition of the Great Plains; the Foothill-Mountain Complex of Southern Rocky Mountains; and, a Paleoarchaic Tradition with links to the Great Basin Stemmed Point Complex. It is not until ca. 7000 BC that stronger indications appear for this period with a few radiocarbon dates. Projectile point types attributed to the Paleoindian traditions are illustrated in Figure 5.2.

Early Period: Clovis Tradition

With the close of the Wisconsin Ice Age and the retreat of the mountain glaciers in the Southern Rocky Mountains, generally warm, moist conditions prevailed. 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). It follows that where

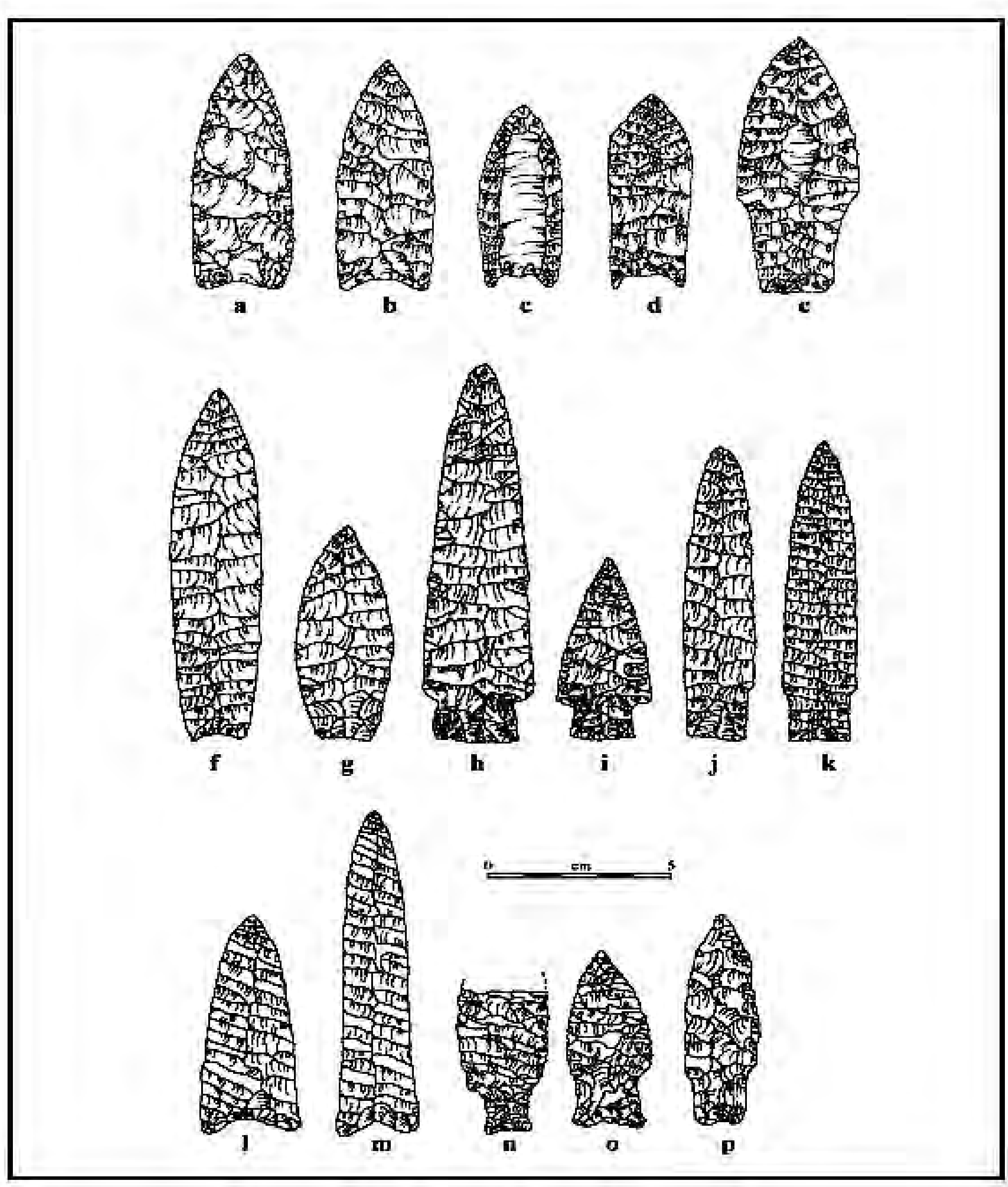


Figure 5.2 Illustrations of typical Paleoindian projectile points from the **Early period**: a) Clovis, b) Goshen, c) Folsom, d) Midland, e) Hell Gap; **Middle period**: f and g) Agate Basin, h and i) Scottsbluff, j and k) Eden; **Late period**: l and m) James Allen/Frederick, n and o) Foothill Mountain, and p) Pryor Stemmed.

there was increased moisture and grass forage, game animals would increase and prehistoric hunters would follow. This movement of animals probably brought the first Paleoindian groups into the region.

The occupation of the region by the Clovis Tradition hunters appears to have been rather ephemeral. The rugged, dissected, canyon environment of the area probably never supported large, extensive herds of megafauna such as could be found on the Great Plains. However, work by Agenbroad (1991), and Agenbroad and Mead (1987) indicate population distributions of Pleistocene megafauna did exist, particularly around the confluences of the Colorado and Green Rivers in southeast Utah. Whether such a population distribution may have existed here in the valleys of the Uncompahgre, Gunnison and Colorado Rivers and their tributaries is unknown. Species identified in southeastern Utah include mammoth, mylodont sloth, Shasta ground sloth, horse, camel, bison, and such present day fauna as big horn sheep, deer and bear (Agenbroad 1991). As a result, the Clovis Tradition occupation of the area was probably by small groups exploiting a rather limited population of large mammals in lush environments within the larger local canyons. However, to date there is no evidence of large kill sites of megafauna in northwest Colorado, though such sites may be deeply buried in the alluviums of the canyons and valleys.

All of the evidence to date consists of isolated finds of Clovis projectile points in the Northern Uncompahgre Plateau, which would also have provided a good grazing habitat due to its rather deep alluvial soils and relatively flat open canyon bottoms. An analysis of site elevations in Utah by Copeland and Fike (1988) indicates an average elevation for Clovis sites of about 5,740 feet. However, the two isolated Clovis occurrences known from the Uncompahgre Plateau (5ME4494 and 5ME6907) have elevations of 6,150 feet and 7,630 feet, well above the Utah average. Thus, both a canyonland and an upland elevation exploitation pattern may be evident (c.f. Davis 1989; Copeland and Fike 1988; Schroedl 1991; Stanford and Day 1991, and Frison 1991).

Middle Period: Folsom Tradition

Except for the artifacts and structures recorded at the Mountaineer Site (~ 9,050 feet elevation) near Gunnison, evidence of the Folsom Tradition in the region is inconsequential. Data are lacking for this tradition and except for an isolated Bison antiquus skull reportedly found near the confluence of the Colorado and Gunnison Rivers, there are no recorded megafauna kill sites (personal communication, Harley Armstrong 1992). Folsom projectile points are rare; there are a few finds reported from private collections (with uncertain provenance), and regionally there are no well documented sites. The extent to which megafauna may have contributed to the overall subsistence pattern of local groups is still an open question. As with the Clovis Tradition, cultural materials from the Folsom Tradition are also probably deeply buried.

Three Midland points (5ME281, 5ME1313, and 5ME5327) are also reported in the west-central Colorado region. These projectile points very much resemble unfluted Folsom points and may possibly represent groups which lost, or never acquired, the fluting technology, or they may represent an intermediate step in the manufacturing sequence. They generally overlap, but make their initial appearance later than the Folsom points, and range in age from approximately 10,000 BC to 9000 BC. The three resource elevations range from 5,600 feet to 8,700 feet.

It appears that the gradually drying climatic conditions may possibly have forced the megafauna and the people to concentrate around and near the more permanent water sources in the lowlands, followed by a dispersed migration to refugia at the higher elevations. As Husted (1969) observes, and Frison (1991) and Pitblado (1993, 2003) support, the Clovis and Folsom Tradition peoples occupying the mountains may have followed a more generalist approach to hunting and gathering rather than specifically focusing on the hunting of megafauna.

Notably, the fluted point tradition was coincident with the Western Stemmed Point Complex in the Great Basin and northwest Colorado Plateau, and paralleled its occurrence in the greater Southwest and High Plains regions. The Clovis and Folsom Traditions are followed by a variety of stemmed and/or shouldered Plano Tradition projectile points which may have been contemporaneous with Archaic Stage occupations in the Great Basin.

Late Period: Plano Tradition

About 9200 BC, wetter environmental conditions again prevailed and timberline was lower in the La Plata Mountains located south of the Uncompahgre. Dunal areas began to stabilize and the sagebrush 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. As a result, the drying climatic conditions in the more northerly lowlands caused forage production to drop and affected the distribution of the faunal populations in the eastern Great Basin and Wyoming Basin. However, such conditions would have increased the occurrence of cool season tubers. By about 6900 BC, pinyon trees were well established in northwestern New Mexico (Eckerle 1992). These changing forage conditions may have helped spur a shift toward an increase in gathering in the lower elevations, along with a movement of animals and people to the relatively moister and higher elevations of the foothills and mountains.

The Plano Tradition, which includes the Foothill-Mountain Complex of the Middle and Southern Rocky Mountains and the Cody Complex of the Plains and Mountains, is generally coeval with the early Western Stemmed Pluvial Lakes Complexes of the Western Great Basin. In the region, projectile points representing the Plains complexes of Agate Basin, Hell Gap, Scottsbluff/Eden, James Allen, and Cody have been recovered from surface contexts of about 30 sites in west-central Colorado. The Plano sites' elevations in the region again mirror the general upland approach identified with the fluted points.

Foothill-Mountain Tradition

In recent years, the majority of artifacts recovered from sites and as isolated finds dating to the Paleoindian Period in west central Colorado have been ones comparable to the Foothill-Mountain complex, dating ca. 9500-7000 BC (Frison 1991:67-71, 75, 80). The defining characteristics of the Foothill-Mountain complex derive largely from deep, stratified rockshelters – evincing long periods of human habitation – in Wyoming and Montana. The Foothill-Mountain construct is less well known in Colorado and many unanswered research questions remain. Nonetheless, sufficient data exist supporting the concept of a dichotomy in subsistence strategies between plains and foothill-mountain ecosystems.

Frison differentiates the Foothill Mountain from the Late Paleoindian mainly by evidence of differences in their subsistence strategies based on differences in their contact environment and resource base: "The Foothill-Mountain construct is an ecological model used to explain a complex of technology representative of a mode of subsistence specific to the highlands of the central Rocky Mountains" (Frison 1992:323). This strategy is one comparable to the later Archaic groups that would seasonally and annually shift both their subsistence foci and locations (ibid.:336-339). Open camps were established in moderately high parks and montane zones during warmer months; protective settings such as caves and rock shelters were sought in the foothills and transitional zone during colder months. Short term occupations at high altitudes represent specialized logistical endeavors.

Foothill-Mountain groups relied heavily on small to medium-sized animals. For example, Foothill-Mountain components in Mummy Cave (Wedel et al. 1968, McCracken 1971, and, Husted and Edgar 2002) contained faunal assemblages dominated by the remains of mountain sheep, thus attesting to the existence of cultural groups with different subsistence strategies than those living on the open plains and interior intermontane basins (Frison 1991:69). Bighorn sheep, pronghorn, deer, rabbits, rodents and reptiles constitute some of the most common faunal resources at Foothill-Mountain sites. Foothill-Mountain groups "...also relied heavily on plant resources, including seeds, berries, roots, leaves, and bulbs" (Reed et al. 2008). Ground stone provides additional evidence that floral resources were consumed.

Large communal endeavors such as communal kills are atypical of Foothill-Mountain groups and, therefore, large numbers of diagnostic projectile points are also absent. Known Foothill-Mountain projectile points display considerable regional variation (Frison 1992:329, Gilmore et al. 1999:80, and, Reed and Metcalf 1999:66). Stylistic/functional attributes include lanceolate forms exhibiting parallel-oblique flaking, slightly concave and ground bases as well as thick cross-sections and rough craftsmanship (Reed et al. 2008:41). Pryor Stemmed and Lovell Constricted are well known points of Foothill-Mountain groups.

Also similar to what is found for the Archaic period, Foothill-Mountain sites are characterized by few lithic raw material types; the majority of which derive from local sources (Reed et al. 2008). The highly localized lithic raw material assemblages suggest an insular quality of Foothill/Mountain groups.

Paleoindian Architecture

Regionally, Paleoindian architecture is known from excavated sites in Wyoming and Colorado. At three sites in Wyoming, structures were evidenced by postholes indicating circular arrangements of poles and hard-packed living surfaces indicating circular lodge structures. Two of the oldest habitations were found in the Hell Gap valley. Dating 9750-9325 BC, they were apparent wickiup-like log structures with diameters of 2-4m (Irwin-Williams 1973). At the same site, but dating slightly later in age (ca. 9550-9000 BC) were three more with similar arcs and circles of post holes in a component with Agate Basin complex affiliation. Evidence of a sixth structure was found at Hell Gap having a Frederick complex affiliation and dating to ca. 7650 BC. With characteristics of the Late Prehistoric period, it consisted of a stone circle roughly 2m in diameter considered to have functioned as weights for holding down the edges of a hide tipi.

Similar to floors of these structures, a Folsom complex camp at the Hanson site in northern Wyoming, which dated 9750-9100 BC, yielded three hard-packed living surfaces "believed to represent some sort of circular lodge structures" (Frison and Bradley 1980:9). Frison (1978:115-146) notes that indications from the associated artifacts and the nature of the "lodge" floors were that these were probably utilized for no more than a few days at a time. Alike evidence of structural remains was found at the Agate Basin site in southwest Wyoming. In the Folsom component there, two bison ribs were uncovered in a position suggesting they held down the edge of a lodge covering (Frison and Stanford 1982:39-41). All these examples are evidence of temporary structures – not unexpected in a nomadic hunting-gathering culture. It is possible that more substantial habitations similar to late Pleistocene Paleoindian pit structures previously found in Russia were constructed in the intermountain region of the Untied States during the cold seasons.

In Colorado, residential structures have been recorded in the Mountaineer Site near Gunnison. That site has produced 20 Folsom projectile point fragments and has structures dating to the Paleoindian period (9500–5800 BC). One of the structures is a compacted floor about twelve feet in diameter with rocks piled around the edges, an associated hearth, a storage pit, and a rock anvil for breaking large bones. Bone fragments from inside the structure were radiocarbon dated ca. 10,400 BC, placing it within the Folsom range. Burned remains above the floor indicate the structure was tipi-like, constructed of aspen poles and other plant material, and capped with mud. The artifact distributions and presence of a trash midden indicate extended – possible winter – occupation of the site. This site and others in the Upper Gunnison Basin and Middle Park area suggest long-term occupations at base camps in the mountains by Paleoindian groups (Stiger 2003).

5.1.2. ARCHAIC ERA

Empirical data for plant and animal use during the Late Pleistocene and early Holocene periods are exiguous. However, during this time span the last extinctions of the megafauna were occurring and vegetation communities were radically changing across the North American landscape in response to climatic changes. It marks the beginning of a technological and economical transition from a hunting/mobile subsistence pattern to a hunting-gathering/ semi-sedentary one. The primary technological changes were the transition from twined basketry to coiled and the increased use of a variety of grinding tools that were utilized for the processing of roots, tubers and seeds collected from the expanding forests and grasslands. In general, this conversion resulted in a broader diet based on the increased emphasis on lower ranked plants and small animals. Also, evidence of the technological change is seen in the lithic tool kits used to hunt large game animals, as the large fluted and unfluted lanceolate projectile points gave way to smaller types, many of which were notched.

Important for understanding the Archaic Tradition in western Colorado are the facts that: 1) three climatic zones were exploited: the cool desert, the temperate, and the boreal; and, 2) multiple biotic zones were utilized: the desert shrub (<4,600 ft.), the pinyon-juniper belt (4,600 - 6,500 ft.), the pine-oak belt (6,500 - 8,000 ft.), the fir-aspen belt (8,000 - 9,500 ft.), and the spruce-fir belt (9,500 - 10,500 ft.). Most recorded sites occur in the pinyon-juniper zone but quantitative differentiation between it and the other zones is difficult to assess given the current state of the data. Clearly, at various times, ecological niches in these areas provided conditions stable enough for maintenance of a sedentary or semi-sedentary lifestyle. As continental environmental changes occurred throughout the Holocene, regional fluctuations were also felt, and the details of various cultural adaptations shifted as well.

A cultural-ecological model is posited and termed the Archaic lifeway, which incorporated broad spectrum hunting and gathering and the concept that co-traditions of diverse ethnic groups occupied and utilized different ecological facets of the same broad geographical area in differing ways. The socio-economic organization was conceptualized as consisting of band level societies focused on the household unit, with mobility as the adaptive strategy, and operating along an annual, seasonally based continuum from forager to collector, with subsistence and settlement strategies logistically organized on ecological economic zones that radiated out from the household residential base. Seasonal movements were primarily elevationally determined, based upon the availability and fruition of floral resources in concert with movements of large mammal herbivores (family Cervidae, Bos, Orvis and/or Antilocapridae) from winter to summer ranges and back again.

As expressed by Binford (1982, 2001) and Kelly (1992, 1995), mobility patterns among human foragers often take one or two basic forms: central place foraging characterized by a residential base from which foragers venture to collect foods and to which they return to consume them; and sequential foraging, characterized by movement from one location to another where food is both collected and consumed. There are of course many variants to the basic patterns: foraging groups may follow a central place strategy for part of the year and a sequential strategy for the remainder based on particular climatic conditions; or, a group may move its residential base two or three times a year, following a central place strategy from each new location. Alternatively, groups may split and reform, with part operating as central place foragers throughout the year and another part leaving to act as sequential foragers for part of the year before returning (Madsen and Schmitt 2005:124).

Central place foraging theory predicts that foragers established residential base camps in areas where a mixture of plants and animals were present, which would have maximized foraging returns within the vicinity of the camp (ecotones, wetlands, springs, sand dunes, etc.). It is assumed that long distance forays from these camps were conducted to hunt or collect special resources and usually resulted in establishment of a procurement camp. These camps were used to acquire and process raw materials before transport back to the residential camp in ways that maximized the net delivery rates to the centralized base camps. Because of climatic variations and seasonal availability of resources, the Archaic people of the Plateau were required to be collectors, the characteristics of which include: 1) storage of food for at least part of the year; and 2) organization of food procurement groups. Limitations to this orientation would be that long-term stays at residential camps would result in predation pressure on the higher ranked flora and fauna in adjacent areas, which would have increased the number of species being exploited, increased the travel distance for procurement, and lead to the expansion of a dietary regime to include lower-ranked plants and animals (Kennett et al. 2006a:135). Such a situation would have also opened Archaic populations to the acceptance of domesticated plants.

Archaic Chronology

Evidence of the Paleoarchaic transition period (ca. 7500-5500 BC) is found in the surface finds of diagnostic artifacts that indicate three traditions appear to be operating in the region: the Plano Tradition of the Late Paleoindian Period with links to the Great Plains, a Stemmed Point Complex with links to the Great Basin, and the Foothill-Mountain Complex--possible precursor to the Mountain Tradition extant in the southern Rocky Mountains. Three periods follow that 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).

The Paleoarchaic period (7500-5500 BC) witnessed a deterioration of regional climates accompanied by higher average temperatures and less effective moisture. Climatic warming caused a reorganization of the resource base. Biota retreated to the more conducive climates of high altitudes and low altitudes adapted to desert-like conditions. The volatility of the environment initiated cultural change which resulted in the transformation of a highly mobile, big-game hunting lifestyle into a semi-sedentary hunting and gathering lifestyle.

This subsistence pattern reflected a combination of considerations regarding resource availability, predictability, and productivity. The Archaic foragers focused their subsistence activities on species with higher caloric return rates when available and, when unavailable, shifted to resources with lower rates. Intra-regional differences in the distribution, density, and seasonal availability of significant dietary plants and animal species would have affected settlement strategies. Some high priority resources were more abundant in or restricted to certain areas, for example, pinyon pine in the Colorado Plateau uplands. In northwest Colorado, the lowland deserts and grasslands and the upland forests occur in relative close proximity and were likely exploited via base camps along their ecotones.

Based on the dry climatic conditions, this period was one when the early Uto-Aztecan speaking foraging bands of the west-central Great Basin migrated to its southwestern edge. Decreasing effective moisture in subsequent centuries probably motivated these hunter-gatherers to abandon the lowlands of this region in favor of better-watered middle Holocene refuges. Migration destinations likely included areas east of the Colorado River with movement onto the Colorado Plateau and also southward to the northern Sierra Madre Occidental. Climatological factors may also have encouraged some bands to continue migrating southward (Merrill et al. 2009).

The Early Archaic (5500-3750 BC) exhibits a good deal of cultural continuity with the preceding period. Semi-sedentary hunting and gathering remained the most effective adaptive strategy. Procurement efforts centered on a broad spectrum of biotic zones that were exploited through a central-place foraging strategy. The intensification in procurement efforts is manifested in the burgeoning visibility of processing features as well as pit (pithouse) and basin (house-pit) structures. This period marks the first half of the Middle Holocene and represents the harshest drought conditions experienced by the prehistoric population. Again, much of the data derives from surface finds of projectile points which cross-date from other regions to this period. Radiocarbon dates from this period from multi-component sites tentatively argue in favor of subsistence and settlement strategies logistically organized on ecological economic zones that radiated out from a household residential base. Evidence of decreased mobility and longer-term, seasonal residency in the form of pithouses has been found in the mountain areas, but subsistence data are sparse.

Evidence of occupation of northwest Colorado in the Middle Archaic Period, ca. 3750-1250 BC, from excavation data greatly expands in comparison to the previous periods. This cool moist period in the second half of the Middle Holocene is evidenced by a wide variety of projectile point styles covering large regions of the Intermountain West, with the greatest influences coming from the Great Basin and the Wyoming Basin, with some minor contacts from the Southwest. The number of radiocarbon dates increases dramatically over previous periods. The occurrence of radiocarbon dates at several multi-component sites from this period suggests that subsistence and settlement strategies were indeed logistically organized on ecological economic zones that radiated out from a household residential base. In fact, this adaptation had become so well established that what may have once been simple, highly ephemeral, household residential bases had now become true “base camps,” which later metamorphosed into “localities” that were repeatedly and systematically re-occupied.

The Middle Archaic roughly corresponds with the Neoglacial period, which exhibited an overall increase in effective moisture and cooler temperatures. On the Colorado Plateau, these conditions were conducive to the expansion of the pinyon pine forest northward from

New Mexico into central Colorado and eastern Utah by around 2750 BC (Berry and Berry 1986). With the advent of these more favorable environmental conditions, a shift by the aboriginal populations down to the middle and lower elevation levels would have been comfortably feasible. As the radiocarbon data reveal, there is an overall drop in the date frequencies for the Colorado mountains along with a corresponding rise in the date frequencies of the northern Colorado Plateau. By about 1700 BC, the pinyon forest again expands northward with pinyon and juniper trees present in the canyon bottoms and washes.

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). Data supporting the first dry episode is derived from excavations conducted in the Alkali Creek Basin (located just north of the Gunnison Basin) and reported by Markgraf and Scott (1981). Their study indicates the presence of a montane pine forest at an elevation of 9,000 feet until ca. 3250 BC. The environmental model prepared for the 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, the increased moisture allowed the pinyon pine to expand northward from New Mexico into central Colorado and eastern Utah, and it became a major component of the La Plata Mountains in southwestern Colorado. By about 1700 BC, pinyon/juniper forest is present in the canyon bottoms and washes of the Colorado Plateau. This period exhibits stabilization of dune fields and reversion to sagebrush steppe of much of the area covered in desert shrub communities. Consequently, increased game populations and a wider variety of edible plants were available to the human populations at lower elevations.

The Middle Archaic is distinguished on the basis of increased variability in material culture. Reed and Metcalf (1999:79) also suggest that this period is characterized by less sedentisim in settlement patterns and perhaps greater seasonality in the use of higher elevations. Archaeological evidence for this patterned seasonal transhumance is found in the remains of shallow basin structures and their associated artifacts identified from this period at the Indian Creek Site near Whitewater (Horn et al. 1987) and in the Gunnison Basin at Curecanti Reservoir (Euler and Stiger 1981; Jones 1986).

There also appears to have been sporadic contact with Middle Plains Archaic groups as defined by Frison (1978) and evidenced by diagnostic artifacts associated with the McKean Techno-complex. Again, such finds indicate that there was frontier contact in northwest Colorado between highly mobile bands of hunters and gatherers during the Middle Archaic Period due to improved climatic conditions, which provided opportunities for exploration. It may well be that there are no fixed or well-defined boundaries present and that all the groups are generally operating in an open, free interaction zone within the region.

The Late Archaic (1250 BC - AD 1300) is a time of apparent stress on settlement systems. Drought-like conditions coupled with population packing caused adaptive strategies to reach a pinnacle of intensification. Such intensification is reflected in heightened processing of seeds and other lower rate-of-return resources, cultigen manipulation, and evidence of a shift to the bow and arrow. The Archaic lifeway likely continued as a survival strategy for hunter-gatherer groups through the end of the Formative period.

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. The same seasonal patterns of floral and faunal exploitation probably continued much as they had during the Middle Archaic Period. However, uncertainty caused by the fluctuating environmental conditions, coupled with increasing population densities, may have led to changes in social organization and a greater necessity to define group territories and home ranges. This may have been due to pressures from outside groups trying to relocate as a result of adverse environmental conditions in other areas.

One final aspect of importance during this critical period concerns the introduction or development of the bow and arrow, a major technological innovation over the preceding atlatl and dart. Exactly when this change occurred is controversial, but the majority of the available data indicate ca. AD 300.

Projectile Points

The primary technological marker of the Archaic era is the atlatl dart point. In general, dart points are significantly smaller than the lanceolate points of the Paleoindian era, and manufacture appears to have employed less specialized technologies (Frison 1991:395). Furthermore, diversity of haft element forms become visible, and are generally categorized into four broad groups: lanceolate, stemmed, side-notched and corner-notched. These attributes are examined in the following discussion with consideration of potential areal cultural influences from abroad. Projectile point types temporally assigned to the Paleoarchaic and Early Archaic chronology are illustrated in Figure 5.3.

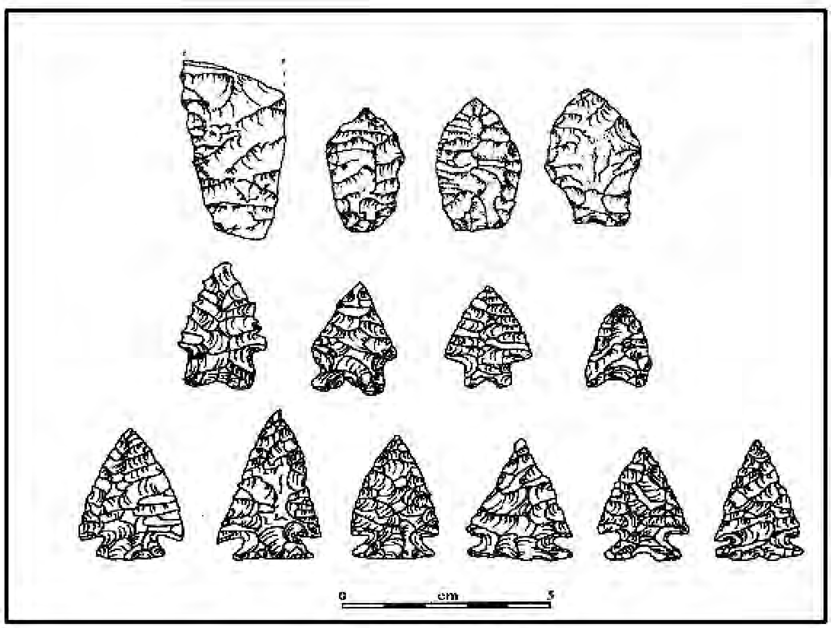


Figure 5.3. Illustrations of Paleoarchaic and Early Archaic projectile points from the Great Basin: top row -- Stemmed points from the Paleoarchaic; middle row -- Pinto Shouldered and Shoulderless of the Early Archaic; bottom row -- Large Side-notched and Earred points of the Early, Middle and Late Archaic, classified as the Elko series (Holmer 1987:95-101).

“Lanceolate styles that seem to be restricted to the Archaic era include a series of largely unnamed points that are relatively thin in cross section and generally less than 1.5 cm wide and 8 cm in length” (Reed and Metcalf 1999:85). A variety of forms is evident and includes morphological attributes such as concave, convex, or straight basal edges as well as straight or convex blade edges (Figure 5.4). Also, there may be a hint of constriction or of notches on the lateral margins near the base (Reed and Metcalf 1999:85). Ground bases and blade edges are generally rare and specimens demonstrate a less careful manufacture technology. Contexts for lanceolate styles typically range from about 7000 to 4500 BC.

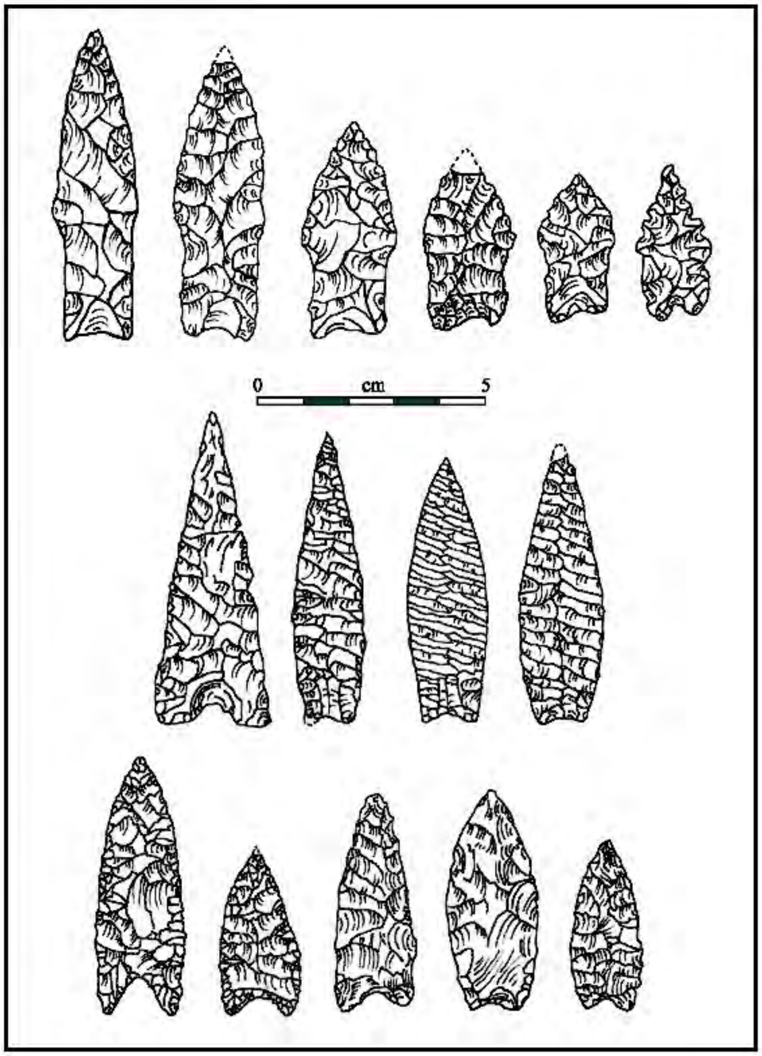


Figure 5.4. Illustrations of lanceolate points of the Early and Middle Archaic. Early Archaic Bajada and San Jose Points of the Oshara Tradition, which were identified in the Southern Rocky Mountains and bear a strong resemblance to Pryor Stemmed, a Late Paleoindian type (top row). Middle Archaic lanceolate variations: Humbolt Concave Base of the Great Basin (middle row) and McKean Lanceolate (bottom row) from the Northern Rocky Mountains.

A common Archaic lanceolate style is the McKean Lanceolate (Figure 5.4), of the McKean Complex, dating from after 3800 BC to as late as 1200 BC (Frison 1991:89). Actually, four projectile point types are diagnostic of the McKean: McKean Lanceolate, Mallory, Duncan and Hanna (Figure 5.5). Although there is data to support the co-occurrence of these points and therefor that of a *techno-complex*, there is also ample evidence that the former two often appear in tandem and the latter two generally replace them near the end of the period. Frison makes this case using the Signal Butte site in western Nebraska, which had McKean Lanceolate points in association with Mallory-type side-notched points in dated levels from 4550-4170 BP [~3200- 3000 BC] (ibid.). Frison (1991:24) refers to sites that indicate the stemmed indented base points such as the Duncan and Hanna of the McKean Complex roughly date from 2550 to 1200 BC; however, Reed and Metcalf (1999:85) obtained dates of 3250 to 1500 BC for the Duncan and Hanna points in the Yampa Valley of Colorado.

Side-notched points attributed to the Early and Middle Archaic exhibit variable morphological attributes ranging from straight to convex to concave basal edges and/or straight to convex blade edges (Figure 5.5). Notches vary from shallow to deep and can either be situated near the base of the point (low notches) or higher on the blade (high notches). Pronounced basal indentations or basal notching of side-notched points in the area is rare; however, basally indented, slightly side-notched points are well recognized on the Northern Plains and constitute a cultural complex known as Oxbow (Frison 1991:88). In general, side-notched points tend to predate 1800 BC. Examples of side-notched points indicative of the Archaic include: Elko Side-notched, Bitteroot, Northern Side-notched, Hawken, Mallory and Mt. Albion.

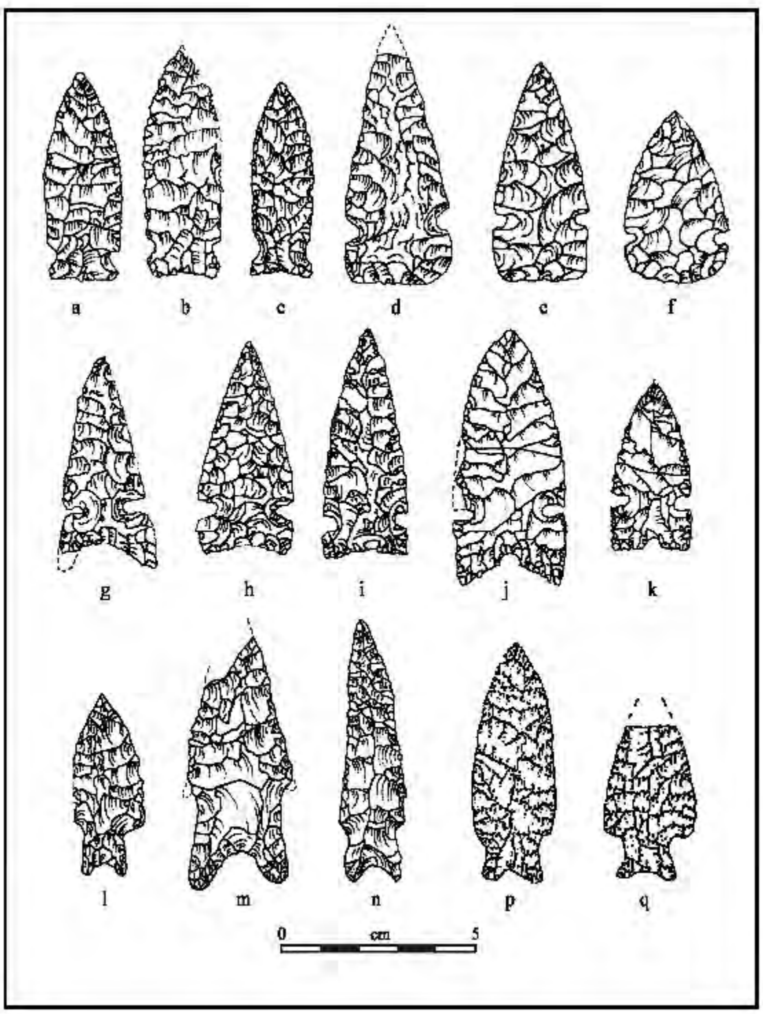


Figure 5.5. Illustrations of large side-notched and bifurcated stem points of the Early and Middle Archaic: Hawken Side-notched (a-c), Sudden Side-notched (c and d), Rocker Side-notched (e), Northern Side-notched (g-i), San Rafael Side-notched (j and k), Early Archaic split-stem points from Yarmony site (Metcalf and Black 1988), Duncan (p), and Hanna (q).

Other stemmed points include a variety of styles ranging from contracting stem points generally subsumed under Gypsum, Elko Contracting Stem, and Gatecliff Contracting Stem categories; and a wide range of unnamed points with straight to convex to distinctly rounded bases (Reed and Metcalf 1999:85). Contracting stem points from the Great Basin and northern Colorado Plateau evince temporal distributions from about 3800 BC to AD 500 (Holmer 1986:105). It is clear that stemmed points grade into corner-notched points, obscuring the boundaries between these two broad categories (Figure 5.6)

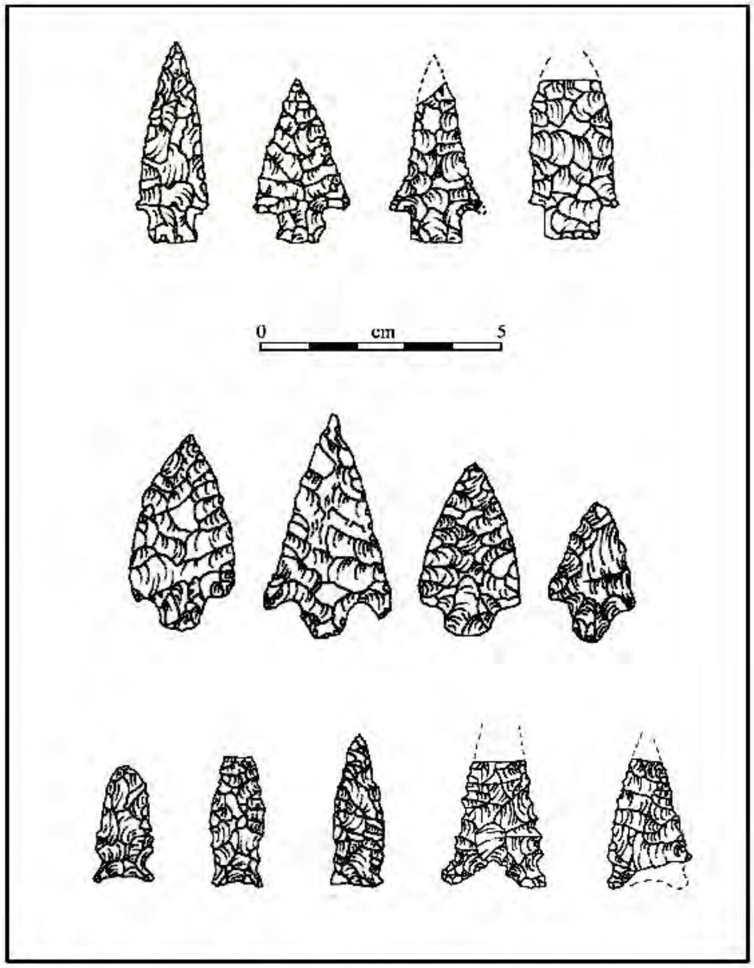


Figure 5.6 Illustrations of stemmed, contracting stem, and earred points of the Middle and Late Archaic. Top row: San Rafael Stemmed; middle row: Gypsum or Gatecliff Contracting Stem; and, bottom row: Sinbad Side-notched (left three), and Oshara Tradition Armijo Phase (right two).

Corner-notched points evince an even broader range of size and basal diversity than do side-notched points. Generally, corner-notched points are subsumed under the Elko Corner-notched classification. Dates for Elko Corner-notched points are noted by Holmer (1986:102) to range from 7000 BC to AD 1000, with three date clusters (7000-3750 BC, 3750-1250 BC, and AD 1-1000). A series of distinctive corner-notched points have been stratigraphically dated for the Uncompahgre Plateau by Buckles (1971:1220), which have provided a baseline that is of greater utility than those lumped by Holmer into the Elko Corner-notched type (Figures 5.7 and 5.8).

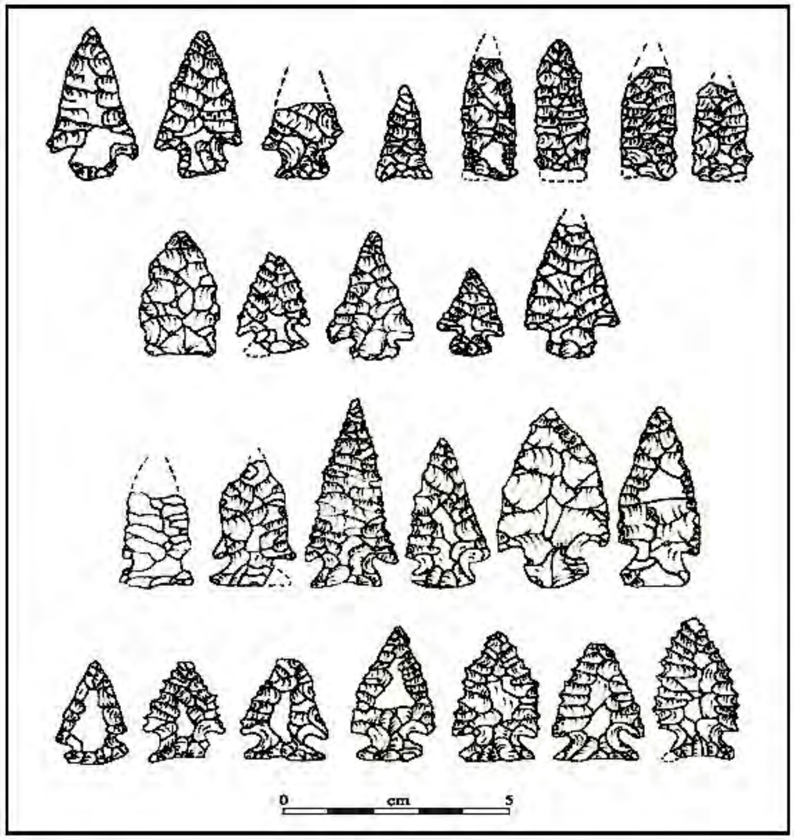


Figure 5.7 Illustrations of Middle to Late Archaic points of the Uncompahgre Complex (Buckles 1971:1220). Top two rows: Shavano Phase types (note Sinbad Side-notched variants top row). Bottom two rows: Roubideau Phase types.

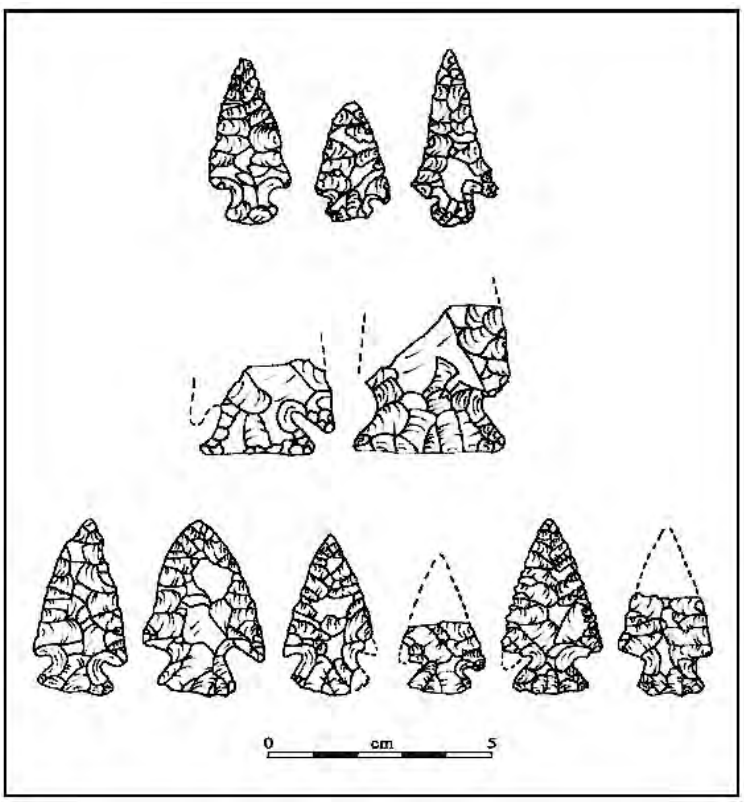


Figure 5.8 Illustrations of Late Archaic points of the Uncompahgre Complex (Buckles 1971:1220). Top two rows: Horsefly Phase types (note hafted knives middle row). Bottom rows: Ironstone Phase types.

The proliferation in projectile point styles after the late Paleoindian era is not well understood. It is possible that this phenomenon is simply a byproduct of time. In other words, “the Archaic lasted a very long time and; thus, there was time for this variability to occur” (Reed and Metcalf 1999:83). Alternatively, the multitude of point styles may be a result of decreased mobility. Decreased mobility inhibits the exchange of ideas- relative isolation would allow point forms to diverge. The fact that these divergent styles co-occur within temporally defined archaeological components is more difficult to explain. Reed and Metcalf (ibid.) go on to suggest one possible explanation: “Divergence in styles occurred during the stable periods of relative isolation; sharing of styles occurred during periods of settlement adjustment.” On a more finite scale, variation in styles may reflect functional differences or differences in raw materials. It is also necessary to consider the variation that results from individual manufacture. A less optimistic possibility is that projectile point styles simply do not carry the kinds of cultural or social identity that archaeologists ascribe to them; thus, attempts to explain variation are futile.

“At one time, investigators thought that the multitude of styles indicative of the Archaic would eventually sort themselves into chronological and geographic patterns that would make specific point forms diagnostic of temporal periods, and perhaps areas” (ibid.)- but evidence continually arises suggesting a lack of temporal and spatial patterning. For example, Metcalf (1998) attempted to generate a typology for the Uinta Basin Lateral project by sorting points according to overall size, outline, and haft element characteristics. The typology was refined according to details of point form and it was hoped that this would reveal some temporal patterning within these broad categories. The study proved futile in that no such patterning could be detected. According to Reed and Metcalf (1999:83): “It would appear that the diversity and lack of chronological and spatial patterning is real, and that it is time to move beyond wishful thinking about obtaining an orderly projectile point chronology for the area.”

To help resolve the issue of a “multitude of styles,” at least for the Uncompahgre Plateau, a review of the Uncompahgre Complex projectile point typology and chronometry has recently been undertaken by Michael Berry, Ph.D, a research associate of DARG. The review thus far included artifact assemblages that have been recovered through surface collection and excavation over the last eight decades, but mainly those of William Buckles whose work occurred during the late 1960s and that of the Eagle Rockshelter excavations conducted during the past 15 years. Berry’s research is ongoing, but significant findings have been made and presented in his work entitled *The Uncompahgre Plateau Project: Projectile Point Typology and Chronometry* [SHF Project No. 2018-02-035] (Berry 2019). For the projectile points, he employs a multi-variate cluster analysis based on nine variables, which “unequivocally groups the arrow points separate from the dart points.” Eight point types were identified with the majority dating within the Early and Middle Archaic periods (ibid.:43,66-67):

> **Type 1** arrow points are small corner-notched to stemmed examples that include examples of Buckles' Types 4, 5, 6 and 8. These are invariably recovered from the most recent deposits of excavated sites where adequate stratigraphic evidence has been

published. The near absence of the ubiquitous Desert Side-notched arrow points from the Uncompahgre sample suggests that the most recent phases of occupation terminated prior to the advent of the Desert Side-notched type that dates to AD 1300. These are interpreted as arrow points and represent a clear break with the other seven dart point types. They occur in the most recent strata at Christmas Shelter and Eagle Rock Shelter and may date as early as 500 BC with a terminal date of AD 1000 and a probability density peak at AD 250. Further refinement will be necessary to determine the timing of the introduction of bow-and-arrow technology to the Uncompahgre and whether or not it coexisted with atlatl technology.

Type 2 dart points demonstrate the concept of heterogeneity within a type. That is, while there are perceived differences in appearance, these are outweighed by the multivariate statistical similarities. All examples were successfully reclassified using Fisher's discriminant functions. Type 2 is equivalent to Buckles' Type 38 which he equated with the San Jose Complex (Bryan and Toulouse 1943). These stemmed points may be a very early type as indicated by its presence in Level 14 at Eagle Rock Shelter at 9000 BC. However, too few of this type occur in datable contexts to posit a temporal range with reasonable confidence.

Type 3 broad-stemmed dart points include Buckles' Types 26 and 33. These types occur early at both Christmas Shelter and Eagle Rock Shelter, spanning a period from 9000-7000 BC. They do not reappear in the Uncompahgre region until AD 250 at Transfer Road Hamlet. This represents either a case of aboriginal curation or a typological misclassification. Additional typological analyses may be necessary to resolve this issue.

Type 4 stemmed, indented-base dart points, termed Pinto Basin points, are common in the eastern Great Basin (Holmer 1978). Most of the Uncompahgre sample of Type 4 points comes from Eagle Rock Shelter (Gardner and Hadden 2016) with two examples from the Moore Shelter and one from the Shavano Spring Site (Buckles 1971). Type 4 points equate to Buckles' Type 36. This is a widely distributed type known as “Pinto” points in the Great Basin and Colorado Plateau. In the Uncompahgre area they occur most frequently at Eagle Rock Shelter where they date from 7000 to 4500 BC with a probability density peak at 6250 BC.

Type 5 corner-notched dart points with straight to excurvate bases. Three of the examples in the norming sample have serrated edges. Type 5 points include Buckles' Types 22, 24, 26 and 28. Type 5 includes the only classification error within the norming sample. Point 5DT2.68 was classified as Type 6, an assignment consistent with the likely temporal affiliation of Types 5 and 6. This type has a stratigraphic distribution nearly identical to Type 4 and is similarly dated around a peak probability density of 6250 BC.

Type 6 corner-notched points with straight, expanding bases. Nine of the twelve examples from the norming sample have serrated edges. Buckles places the serrated examples in Type 23, termed Roubideau points. He also refers to some Type 5 examples as Roubideau points (Buckles' Type 24), likely due to the serrated edges. Types 5 and 6 are undoubtedly related and were probably contemporaneously produced, but they are separable primarily based on hafting angles. Buckles apparently used the presence of serration as an important variable. We did not, opting to rely solely on interval scale data. Nonetheless, the clustering algorithm placed most of the serrated examples together in Type 6. This suggests that the non-serrated points, metrically similar to the serrated examples in Type 5 and 6, represent unfinished points (serration likely being a last step in the production of these specimens). These examples are referred to by Buckles as "Roubideau" points and occur most frequently at Christmas Shelter. The estimated temporal span is 6500 to 4500 BC with a peak density at 5500 BC.

Type 7 large, corner-notched dart point with straight bases, two of which are serrated on both edges, one of which is serrated on one edge. Type 7 contains examples of Buckles Type 24, 25 and 26, similar to associated types for our Types 5 and 6. However, Type 7 is separable from Types 5 and 6 primarily due to size. The mean length of Type 7 (4.06 cm) is a full cm greater than the other two. This type occurs as early as 5500 BC at Christmas Shelter, intermittently at other later sites and at AD 250 at Transfer Road Hamlet. It appears to be a long lived type with little temporally diagnostic utility.

Type 8 stemmed dart point with straight to contracting stems and excurvate bases. Type 8 is similar in length (3.99 cm) to Type 7. These represent the largest point type in the norming sample. Type 8 points include Buckles' Types 30 and 31. This type has a very similar temporal distribution to Type 7 and is similarly of little diagnostic utility.

One addition to his study may prove to be the points recovered from the Coal Bank Canyon Shelter. There three lanceolate points and four side-notched with concave bases were documented; as well, his KDE model for the Uncompahgre Plateau ^{14}C has a peak ca. 3500 BC (ca. 5000 BP). Those point styles and the radiocarbon spike are comparable to those of the McKean Complex (which dates after 5000 BP to as late as 3000 BP on the Plains). At the Signal Butte site in western Nebraska, McKean Lanceolate points were found in association with Mallory-type side-notched points in dated levels from 4550-4170 BP (Frison 1991:89).

Archaic Era Adaptive Periods for Northwest Colorado

A recent publication documenting the "Synthesis of Archaeological Data Compiled for the Piceance Basin Expansion [WIC], Rockies Express Pipeline [REX], and Uinta Basin Lateral [UBL] Projects in Moffat and Rio Blanco Counties, Colorado, and Sweetwater County, Wyoming" (Metcalf and Reed, ed. 2011) provides the best summary of Archaic Era adaptive periods for Northwest Colorado, and directly relates to their revisions of Northern Colorado River Basin Archaic Era chronology. Figure 5.9 shows the distribution of Archaic Era charcoal dates derived from the WIC, REX, and UBL projects for the Paleoarchaic [Pioneer], Early [Settled], Middle [Transitional] and Late [Terminal] (Metcalf and Reed, ed. 2011:125). [Dates of occupation are presented in Before Present (BP) contexts, which can be transcribed into AD-BC contexts by use of Figure 5.1.]

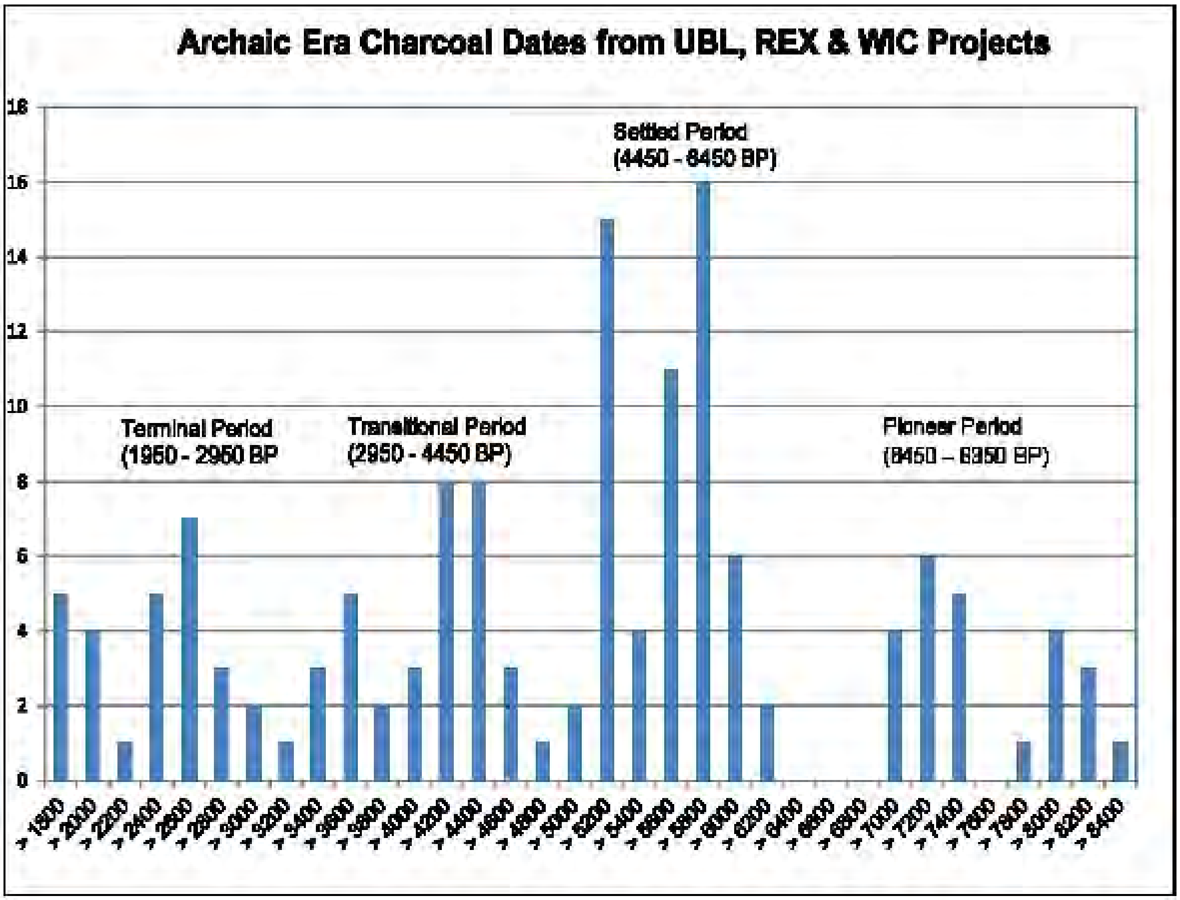


Figure 5.9. Archaic Era charcoal date frequency for the UBL/WIC/REX projects co-opted from Metcalf and Reed, ed 2011:125, Fig. 50).

Based on the frequency dips of dates in Figure 5.9, Metcalf and Reed indicate that division of the Archaic Era into the four periods seems to be supported by the data, and are suggestive of some kind of shift in use patterns. The dips in occupation were potentially due to climate change, migrations of new people into the region, and/or new cultural developments. Their findings are qualified by these factors: "... the large number of radiocarbon ages between 5200 BP and 6200 BP reflects the presence of basin house sites with numerous dated features, and the relative paucity of charcoal dates between 4500–5000 BP reflects the difficulty in obtaining charcoal samples from cultural features within the dark cultural deposits common in the Spring Creek Paleosol. When the data are adjusted to account for multiple dates from individual components, the apparent frequency of occupation appears to have been relatively constant between 3500 BP and 6000 BP" (Metcalf and Reed, ed. 2011:126).

A revision of the Northern Colorado River Basin Archaic Era chronology and characteristics of each of the adaptive periods is presented in Tables 5.1 and 5.2 – information co-opted from the original text (ibid.:160 and 161).

Table 5.1. Proposed Revision of the Northern Colorado River Basin Archaic Era Chronology (Metcalf and Reed, ed. 2011:160, Table 41).

Northern CO Periods	Age BP	Age cal BP	Northwest CO Adaptive Periods	Age BP	Age cal BP
Paleoarchaic	8350 -6450	9350-7350	AP 1	8500-8100	9500-9000
Early Archaic	6450-5000	7350-5750	AP 2	7800-7000	8400-7900
Middle Archaic	5000-3000	5750-3200	AP 3 AP 4	6300-5100 4500-3500	7200-5800 5200-3900
Late Archaic	3000-1800	3200-1700	AP 5 AP 6	3300-2500 2200-1800	3600-2500 2200-1700

Table 5.2. Summary of Archaic Era Adaptive Periods for Northwestern Colorado (Metcalf and Reed, ed. 2011:161, Table 42).

Adaptive Period	Age cal BP	Characteristics
AP 1	9500-9000	Deception Creek points, medium artiodactyl hunting, simple hearth features, short-term occupations, predictable resources.
Anomaly	9000-8400	Warming/drying with some evidence of erosion.
AP 2	8400-7900	First use of house pits, introduction of large corner-notched projectile points and slab-lined fire pits, rabbit-focused, increase in long-term occupations, and less predictability in resources.
Anomaly	7900-7200	Resumption of drying; widespread erosional event.

Adaptive Period	Age cal BP	Characteristics
AP 3	7200-5800	Widespread use of house pits, introduction of side-notched projectile point series; balanced use of pit feature types; medium artiodactyls emphasized in subsistence; first period of intensive use of the area, increase in long-term occupations; resources relatively predictable.
Anomaly	5800-5200	Few occupations, but possible house use, a few deep roasting pits; rabbits in subsistence, fewest long-term occupations, within period of least resource predictability, sediments aggrading, inferred warm/dry.
AP 4	5200-3900	House use at beginning and end of interval, houses absent ca. 4800-4100 cal BP? Introduction of McKean complex projectile points; medium and some large artiodactyl use; rabbits gain importance after 4500 cal BP. Cool climate interval; "Spring Creek" paleosol develops.
Anomaly	3900-3600	Few occupations with last dated house pit; no archaeofaunas; warmer/dryer interval; major erosional episode.
AP 5	3600-2500	No houses; increased diversity of unclassified projectile points; smallest pit feature sizes; increased use of large artiodactyls, high incidence of long term occupations with some evidence of winter camps based on fetal material in archaeofaunas. Relatively predictable resources.
Anomaly	2500-2200	Few occupations, no obvious climate indicators; sediment record complex and variable depending on setting.
AP 6	2200-1700	Roasting pit use declines; low incidence of ground stone; rabbits increase in importance; fewer long term occupations; decreasing resource predictability.

Metcalf and Reed (ed. 2011:131-133) identified diagnostic points found in association with the Paleoarchaic, Early and Middle Archaic period sites, which are listed in Table 5.3. Importantly, they have identified a new type called "Narrow Series Points" that are characterized by broad, shallow side-notches, sometimes grading into a stemmed appearance, and are narrow, convex-to-triangular in overall shape. They also have a subset defined by shallow notches and a basal shape ranging from convex to very slightly concave. These have been dated ca. 7100–5900 cal BP (ibid.:132).

Table 5.3. Acceptable Early-dated Occurrences of Project Area Archaic Era Projectile Point Styles (Metcalf and Reed ed. 2011:131, Table 38).

Point Type	Earliest Consistent Project Occurrences
Deception Creek	9490 cal BP
Elko Corner-notched	8000 cal BP
Elko Side-notched	7245 cal BP
Northern Side-notched	7100 cal BP
Narrow Series Points*	7100 cal BP
Duncan-Hanna	5000 cal BP
Mallory	4860 cal BP
McKean Lanceolate	4790 cal BP

*narrow series points are not a regionally named type.

Archaic Era Architecture in the Mountains of Colorado

The most basic typology organizes the multifarious record of Archaic architecture into two general types: formal and informal. The key distinguishing feature between formal and informal is the amount of labor invested in the construction. Formal structures exhibit heightened investment of labor and evince a proclivity toward prolonged or repeated occupation. Semi-subterranean structures are typical manifestations of formal structures. Informal structures are characterized by expedient construction and a short term occupation.

A more finite classification of Archaic architecture is represented in the work of Thompson and Pastor (1995). Three different structure types (i.e., pithouses, house pits and temporary shelters) were identified in the Wyoming Basin on the basis of "associated features (internal or external), density and diversity of material remains (e.g., tools, bone, fire-cracked rock, debitage), and the patterning and interrelationships of those remains" (Thompson and Pastor 1996:90). Pithouses were identified as deep, round subterranean depressions containing interior features and internal architectural features (niches, walls), and that have midden refuse areas away from the structure. Examples include structures at the Medicine House site (McGuire 1984) and possibly the Shoreline site (Walker and Ziemens 1976). House pits were identified according to smaller dimensions in diameter and depth. These structures were also noted to lack internal architecture, such as prepared floors and ventilator shafts. Examples include structures at Maxon Ranch (Harrell and McKern 1986), Sweetwater Creek (Newberry and Harrison 1986), and Split Rock Ranch (Eakin 1987). Temporary structures were described primarily as sun/wind breaks manufactured out of brush or wood. Remnants of four post molds encircling several small hearths at 48SW4492 (Creasman et al. 1983) appear to be temporary structures that were constructed to provide relief from the wind or the summer sun. Evidence for this structure type is extremely limited due to its ephemeral nature.

The ultimate goal of “typing” architecture is to unveil and discern the behavioral implications it carries for interpreting hunter-gatherer settlement and subsistence. For example, the presence of substantial structures carries implications concerning group mobility. Significant investment of labor suggests a strong tether to place and the importance of seasonal sedentism – both of which have been ethnographically documented (Gilman 1987). In the Rocky Mountains, evidence of substantial structures has stimulated speculation of a unique Archaic adaptation (i.e. the Mountain Tradition) to upland terrain – contesting the original idea that the mountains were exploited on a transitory seasonal basis (Black 1991). Despite criticism, the concept of a Mountain Tradition has directed “attention toward the existence of a rich prehistoric record that stands independent of broader culture areas like the Great Basin or Plains” (Reed and Metcalf 1999:79).

The occurrence of storage and habitation structures in this region has only in recent years been documented, primarily due to cultural resource management projects. The 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 (Figure 5.10).

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. Notably, the use of house pits was not observed for the period 3600-2500 BP in northwest Colorado during the UBL/WIC/REX projects, but such is known to occur in the Grand Valley area (near De Beque and

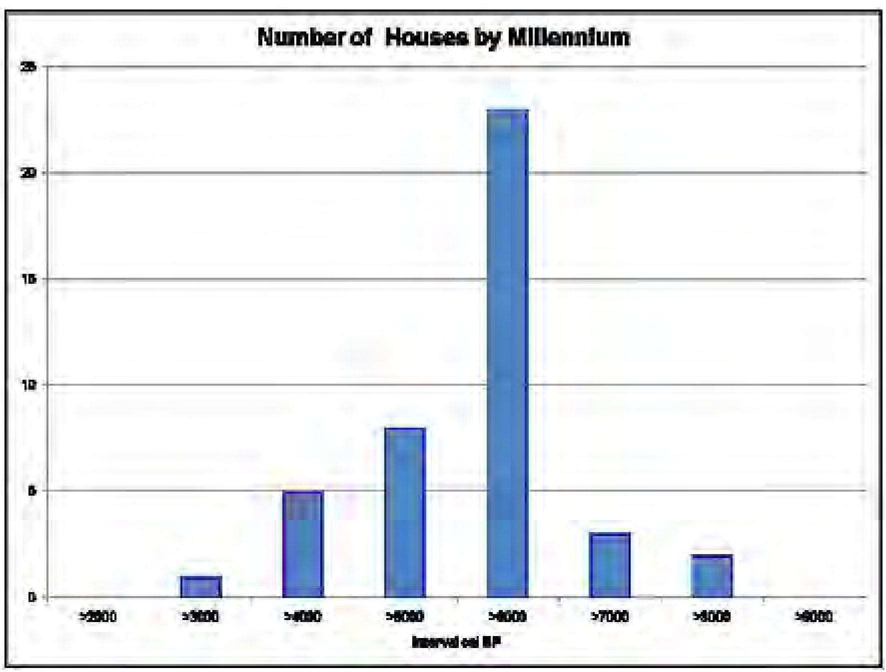


Figure 5.10. Number of dated UBL/ WIC/REX projects house pits by cal BP millennia (Metcalf and Reed ed. 2011:131, Figure 59).

Parachute) during the period ca. 3000-2700 BP (Berry et al. 2013).

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).

Interestingly, 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 (Berry et al. 2013). 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).

Thermal Features

A wide variety of features such as simple ash stains, basin hearths, rock-filled pits, rock-lined pits, slab-lined pits, and fire-cracked rock concentrations occur throughout the Archaic. Undoubtedly, most of these features were constructed for cooking food; however, some lined pits without thermal characteristics may have also been used for storage.

Relatively little research has been devoted toward understanding the function of such features. However, "archaeologists are beginning to do more with ethnographic descriptions and with 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 biscuit root 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 (AD 1-1400) phases. A second cluster of features had calculated volumes ranging from 80-150 liters; the majority of these featured dated to the Opal phase (5600-3400 BC). Two extremely large (268.6 and 285.6 liters) features were noted and both date to the Pine Spring phase (3400-1450 BC).

Features are also one aspect of technological organization used to look at temporal changes. Reed and Metcalf (1999) organized 450 dated features, with origins in the Northern Colorado Basin, into 500-year increments. Originally, there were more than 50 descriptive labels for the 450 dated features. For the analysis, Reed and Metcalf decided on seven basic categories: simple ash stains, simple hearths, basin hearths, rock-filled pits, rock-lined pits, slab-lined pits, and fire-cracked rock features. Results from the analysis indicate:

> Simple stains and basin hearths appear earliest in time, and along with simple hearths, are important in all time periods. Rock- and slab-lined pits attain importance early in the Archaic, and also show increased frequency of use around 2000 to 2500 BC and again in the Formative era. Rock-filled features have generally the same temporal distribution as rock- and slab-lined features. Features that are primarily clusters of fire-cracked rock occur in the latter half of the prehistoric record (Reed and Metcalf 1999:82).

In the Gunnison Basin, a similar temporal distribution is evinced. Stiger (1998: Figure 7-2) indicates that unlined firepits occur in all periods. Specialized boiling pits occur from about 7500-4650 BC, and slab-lined pits occur from about 7000-1200 BC. Large fire-cracked rock features occur from 4650-1200 BC. Smaller fire-cracked rock features are more abundant later in time.

Several avenues of research are proposed to promote a better understanding of the associations between feature morphology, function and site activity. For instance, experiments with the heat out-put of different feature types may lend insight into the intensity of activities at a site and/or the length of occupancy. The temporal distribution of features or, more correctly stated, the frequencies of radiocarbon dates through time, has often served as a tool for estimating population. Finally, the temporal distribution of different feature types may carry implications concerning social organization (Stiger 1998).

5.1.3 Formative Era

The Formative Era from 400 BC – AD 1300 (as defined by Reed and Metcalf 1999:6) is represented in western Colorado by the Fremont, Anasazi/Ancestral Puebloan, Gateway, and Aspen Traditions. The Fremont Tradition people are likely the most represented in Northwest Colorado and may have occupied it from ca. AD 200-1500; but there remain many unanswered questions concerning the Fremont. It is generally agreed, however, that various horti-culturalist (Formative) groups – possibly of diverse origins and languages, but sharing similar material traits and subsistence strategies – occupied selected areas in Utah and western Colorado during that time.

The first real attempt to provide a regional synthesis of the Formative period appeared in the West Central Colorado Prehistoric Context (Reed 1984). At that time, the archaeologists working in the area were operating under the Formative Stage concept as defined by Willey and Phillips (1958:146) wherein the Formative Stage was defined as “the presence of agriculture, or any other subsistence economy of comparable effectiveness, and by the integration of such an economy into well established sedentary village life.” No temporal contemporaneity was implied. Very little work had been done, and much of the previous research had operated under the assumption that the sites were representative of the Fremont or Anasazi Traditions, with little consideration given the possibility that another, undefined tradition might be represented. However, one proposition put forward within that first context was that these sites represented an *in situ* development from an Archaic technocomplex wherein people practicing an Archaic tradition lifestyle adopted a Formative Stage lifestyle as the need to intensify food production arose. Cultigens may have been perceived as relatively unimportant to the hunting and collection of wild foods, which were still able to meet most of the economic needs.

Still, the Formative Era is inextricably linked to the domestication of plants and the development of ceramics. The origins of the defined Anasazi and Fremont cultures that occupied the region are deeply rooted in the Archaic-possibly as early as 3000 BC. The principal events that link the Formative and the Archaic are the expansions of populations and transmittal of maize horticulture from Mexico. Expansion into the southwest from Uto-Aztecan speaking horticulturalists is noted as early as 1000 BC, but earlier evidence of the adoption of maize is found in the Southwest and suggests multiple incursions by horticulturalists into the Southwest from Mexico.

Production of the three principal domesticates – maize, beans and squash – in Mesoamerica was widespread by 2000 BC. Reliance on this triumvirate was preceded by varying subsistence strategies including mixed foraging, horticulture, and ultimately low level food production. These stages are characterized as prefarming, transition to farming, and dependence on farming. It is in this last stage that dispersal or expansion from homeland regions likely occurred. Regional adoption of maize horticulture results from a decision to minimize subsistence risk (Gremillion 1996:199). In contrast, for a horticultural society, examples of risk minimization shifts would be in diversification to fall-back wild plant resources or in the dispersal of growing plots (Kennett et al. 2006a:197). For a hunter-gatherer group to adopt horticulture meant a change in the fabric of their culture in order to organize planting, harvesting, storage, protection, and distribution of food. The rewards in adoption of agriculture are found in abundance of selected resources and by the resultant increase in population. The risk is found in the variability of climate causing shortfalls and the occurrence of boom and bust cycles. Bust cycles would result in a substantial decrease in population and force the remaining people to aggregate in environmentally favorable niches.

The best known of the early domesticates is maize. Some microfossil data suggest that the oldest surviving maize came from the highlands of Mexico and dates to ca. 8000 BC (Matsuoka et al. 2002). This early date is somewhat in question, however. Some researchers believe that Zea mays emerged as a separate species from its wild progenitor teosinte in the lowlands of Central America rather than the highlands of Mexico because dates from archaeological sites in the lowlands of Tobasco and Panama are as early as 5000 BC.

The pollen from the early maize is nearly indistinguishable from that of teosinte, but in samples just a couple of hundred years later the phytoliths and pollen assemblages from Panama and Tobasco are recognizably similar to those of modern maize. This sequence of transition in the pollen is not noted in the highlands of Mexico, but fully domesticated cobs have been found there that date to 5000 BC, which suggests that the origin of maize indeed occurred in the tropical lowlands. Distinct varieties of maize were developed to meet the needs of people living at various elevations and to meet various environmental threats, and adjustments are continuing today. Although much larger cobs are found in both lowland and highland sites in Mexico and Central America after 5200 BC, pollen evidence indicates that the smaller Zea persisted until about 3200 BC (Kennett et al. 2006b:122). Full-sized cobs may not have developed until about 1250 BC (Benz and Long 2000).

In any case, the representatives of this early group would not be recognizable as "corn on the cob," but are best characterized as large grass heads. Importantly, the kernels were enclosed in a hard glume that was resistant to insect infestations and fungal diseases, which was likely the reason for their selection for storage and manipulation. In Archaic subsistence strategies, storability was a critical factor in the selection of some foods. Many seed types often yield lower immediate returns because they require more processing but are ideal for storage. In contrast, berries are an example of a food resource that yields higher immediate return because they are best consumed fresh.

The earliest evidence for maize in the Southwest was provided by Dick's (1965) excavations at Bat Cave in central New Mexico, which yielded dates of ca. 4500 BC. These dates were later disputed by Woodbury and Zubrow (1979) and Berry (1982). Dates from Bat Cave of ca. 2000 BC are now believed to be more accurate, although investigations at the site by Wills et al. (1982) have questioned the reliability of these as well. However, Haury's (1957) indication that maize was in use by ca. 2550 BC at Cienega Creek, a Cochise Culture site, and Irwin-Williams' (1973:9) assessment of maize use by the Oshara Tradition during the Armijo Phase (ca. 2250-900 BC) support the evidence for early maize in the Southwest. Similarly, the oldest squash seeds were identified at the Sheep Camp Shelter located in northwest New Mexico, and dated ca. 1100 BC (Simmons 1986:77).

In addition, Merrill et al. (2009) reference fifteen radiocarbon dates on maize macrofossils recovered from five sites located in New Mexico and Arizona. The dates cluster at ca. 2650 BC and raise the likelihood that maize arrived in the southwestern United States prior to that date. Importantly, the earliest dates for maize at three of these sites are consistent with dates derived from associated materials and features.

Recent finds in western Colorado, southern Wyoming and northern New Mexico have added to the case for the early dissemination of maize into the region. In Rangely, site 5RB4748 contained three Middle Archaic-age house-pits that each yielded maize pollen that dated ca. 3000-2450 BC (Rohman and Fetterman 2007:45). Rohman and Fetterman also report that maize microfossils have been collected in recent years from two northern New Mexico sites; the samples date 2900-2350 BC (Huber 2005) and 1700-1250 BC (Vierra and Ford 2005), indicating that maize has been present in the Southwest much longer than previously anticipated or believed.

These dates for the earliest maize pollen indicate a potential migration of farmers into the Southwest from the Mexican highlands ca. 4800-3000 BC - a migration that was most likely motivated by climatological factors. As stated earlier in the Paleoenvironmental section, Miller (1992) reports that pollen from dated archaeological sites indicate the climate was coolest and wettest in the middle Holocene from about 5500 to about 3200 BC. It is during this time that the climate of highland central Mexico was characterized by decreased effective moisture, while after 5600 BC, the southwestern United States and northwestern Mexico experienced an increase in effective moisture (Merrill et al. 2009). As a result, farmers living in the transitional zone between these two regions may have been drawn northward by the relatively greater effective moisture available there.

The how, why, and when maize horticulture arrived from the Tehuacan Valley of Mexico and was adopted into the subsistence strategies of the Archaic populations in the American Southwest is a continually evolving research question. The routes by which maize traveled from the highlands of Central Mexico to the Southwest are unclear, and include possible movements through the lower elevations of the Pacific coasts of Mexico, through northwestern Mexico, and then into the Southwest, or it could have traveled along the eastern flanks of the Sierra Madre occidental through Chihuahua and then into the Southwest, though Adams (1994) suggests that both routes are possible depending upon the strains or races of maize involved. By whatever means, the principle questions revolve around adaptation to the environmental conditions present in both the Basin and Range and Colorado Plateau provinces of the Southwest.

As to why maize horticulture was adopted, Wills (1988; 1995) endorses an enhanced resource predictability model in which cultigens were transferred to the uplands from lowland economic systems utilizing seasonal sedentism, and that the initial use of maize in the Southwest was not a casual occurrence. Minnis (1992) basically agrees with an enhanced resource predictability model, but suggests that early agriculture in the southwest was small scale and dispersed, and was an opportunity which caused little conflict in the scheduling activities within the general context of mobile hunting and gathering. However, Matson (1991) argues that it is first necessary to create a developmental model of the environmental adaptations necessary for the transference of maize from the lowlands to the uplands, as viewed through the evolutionary history of maize and its technological history of cultivation. All three proposals are probably correct, depending to one degree or another upon one’s position in space/time on the Colorado Plateau or in the Basin and Range provinces of the Southwest.

As to when, the earliest undisputed date in the Southwest is around ca.1900 BC, and the indications are that the transition to maize horticulture was probably well underway by ca. 800 BC (Cordell 1997:140 - Table 3.1). For those peoples living near the northern end of the Colorado Plateau in west-central Colorado, the transition took a while longer, and it was not until late in the Basketmaker II period, ca. 400 BC, that the maize started popping.

Agricultural hamlets have not yet been identified in west central Colorado. However, agricultural habitation sites and small granaries have been reported anecdotally. For example, Huscher and Huscher (1943) reported small, circular, dry-laid stone structures along the lower Gunnison River at the extreme southern end of Mesa County, and at the Jeff Lick site in Montrose County. In addition, a couple of granaries with maize have been reported for Toms Canyon in the Glade Park area of the Northern Uncompahgre Plateau; unfortunately, both of these have not been formally investigated or dated.

The best evidence for horticultural activities from excavated contexts on the northern Uncompahgre Plateau is the occurrence of maize macrofossils from six sites: Roth Cave (5ME449); two charred maize cobs from 5ME453 (Arroyo Site C2-2); a tentatively identified cupule fragment from 5ME4971; charred cupules from 5ME11334; kernels and cucurbita seeds from 5ME11368; and charred cupules from 5ME11374. In addition, two maize pollen samples have been reported, one from 5ME4828 and another from 5ME6144. Radiocarbon dates ranging from AD 660 - 1155 were derived from charcoal from five of the eight sites (5ME4828, 5ME6144, 5ME11334, 5ME11368, and 5ME11374).

Agricultural hamlets have been reported for the southern Uncompahgre Plateau. Many of these have been investigated, although the investigations are somewhat dated (1940s and 1970s). A fairly recent Class I cultural resource study conducted by Reed and Gebauer (2004) reported on ten sites in Montrose and Ouray Counties that have yielded reasonably well-dated specimens of maize and/or squash (Table 5.4).

Radiocarbon data for these sites indicate that maize appears to be restricted to two periods which date ca. 200 BC to AD 500 and ca. AD 900 to 1100 (Reed and Gebauer 2004: 83). The first period is roughly coeval with the Basketmaker II period of southwestern Colorado. They suggest the approximate 400-year-long hiatus in maize use between the two periods may reflect an abandonment of horticultural practices in the area (ibid.:2004:83). However, at site 5ME17922 (Blue Creek, on the southwest side of the Plateau) a radiocarbon date of ca. AD 650 was secured from maize cobs recovered from a large rockshelter. This date combined with that from Tabaguache Cave II may be an indication of multiple incursions of maize-growers onto the Uncompahgre as it firmly places a later group of horticulturalists presence during Basketmaker III times (Conner et al. 2011).

Table 5.4. Ten sites in Montrose and Ouray Counties with reasonably well-dated specimens of maize and/or squash.

Site Age or Estimate	Site Number	Site Name
235 BC to AD 120	5MN4253	Schmidt Site
200 BC to AD 75	5OR243	--

Site Age or Estimate	Site Number	Site Name
160 BC to AD 220	5MN519	Cottonwood Cave
AD 1 to 100	5MN868	Tabeguache Cave
AD 1 to 500	5MN3876	Transfer Road Hamlet
AD 460 to 650	5MN890	Tabeguache Cave II
AD 900 to 1150	5MN368	Weimer Ranch IV
AD 900 to 1150	5MN653	Wagon Bend
AD 900 to 1150	5MN654	Cottonwood Pueblo
AD 900 to 1150	5MN517	Hill I

Defining the Formative Era in Western Colorado

The local Formative Era groups adopted many of the Anasazi traits, yet remained distinct in several characteristics including a one-rod-and-bundle basketry construction style, a moccasin style, trapezoidal shaped clay figurines and rock art figures, as well as a gray coiled pottery (Madsen 1989:9-11). Diagnostic projectile points for the Formative Era are generally divided into two groups: narrow-bladed, corner-notched types most often associated with the early period, ca. AD 300 to 800, and smaller, side-notched for the later period, ca. AD 800-1300 (Holmer and Weder 1980:55-58). Figure 5.11 provides examples of Formative Era points found regionally. The Fremont apparently retained many Archaic subsistence strategies, such as relying more on the gathering of wild plants and having less dependence than the Anasazi on domesticated ones – maize, beans, and squash. However, maize horticulture was practiced by the Formative period people in selected areas throughout the region, as indicated by excavations in east central Utah and west central Colorado (Barlow 2002; Hauck 1993; Madsen 1979; Wormington and Lister 1956). The following is discussion of the various expressions of this cultural phenomenon in western Colorado.

Northwest Colorado

A significant concentration of the Formative Era sites has been identified in the Douglas Creek area of northwest Colorado. Characteristics of this group include dry and wet-laid masonry structures on promontories, granaries in overhangs, and slab-lined pithouses. In recognition of the significance of the Douglas Creek's archaeological sites a National Historic District was established in 1973 that includes a 1.0 mile wide corridor that stretches roughly from where East and West Douglas Creeks divide north to the White River. The district was

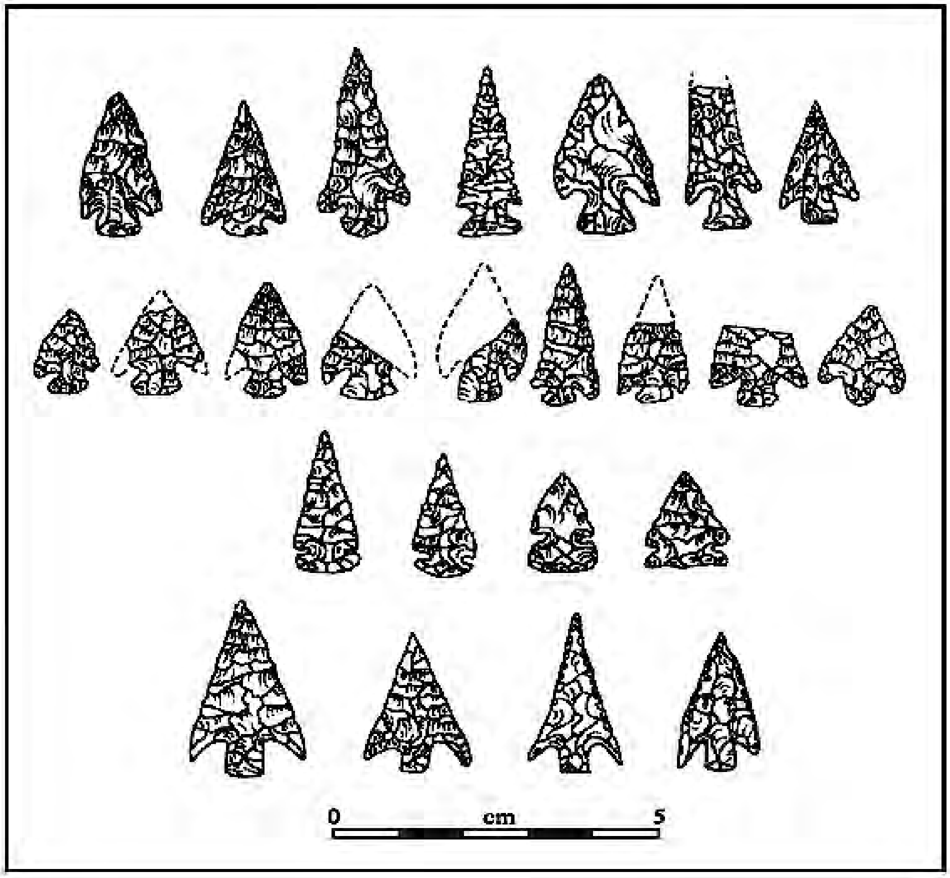


Figure 5.11 Illustrations of Early and Late Formative points. Top two rows: Rosegate Corner-notched points. Second row contains Uncompahgre Complex, Coal Creek Phase type points (Buckles 1971:1220). Third row: Small side-notched points of the Late Formative including Bear River and Uinta. Fourth row contains representative stemmed or basally notched types attributed to the Anasazi.

largely established in recognition of the highly visible rock art panels from whence it drew its name "Canyon Pintado" [Painted Canyon] from the journals of the Dominguez-Escalante Expedition. Several definitive inventories have been completed in the district including those by Gilbert Wenger (1956) of the University of Colorado, and by the Laboratory of Public Archaeology at Colorado State University in 1976, 1977, 1978, and 1979 (Creasman 1981a,b).

Hauck (1993:250) identifies several early Formative Era occupations of the Douglas Creek area that range in date from ca AD 300 to AD 950. The early period dates derived from sites 5RB3498 and 5RB454 (Hanging Hearth) include AD 320 ± 90 (Feature C 5RB3498) and AD 390 ± 70, respectively. Importantly, these features were found to have significant amounts of pollen and macro-flora that indicated the inhabitants were actively processing chenopod-amaranth (Cheno-Ams) seeds. Since Cheno-Ams thrive in disturbed soils, Hauck concludes that these plants were being manipulated, if not outright cultivated, in a growing patch. At

5RB3498, dates from six separate short-term occupations were acquired that ranged up to AD 970 ± 40, and all the thermal features contained evidence of Cheno-Am processing. Hearth features and strata in sites 5RB2828 and 5RB2829 had a much tighter range of dates which fall within the more traditional range of sites classified as “early Fremont” by Hauck. Those sites yielded 12 radiocarbon dates between AD 560±80 and AD 810±50; some of which had associated diagnostic artifacts including Rose Spring points and sand tempered gray ware. This ceramic type has been named Douglas Creek Gray Ware by Hauck, and has associated dates of AD 570 ± 40 and AD 790 ± 60 (Hauck 1993:252). Comparable dates and ceramics were obtained from 5RB2958 (Baker 1990). Other Fremont ceramics known in the area include Uinta Gray Ware and Emery Gray Ware.

Hauck (1993:251) indicates that the resurgence of Anasazi artifact associations (both in lithics and pottery) in this general region evidently had “a Late Formative cultural phase similar to the Bull Creek phase of the San Rafael region to the southwest.” This late Fremont period appears to extend from AD 950 to 1150, a range which is contemporaneous with the late Pueblo II and Pueblo III occupation on the southern Colorado Plateau. Two types of Anasazi ceramics often found in the Douglas Creek area are Tusayan and Mancos Corrugated gray wares. Similar intrusions of Anasazi ceramics have been identified in the Uinta Basin. Hauck also notes there is a distinct similarity between the dry-laid surface masonry structures, promontory sites above the canyon floor, and absence of free-standing storage units of the Uinta Basin and Douglas Creek areas with those found at the Turner-Look Site located in the Book Cliffs area (roughly north of Cisco, Utah). Accordingly, he states that the Book Cliffs phase as originally postulated by Schroedl and Hogan (1975:54-55) is probably the most appropriate designation for this late Formative development in the Uinta Basin and Douglas Creek localities.

Reed and Metcalf (1999:118) have proposed a sequence for the Fremont occupation of northwest Colorado that includes conclusions based on several of the previous inventory projects. They postulate four periods founded on the presence or absence of ceramics, maize horticulture, and structural features:

Early Fremont period: AD 1-550; characterized by the semi permanent structures, use of the bow and arrow, the presence of maize horticulture, but the absence of ceramics–a Basketmaker II-like adaption.

Uinta (or Scroggin) Fremont period: AD 550-1050; the “classic” period characterized by substantial residential architecture, gray ware ceramics, the presence of maize horticulture, and human aggregation into small hamlets.

Late (or Wenger) Fremont period: AD 1050-1300; characterized by the probable return to hunting and gathering; however, the lack of dated sites makes this period hypothetical.

Texas Overlook Site period: AD 1300-1600; due to the lack of data, this is a classification that is tentative at best and subject to further review.

West Central Colorado

From their excavations of cave and arroyo sites on Glade Park (Northwest Uncompahgre Plateau), Lister and Dick (1952) documented the presence of "Fremont-Basketmakers" as they uncovered unbaked molded clay figurines as well as evidence of maize horticulture. In the same area on Glade Park and also along the Colorado River, Conner and Ott (1978) recorded several Fremont petroglyph and pictograph panels. Again on Glade Park, a radiocarbon date of 950 BP (AD 1100) and a Rose Spring Corner-notched point were obtained from excavations at the Gore Site, known for its splendid Fremont (Classic Sieber Canyon) rock art (Clifton Wignall, personal communication, 1986).

In the De Beque area, a previous study for Chevron Shale Oil Company identified Turner Grey pottery at site 5GF656 and artifacts associated with the Fremont period at three other sites (LaPoint et al. 1981:4-57). Southwest of De Beque, a Classic Sieber Canyon Style rock art panel occurs in a side canyon of the Colorado River. South of the Colorado River near the town of Mesa, excavations by Grand River Institute at Jerry Creek Reservoir #2 produced radiocarbon dates, associated projectile points, and ceramics from the Fremont Period (Martin et al. 1981:92, 135). Again, in the Mesa/Collbran area, local collectors have recovered a number of southwestern pottery types. The Young collection was analyzed and found to contain seven identifiable types of decorated Puebloan wares and several corrugated wares comparatively dating between AD 1000-1300 (Annand 1967:57). Groups I and II of the analysis are not assigned as to cultural affiliation but, from the descriptions given, are very likely Fremont types.

Excavations at Battlement Mesa in the early 1980s produced an interesting distribution of diagnostic artifacts and radiocarbon dates related to the Formative Era occupation that included a representation of a late incursion of Uinta Fremonts represented by Uinta Side-notched points. Table 5.5 summarizes the findings.

Table 5.5. Summary of Formative Era chronology indicators resulting from inventory and excavation for the Battlement Mesa Community Cultural Resources Study (Conner and Langdon 1987). [RADIOCARBON DERIVED DATES ARE BOLDED]

Site No.	C-14 data/Diagnostic artifact comparative date	Diagnostic Artifacts/Features
5GF133	diagnostics: ca. AD 1225-1300; ca. AD 1100-1300	Uinta Side-notched points; Tusayan B/W ceramic sherd; Tusayan Corrugated sherds
5GF123	diagnostics: ca. AD 700-1300	Uncompahgre Complex Coal Creek Phase points

Site No.	C-14 data/Diagnostic artifact comparative date	Diagnostic Artifacts/Features
5GF134	**AD 1030-1140**	Rose Spring Corner-notched point; [clay on hearth]
5GF129	**AD 715-895**	Rose Spring Corner-notched point
5GF134	**AD 615-765**	Rose Spring Corner-notched point; and pit structure
5GF132	diagnostic: ca AD 500-1100	Rose Spring base
5GF128	**AD 565-665** **AD 420-550** **AD 295-425**	Rose Spring Corner-notched point; clay balls; pendant
5GF122	**AD 225-395**	Slab-lined floor
5GF127	**AD 65-245**	Dated thermal feature

Eastern Basketmaker II – Early Formative of the Uncompahgre Plateau

Basketmaker II, from its earliest recognition as a cultural and time-stratigraphic archaeological entity, has been generically defined by the absence or near absence of pottery and the presence of some evidence of maize. Our understanding of Basketmaker II has evolved over the last 75 years into a suite of durable and perishable material culture, architecture, rock art, and chronometric data. Its present chronological definition, at least in southwest Colorado and the southern Colorado River Basin, is that period in time ranging from ca.1000 BC to AD 500. For more detailed information the reader is referred to the Colorado Prehistoric Context developed for the Southern Colorado River Basin (Lipe et al. 1999:132-165). O'Neil (1993) and Reed and Metcalf (1999) touch only briefly on the subject of early maize and Basketmaker II.

Recent work by Charles and Cole (2005) has sought to examine Basketmaker II variation and to explore the reasons behind it. Working from Matson's (1991) proposal that there were two ethnic groups of Basketmaker II populations - an earlier western Basketmaker which represents an intrusion of immigrants from the desert Southwest, and a later eastern Basketmaker that developed locally as a result of Late Archaic foragers adopting maize farming - Charles and Cole (2006:168) identified eight generalized regions of Basketmaker II site groupings, both inside and outside of the greater San Juan culture area. These site groups are: Durango, Navajo Reservoir, La Sal Mountains, and Chuska-Lukachukai Mountains, which make up the Eastern group; and Cedar Mesa, Black Mesa, Glen Canyon, and Kanab which make up the Western group. Our focus here will be on the Eastern Basketmaker II, primarily the nearby La Sal Mountains site group, a group which extends into west-central Colorado – especially the Uncompahgre Plateau.

The basic categories for the data set (Charles and Cole 2005:169) include site type, date, architecture, cists, projectile points, pipes, modified bone, ornamentation, and ceramics. Within each of the basic categories are two to seven attributes which help to form generalized diagnostic traits for each of the eight site groups. An examination of the rock art motifs rounds out the comparisons.

The principal material cultural data referenced for the La Sal Mountains site group are derived from four alcove sites and six open sites (Charles and Cole 2006:178-179). Two of the alcove sites, Tabeguache Cave I (Hurst:1940, 1941, 1942) and Cottonwood Cave (Hurst, 1948) are located on the southern Uncompahgre Plateau, and the other two, Lema Cave (Howard and Janetski 1992) and an unnamed alcove "east of Lisbon Valley" (Jett 1991:24) are in Utah. The six open sites consist of Sandy Ridge (Richens and Talbot 1989), Orchard Pithouse (Louthan 1990), the Mountain Boomer and Culvert sites (Hovezak and Sesler 1999), Pig Bear (Dohm 1999), and the White Basketmaker (Hovezak, 2003). Over all, the excavation data are sparse in comparison to other areas such as the Navajo Reservoir and Durango regions of the Eastern Basketmaker II.

The primary diagnostic traits identified for the La Sal Mountains site group include: the architectural use of pithouses, bell-shaped cists and/or slab-lined cists with wood roofing; side-notched and corner-notched dart points, with a few large arrow points, plus some unnotched points which may be blanks; bone dice, notched bone tools, antler or horn wrenches; stone pendants, stone beads, bone beads, and juniper seed beads; and unfired ceramics. There was an absence of clay or stone pipes and shell ornaments, which may be related to the sparse burial data.

The radiocarbon dates for the La Sal Mountains site group range between ca. 460 BC to AD 410. These include conventional and accelerator dates on cultigens and short-lived organics. Radiocarbon dates on maize include: 400-200 BC from Cottonwood Cave (Stiger and Larsen 1992); 360 BC to 25 AD at the Lisbon Valley alcove (Jett 1991:29); 138 AD from the Mountain Boomer site; 240 AD from the White Basketmaker site (Hovezak, 2003); and 390 AD from the Culvert site (Hovezak and Sesler 1999). There is also a date of 180 AD from a human scalp attached to a basketry plaque at Lema Cave (Howard and Janetski 1992). Conventional radiocarbon dates on wood charcoal include 11 dates from the Orchard Pithouse site which range from 460 BC to 375 AD (Louthan 1990) [Note: Louthan reports the range but not the actual dates], and three dates at approximately 200 AD from the Sandy Ridge site (Richens and Talbot, 1989).

The rock art of the La Sal Mountains site group is part of the larger Abajo-La Sal Style, which is attributed to Basketmakers, and which displays influences from the Archaic-based Barrier Canyon style which dates from approximately 2000 BC to 500 AD. It is widely distributed from northwest Colorado into the Glen Canyon region of Utah. Another style that might have influenced the Abajo-La Sal Style rock art is the Uncompahgre Style which may be associated with a separate Archaic based Mountain Tradition (Cole 1990).

Overall, Basketmaker II rock art reflects material culture patterns with broad similarities in shared ideas along with regional variability and local differences, that was reinforced through the public display of iconography and symbols (Charles and Cole 2006:203).

A potential Basketmaker II period site on the Northern Uncompahgre Plateau is the Alva Site (5ME468), excavated by Wormington and Lister (1956). The presence of Oshara Tradition-Armijo Phase and En Medio Phase projectile point types, a mountain sheep horn shaft straightening wrench, a cube shaped piece of stone with rounded edges which may have functioned as a possible gaming piece, and two fragments of corn cobs would seem to fit the general profile for a Basketmaker II occupation. The fragments of corn cobs were found beneath a large slab of sandstone, adjacent to an assortment of pack rat deposited remains, and were not in direct association with the cultural deposits. The excavators assumed that the corn cobs were intrusive because at the time it was not believed that the aboriginal occupants of the Alva Site possessed corn. Today, pack rat middens are considered a veritable gold mine for paleoenvironmental and local floral and faunal information. Radiocarbon dating of the collected corn cob fragments could confirm or deny this assumption.

Other possibilities include: Roth Cave (5ME449), which also contained evidence of corn, but which remains undated; and the Taylor Site (5ME97) which contained Oshara Tradition En Medio Phase projectile point types and slab-lined cists.

Finally, based upon the work of Matson (1991) and Petersen (1981), O'Neil (1993:111, Figure 34) created a map incorporating the local and sub regional relationships between elevation, growing season, and annual precipitation, which indicated the environmental areas with the best potential for prehistoric dry land maize horticulture in the region. Though simple in its design and presentation, it is stratified into categories of potential from best and good to marginal-lower and marginal-upper elevations. The principal areas related to this discussion are situated in a horseshoe shaped configuration along the eastern, northern and western flanks of the Uncompahgre Plateau and the La Sal Mountains between 5,000 and 7,500 feet in elevation. The areas with the best potential for flood irrigated or ak-chin maize horticulture are located at the lower elevations, both within and at the mouths of the canyons located along perennial drainages. Those areas with a good potential for dry land maize horticulture are located between 6,500 and 7,500 feet in elevation and are associated with both mesa tops and canyon environments with intermittent and perennial drainages.

A critical factor to successful dry land farming in the region is the northern limit of the summer monsoon. A strong monsoon arrives early, penetrates further north into the Colorado Plateau, produces relatively more summer rain, and leaves the area later. Conversely, a weak monsoon arrives late, does not penetrate far into the region, produces less summer precipitation, and leaves the area early. The slightest southerly shift or weakening of the monsoon probably would have spelled disaster for the prehistoric maize horticulturalists in the region. Furthermore, the combined orographic and convectional uplift characteristics associated with the La Sal Mountains and the higher elevations on the northwestern end of the

Uncompahgre Plateau would have provided an increased potential for summer monsoonal thunderstorms at elevations above 6,500 feet, thus providing a possible safety valve for dry land maize horticulturalists. This is especially relevant given the predominately southwest to northeast alignment of the storm tracks in the area. Environmental changes in temperature affecting the length of the growing season could be adapted to by shifting production to the marginal-lower or marginal-upper elevations, and incorporating local topographic features such as directional exposure, slope, and their effects on cold air drainage. Selection for soils with better porosity and capable of retaining winter moisture would play a role in all of the scenarios. To date, all of the sites with potential Early Formative Period occupations, and even the succeeding Formative Period occupations, fall within the best to good environmental areas identified by O'Neil (1993).

Late Formative Period of the Uncompahgre Plateau – Gateway Tradition

Following the Basketmaker II phenomenon in the southwestern portion of the Uncompahgre Plateau is a culture identified by Reed and Metcalf (1999) as the Gateway tradition. Its present boundary is along the lower San Miguel and Dolores River drainages in western Montrose County – just east of the present project area. The distribution of this cultural phenomenon was delimited upon the presence of structural remains, cultigens, ceramics, two-handed manos, and rock art localities.

Reed and Metcalf (1999) expand upon Reed's (1984; 1997) original articles regarding the Gateway Tradition as an indigenous group. Admitting that the database is meager and of generally poor quality due to poor reporting, lack of field supervision, and loss of associated literature and collections, they never the less attempted to move forward and model the Gateway tradition in terms of space/time systematics, settlement/subsistence patterns, technology, social organization, and ideology. Space/time systematics consisted primarily of cross-dating ceramics based upon the work of Crane (1977), Hurst (1946; 1948), and a single dendrochronological date of AD 1024 from the Paradox Valley (Woodbury and Woodbury 1932). The ceramic cross dates all fell between AD 1 and 1064, with middle range dates in the early 6th to mid 7th centuries and mid 9th to mid 10th centuries, which included a single radiocarbon date with a range of AD 845 - 955. The ceramics identified were classified as: Moccasin Gray; Mancos Gray; Chapin B/w; Cortez B/w; Mancos B/w; Gallup B/w; Deadmans B/r, Wingate B/r, and an indeterminate corrugated. Taken altogether the limited data appeared to indicate a relatively long, if rather sporadic series of occupations, primarily related to the Northern San Juan Anasazi. The Roc Creek site in the Paradox Valley is problematic in that the ceramics collected have been tentatively identified as Fremont, composed of Emery Gray, Emery Corrugated, and Uinta Gray (but Reed and Metcalf feel that these ceramic classifications are in error).

The Gateway tradition as initially proposed was characterized by the following attributes:

- limited reliance upon maize horticulture, with less maize production than either the Anasazi or the Fremont;
- manufacture of small arrow points, including the Rosegate variety;
- procurement through trade of small quantities of Anasazi, and much less frequently Fremont ceramics, with the Anasazi trade occurring primarily between AD 900 and 1050;
- an apparent lack of ceramic production;
- late habitation of noncontiguous circular masonry structures with low walls, the structures occurring singly or in small hamlets;
- possible habitation of pit structures, late in the tradition;
- relatively short-term use of the habitation structures, as evidenced by shallow midden deposits;
- construction of granaries and storage cists in rockshelters;
- rock art that evidences both Anasazi and Fremont influence;
- tentatively dated between 500 BC and AD 1250.

With completion of the TransColorado Natural Gas Pipeline (TCNGP) mitigation project (Reed 2001), substantial data from nine Formative-era components in west central Colorado were collected and analyzed. Five of the sites are in Montrose County, one site is in San Miguel County, and three of the sites are in Mesa County. Unfortunately, none of the nine are associated with masonry structures.

An excellent synthesis and summary of the data concerning settlement and subsistence was later published by Reed (2005) and provided a comparative analysis of floral and faunal utilization between five archaeological units characterized as Archaic, Basketmaker, Pueblo, west-central Colorado Formative, and the historic period Ute. Also included was an examination of non-masonry architecture (basin houses), storage features, and thermal features, and how these may relate to residential mobility.

Reed (2005) tabulated the evidence for the use of wild plant foods and cultigens according to a "ubiquity index" consisting of the percentage of the total plant species that an identifiable plant species appeared in the macrobotanical samples within an archaeological unit. However, the diversity of plant species varied dramatically between the five archaeological units; this may, in part, be due to differences in group mobility. A total of 20 species were identified for the west central Colorado Formative, compared with 19 species identified for the Pueblo archaeological unit, and 13 species for the Basketmaker unit. The greatest difference in the ubiquity index occurs in the use of corn, with the Basketmaker unit posting a value of 78 %, the Pueblo unit with a value of 100 %, and the west central Colorado Formative with just 22 %. This is because just two of the nine west central Colorado Formative sites yielded evidence of corn. Both of the sites predate AD 400, and are located in Montrose County.

Reed (2005) also tabulated the faunal exploitation data according to frequency expressed as the number of identified specimens (NISP), and then coupled them with frequencies of unidentified mammal bones for each of the five archaeological units. Based upon the relative frequencies, Reed interprets the faunal data as suggesting that the west central Colorado Formative unit followed a pattern of faunal exploitation different from that in the Archaic unit, with its emphasis on large game. Instead, he observes a greater pattern of similarity to that characterizing the Basketmaker unit, which is represented by a more labor-intensive focus on small game such as Leporids, rodents, and birds. However, there is still a relatively strong emphasis on big game including deer, bighorn sheep, and bison.

Residential architecture is represented at two of the TCNGP Formative-era sites in the form of five basin houses. Two basin houses with interior hearths were identified at 5MN4253, and date between 210 BC and 80 AD. Three basin houses with possible thermal features were also identified at 5MN3876, and date sometime around 50 AD.

Combining floral, faunal, architectural, storage feature and thermal feature data, plus utilizing a model adapted from Kent (1992), Reed suggests that north of the San Juan Mountains, Formative-era peoples were engaged in a settlement and subsistence pattern significantly different from the contemporary Anasazi to the south, and may have been about as mobile as Terminal Archaic peoples, with 64% of the region's Formative components representing anticipated short-term occupations. He concludes that “the Formative groups of west central Colorado were characterized by a residential mobility somewhat intermediate between the that of Anasazi, the Archaic, and the Ute” (Reed 2005:26-27).

Reed (2005) also uses another model developed by Barlow (2002) for predicting maize agriculture among the Fremont. Two categories are discussed. The first involves a Plant and Harvest model, the least labor intensive approach, which entails planting with digging sticks with no field preparation, and leaving the plants unattended until harvest; until the harvest of wild resources would be procured. Corn yields are low, residential mobility is high, and lower ranked wild resources are not extensively exploited. This would represent a relatively minor shift in overall adaptive strategy and could be very difficult to identify in the archaeological record. The second category is the Slash-and-Burn model, which involves the clearing of fields by burning and limited soil preparation prior to planting. The fields received little attention during the growing season and the strategy is considered to be associated with a wider range of wild food resources, including some lower-ranked foods. This approach may yield 2-3 times more corn per acre than the Plant and Harvest model and may have been represented at some of the more substantial Fremont sites in Utah.

Employing optimal foraging theory, Reed surmises that given the overall scarcity of bell shaped storage pits, granaries, corn macrofossils, corn pollen aggregates, and the appearance of relatively low ranked floral and faunal food resources in the diet of the regional Formative peoples, the inhabitants probably practiced methods similar to the Plant-and Harvest or Slash-and-Burn methods proposed by Barlow (2002). Foraging remained the dominant subsistence activity and corn was grown to enhance survival during the winter and early spring when wild floral and faunal resources were scarce or had limited caloric return. He envisions a set of scenarios that include: 1) broad scale occupation by peoples engaged in farming to some extent, but who also occupied logistical sites related exclusively to foraging; 2) occupation of the region by distinct groups of farmers and foragers, or 3) switching between farming and foraging activities by a group in response to changing circumstances (Reed 2005:28-31).

Reed also notes that even dedicated hunters and gatherers often interact with horticultural groups, often for mutual benefit, wherein foragers might obtain corn or other products from the farmers, in exchange for meat, raw materials, or even labor. All of these would indicate that the differences between the farming Gateway tradition and the ostensibly foraging Aspen tradition may be less distinct that he originally perceived. He concludes that the Gateway tradition still seems useful for describing the sites with substantial masonry architecture, evidence of corn, small quantities of Anasazi ceramics, and that date to approximately 900-1100 AD, with the Aspen tradition remaining a reference strictly for groups that did not practice horticulture (ibid.).

Understanding the Gateway Tradition in it entirety will involve more excavations. It may ultimately prove to be an exercise in assessing the interactions of the two more clearly defined Formative cultures in this region. Important in interpreting those interactions is a study of the transitions of the Anasazi Culture based on an assessment of climate change and cultural response that was conducted by Benson and Berry (2009) and Berry and Benson (2010).

They base their study on the juxtaposition of Southwestern megadroughts, as measured by the Palmer Drought Severity Index (PDSI) (Berry and Benson 2008), and periods of near cessation of Anasazi construction activity during the 12th and 13th centuries AD (Pueblo II and Pueblo III, respectively). In an earlier study, Berry and Benson (2008) considered the relationship of PDSI and Anasazi construction between AD 500 and 1500 - Basketmaker III through Pueblo IV in terms of the Pecos classification. They noted that each of the stages of the Pecos classification during the era considered was separated from the preceding and successive stage by a major drought episode. This relationship is depicted in Figure 5.12, which relies on Anasazi tree-ring cutting and 'v' dates to the exclusion of less reliable 'vv' dates (reliability based on items dated; as, a date derived from maize provides a more reliable date than wood charcoal).

Berry and Benson's study indicates that this gradualist perspective does not fit the currently available information, and the tree-ring data strongly suggest a “punctuated” rather than a gradual evolutionary trajectory. Droughts bracket the major cultural periods of the Anasazi sequence, and favorable climatic episodes enabled development within the major stages. Importantly, in a comparison of the results of this study with radiocarbon dates from west central Colorado, the ^{14}C records of this region's sites at lower elevations are very similar.

For instance, the end of the Pueblo I period is defined by a severe drought and drop off of construction, and in the Uncompahgre area there is a distinct flattening of the number of radiocarbon dates. Interestingly, during this episode there is an increase in dates in the higher

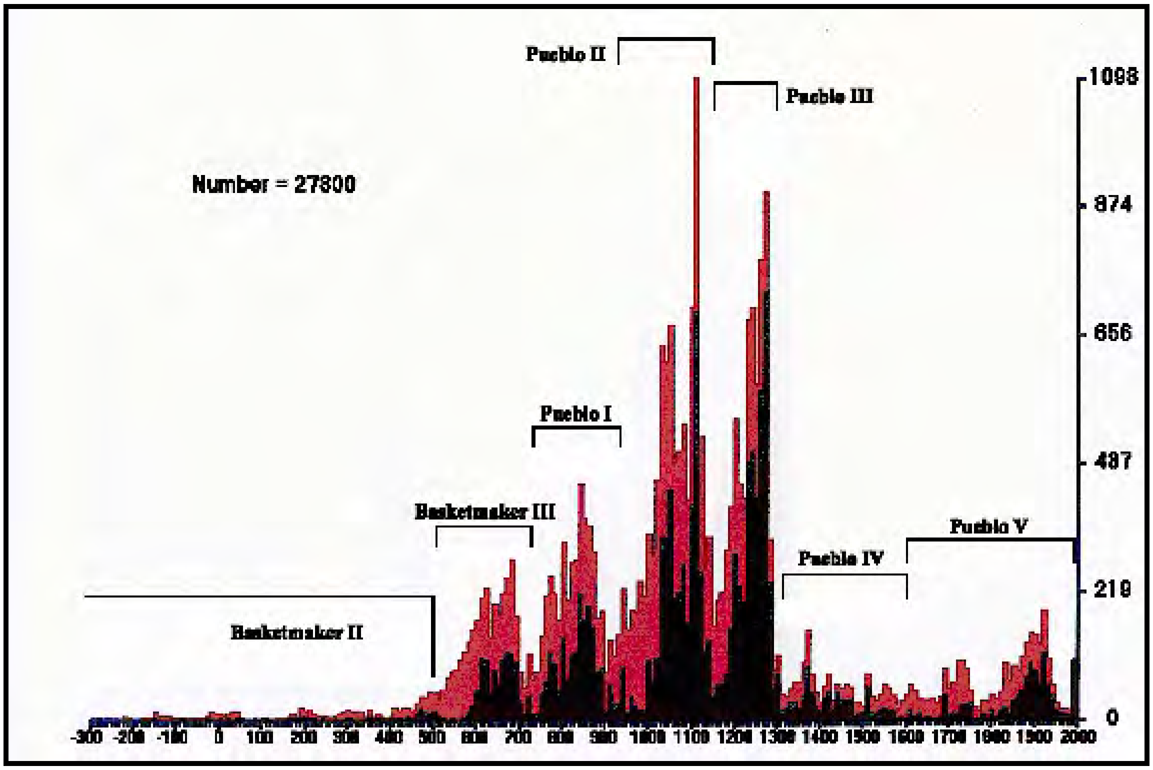


Figure 5.12. Histogram of Southwestern tree-ring dates in ten-year increments (after Berry and Benson 2008: Slide 3).

elevations of the Gunnison Basin. This distinct pattern of low elevation versus high elevation occupation is repeated for the late 13th century drought as well.

5.1.4 Late Prehistoric Era and Post Contact Historic Period

The dissipation of the Formative Era cultures in the region is roughly coincident with the drought of AD 1275 to 1300 and the influx of Shoshonean groups from the western and central Great Basin. Their appearance in the territory ca. AD1200 is indicated by finds of Shoshone pottery mixed with the upper strata of Fremont artifacts in numerous cave sites (Jennings 1978:235). The newcomers are referred to as the Numic speakers (Numa) of the Uto-Aztecan language phylum (Smith 1974:10). The Utes, or “Nuuciyu” (Goss 1999:79), are a “culturally self-identifying group” (Lewis 1994:22) of people affiliated by shared language, lifeways, and history. The Ute language, a member of the Numic branch of the Uto-Aztecan language family, is “affiliated most closely with the Southern Paiute in the Colorado River drainage to the west, less closely with the Comanche and Northern Shoshone in the Plains and Plains-Plateau to the east and north respectively, and least closely to the Northern Paiute in the Great Basin area of western Nevada and Oregon” (Jorgensen 1965b:9). Although there is disagreement regarding the earliest prehistory of Numic speakers, it is generally agreed that during the last thousand years they expanded from the southwest Great Basin to reach their historically known territory in Utah and western Colorado (Madsen and Rhode 1994).

Aikens and Witherspoon (1986) have proposed a model that includes an environmentally induced extinction of non-Numic inhabitants and an expansion of Numic foragers that occupied the Great Basin for at least 5000 years. They contend that the Numic were coexisting with non-Numic foragers and horticultralists during the Formative period when the regional climates were relatively warm and wet. During times of aridity, non-Numic farmers and wetlands foragers would have abandoned optimal areas, which, in turn, would be re-occupied by Central Numic foragers. Similarly, Simms' (1986; 1990) suggests that Numic speaking foragers may have coexisted with Fremont farmer-foragers throughout the Formative Stage, and Jorgensen (1994:85) using linguistic and ethnographic data placed the Numic spread at about 2000 years ago.

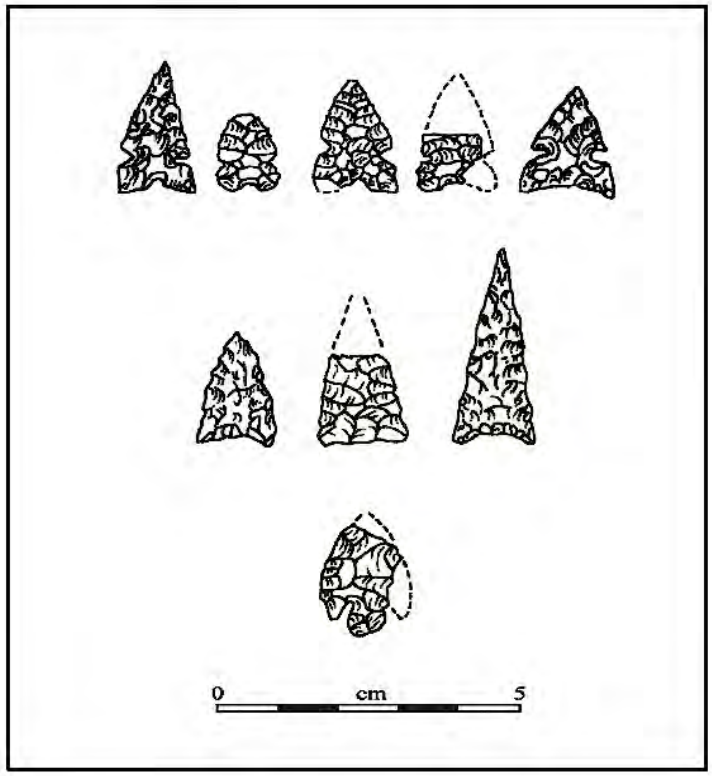
The Numic Speakers brought to the Great Basin and Colorado Plateau a change in subsistence pattern. According to Bettinger and Baumhoff (1982:496-500), the Numic Speakers concentrated more heavily on small seed gathering and the hunting of large game over shorter distances, and thus exploited a smaller catchment. The technology for small seed gathering and processing was more advanced than was known to pre-Numic peoples and allowed support of larger populations. This strategy brought economic pressure to bear upon groups who did not practice it. Thus, the subsistence pattern that had been followed throughout the Archaic Period and altered slightly by the Fremont horticulturalists was supplanted entirely by the Numic scheme of procurement. Such a strategy was probably born of the needs created by changing climatic conditions and/or by increased population densities in the southwestern Great Basin (Bettinger and Baumhoff 1982:496-500). The broad spectrum hunting and gathering of the Numic maintained itself as a successful adaptation.

A variety of floral and faunal items were used by the Numa. Textiles (basketry and other woven items) were made from squaw-bush, willow, and juniper bark (Smith 1974:91). Seeds and pinyon nuts were processed for food using grinding and milling stones. Other floral resources collected seasonally were serviceberry, chokecherry, currant, raspberry, elderberry, wild rose, sego lily, wild onion, and wild carrot. The hunting and trapping of rodents, deer, mountain sheep, elk, and bison are illustrated in the rock art (Conner and Ott 1978).

Ute (Nuche) Diagnostic Artifacts

Diagnostic projectile points representing the Late Prehistoric and Early Historic period (ca. AD 1300-1750) collected from sites in the region are shown in Figure 5.13. These points are variously characterized as small side-notched, tri-notched, and unnotched types. These points are a pan-Northwest Plains-Rocky Mountain phenomenon and were used by Ute, Shoshone and Crow. Tri-notched and unnotched points, which Great Basin/Colorado Plateau archaeologists would characterize as Desert Side-notched and Cottonwood Triangular types, were recovered from the Bugas-Holding site in Sunlight Basin of northwest Wyoming that dated AD 1400-1600 (Kornfeld et al. 2010:131, 135, 317-327). The tool kit from this site also contained other artifacts that are considered diagnostic of Ute sites in Western Colorado, including Shoshone knives, a broad bladed knife type (that we refer to as Ute Leaf-shaped knives), and finely worked scrapers (Plate 5.1).

Figure 5.13 Illustrations of Late Prehistoric and Early Historic points. Top row: Desert Side-notched variations. Second row: Cottonwood Triangular variations. Third row: Small corner-notched. Several illustrations derived from Uncompahgre Complex, Escalante Phase types (Buckles 1971:1220).



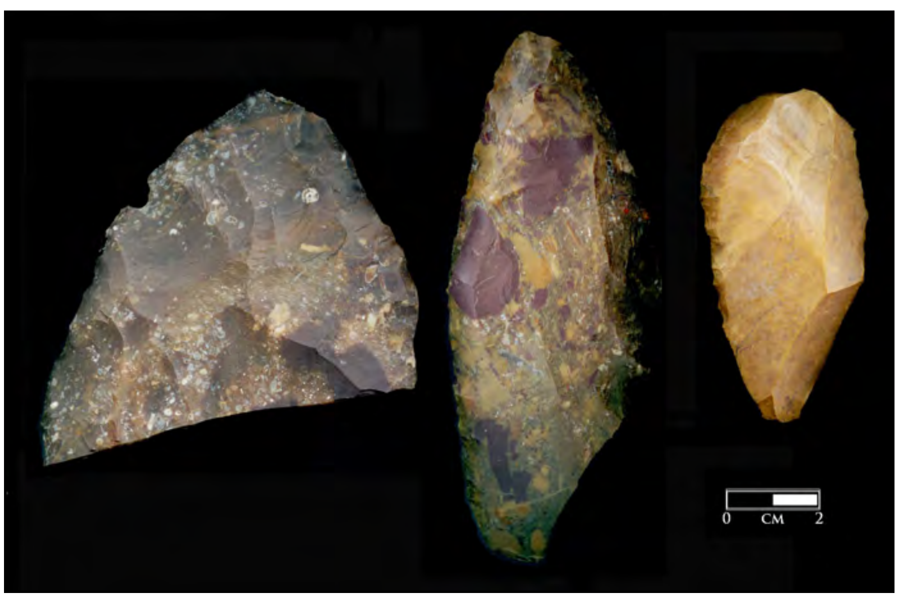


Plate 5.1. Knives and scraper representing the Late Prehistoric and Early Historic period: Ute Leaf-shaped Knife, Shoshone Knife, and scraper.

Aside from these diagnostic artifacts, it is notable that points and tools having an older temporal association are found on Historic Ute sites, which indicates a certain amount of collection and curation. Paleoindian artifacts seem to have been the most attractive. Agate Basin points are one of the preferred collectibles that exhibit use as knives; also, the exceptional end scrapers often found in Folsom components are also favored (Plate 5.2). As well, fine Paleoindian flaking technology is often seen on the Ute points, which illustrates that at least a few of the lithic artisans observed and copied those techniques.

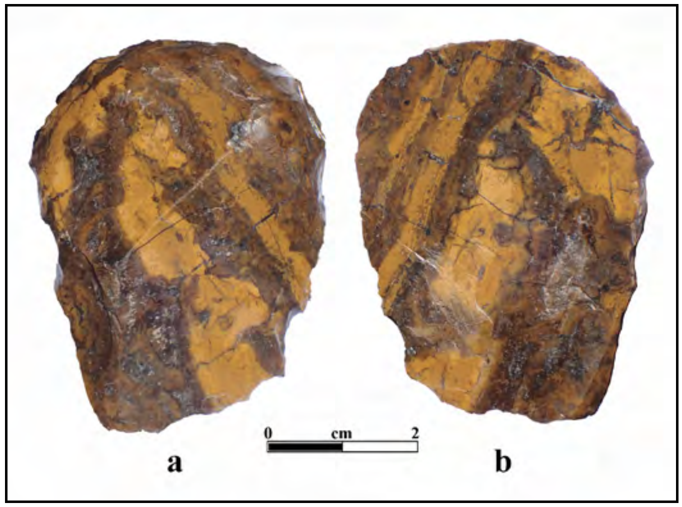


Plate 5.2. Scraper (spurred) documented as part of the artifact assemblage at a wickiup site on the northeastern Uncompahgre: a) dorsal; b) ventral. This scraper type was associated with the Folsom component at the Agate Basin site (Frison 1991:131, Figure 2.81.)

Another Ute diagnostic (not commonly found) is a small bifacially worked chert artifact, identifiable as a flint for a flintlock rifle. This type indicates possible dates of use between AD 1700 to 1880. Such artifacts were first secured as trade items. The French dominated the trade from AD 1750-1800 and almost an equal number of French and English flints were recovered from Bent's Old Fort in southeast Colorado. Many flintlock guns were converted to caplock, a more reliable priming technology, by 1845. However, "American Indians often continued to use flintlocks, since they could make their own gunflints and did not have to procure percussion caps" (Gleichman and Teegarden 2005:6). A fact attested to by artifacts found at the Battle of Cienequilla located near what is now Pilar, New Mexico, that occurred on 30 March 1854. There, Apache and Ute warriors used flintlock rifles and metal tipped arrows to attack and decimate an American 1st Cavalry Regiment (Johnson et al. 2009).

Gun flints have been recovered from two sites in the Piceance Basin (Plate 5.3). Analysis of the lithic material of sample 5RB116.s1 reveals that this "flint" was made from chert from quarries in the Madison Formation found in the Blue Mountain area in northwestern Colorado (Conner et al. 2013:225-226). That lithic material is commonly found on Numic sites throughout western Colorado. Also, excavations at 5RB451, a site also located in the Piceance Creek Basin, produced two similar flints of native chert (Conner and Davenport 2000).

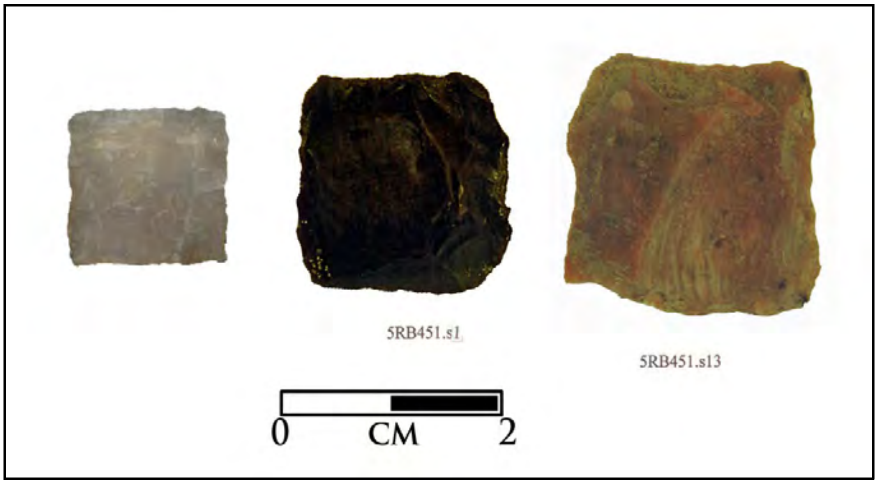


Plate 5.3. Gunflints for flintlock rifles have been found on just two sites in the Piceance Basin. On the left is one recovered from 5RB116, and the two on the right were recovered from nearby site 5RB451. Notably, all three are made of materials quarried in Northwest Colorado by the Utes.

Though once thought to date back into the Formative Period, post ca. AD 1350 marks the appearance of Uncompahgre Brown Ware ceramics. Sites with Uncompahgre Brown Ware 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. Also in the Northwest Piceance Basin, site 5RB2929 was radiocarbon dated AD 1350±85 (580±80 BP, Beta-37819). Further southeast in Western Colorado, 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 also recovered. These were associated with features dating ca. AD 1476 (474±70 BP) and AD 1466 (484±80 BP) (Dial 1989:19).

Although this ceramic's name implies a geographic location for its production, Buckles notes that a very similar type can be found as far west as Lao, Utah. In fact, similarities between ceramics made by the Ute, the Southern Paiute, Apache, Navajo, and Yavapai make them nearly indistinguishable (Buckles 1971:505). Buckles found changes in Uncompahgre Brown Ware for sites dating to the later Ute period. During the 1600s (after the acquisition of the horse), the Navajo were victims of a Ute-dominated slave trade which provided slaves to trade for Spanish horses and possibly provided pottery-making wives to Ute warriors as well. By the late 1700s, the Utes had established friendly relations with the Apache and Navajo, and Uncompahgre Brown Ware developed additional Athapascan ceramic characteristics (ibid:533). Perhaps by the 1800s, the Utes were doing more trading than manufacturing; but, it is notable that the northern Utes are recorded as both making and trading pottery during that time (Smith 1974:83-89, 252).

Toward the end of the Canella Phase, European trade goods appear in limited quantities. The Antero phase dates from about AD 1650 to 1881 and represents the shift to a fully equestrian lifestyle and the addition of Euro-American trade goods such as metal knives and axes, metal projectile points, glass beads, cone tinklers, guns and cartridges, tin cans, and horse tack. Desert Side-notched and Cottonwood Triangular projectile points continued to be used, but were increasingly replaced by metal projectile points and firearms and were likely subsumed by ca. AD 1840.

Steve Baker's multiphase model of Ute culture history for the Eastern Ute bands of western Colorado (Baker et al. 2007:38-41) provides useful temporal resolution for the contact period. An abbreviated summary of Baker's taxonomic model is presented in Table 5.6.

Table 5.6. The Baker Model of Ute Culture History for Western Colorado: Artifactual Hallmarks [Adapted from Baker, Carrillo, and Späth in *Colorado History: A Context for Historical Archaeology* 2007, p.41 (synthesis and additions by Curtis Martin)]

ARCHAEOLOGICAL PHASES	DATES	SUGGESTED ARTIFACTUAL HALLMARKS
Phase "V-A": Recent Contact ("Ungacochoop Phase")	ca. 1900-1924	Post-1900 axe-cut dendro dates
Phase "IV-B": Late Contact Post-Removal (Fort Duchesne Phase)	1881-ca. 1900	– Tobacco tins appear – Wagons – Sheep and goats – Post-1881 axe-cut dendro dates
Phase "IV-A": Late Contact Pre-Removal (Chief Ouray, Chief Douglas, & Chief Ignacio Phases)	ca. 1860-1881	– Metal axes ("ubiquitous") – Canvas tipi covers – Tin objects – White-man's clothing – Bottle glass (common post 1870) – Iron stoves and wall tents – Fixed ammunition guns/cartridges (common post 1870) – Hole-in-top food cans (round cans common post 1870) – Seed beads *very* common (small specimens late in phase) – Wickiups much better preserved and recognizable – Adobe, log, and jacal structures
Phase "V-B": Recent Contact (Emergent Reintegration Phase)	ca. 1924-present	Reappearance of native arts and crafts
Phase III: Middle Contact (Robideau Phase)	ca. 1820-1860 (Fur trade)	– Metal arrow points begin to replace lithic points – Horse tack – Metal axes, cutting and chopping tools – Tipis – Metal cooking vessels – Seed beads (post 1840) – "Little China" Prosser buttons (post 1840) – Percussion caps – Ceramic pipes (bore diameter important) – Tinkler cones – Wickiups better preserved/more recognizable

ARCHAEOLOGICAL PHASES	DATES	SUGGESTED ARTIFACTUAL HALLMARKS
Phase II: Early Contact (Rivera Phase)	ca. 1540-1820	– First appearance of horse equipage (increases late in phase) – Tipis (*late* in phase) – Metal knives (but *few* axes apparently) – Trade beads (but only those *larger* than seed beads) – Gun flints, musket balls, gun parts (post 1800 or even later) – Brass/copper objects (as early as 1540!) – Shell buttons (post 1800) – Uncompahgre ware pottery still in vouge
Phase I: Late Pre-Contact (Canalla Phase)	ca. 1500 -1540	– Uncompahgre ware pottery – Desert Side-notched projectile points – Cottonwood Triangular projectile points

One of the most prominent and temporally diagnostic features of Historic Ute sites is the wickiup. There exists evidence from numerous archaeological investigations that have taken place in Colorado and elsewhere that habitations and shelters have been manufactured for thousands of years with wooden superstructures incorporated into their construction (Stiger 2005: personal communication; Metcalf and Black 1991; Conner and Langdon 1987; Cassells 2003). It is likely that a significant percentage of prehistoric campsites included temporary shelters. This is based on the premise that, in all temperate and harsh-weather regions of the world shelters were necessary for human survival, or at minimum highly desirable

Although many of the sites categorized as aboriginal “open architectural” in the COMPASS database contain wickiups or brush shelters, all forms of extant wooden and brush features are of interest in terms of categorizing sites as being of Historic Ute affiliation. It is from the early historic and ethnographic records of the then-living native peoples, the photographs and illustrations that accompany them, and the archaeological documentation of the abandoned habitations and camp sites in the times since, that provide us with much of the data from which to formulate definitions and descriptions of wickiups and other forms of ephemeral architecture and perishable features, as found within the western United States.

5.2 Non-Native Historic Period: From Exploration to Settlement

Historic records of non-Native Americans in western Colorado indicate use or occupation by explorers, trappers, settlers, miners, farmers, and ranchers. 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).

5.2.1 Exploration

Historic use of the area by other than Native 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 area 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. Possibly relating to that collapse, Antoine Robideau’s trading post (east of the Uncompahgre Plateau near the confluence of the Uncompahgre and Gunnison rivers) was burned down by Utes in 1844.

Government exploration was the next stage in non-Native 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.

5.2.2 Rush to Settlement

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.

The influx of people to western Colorado increased greatly with the 1859 gold rush, resulting in mounting friction and conflict between miners, settlers, 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 1870s. 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. Due to the White River Utes' discontent, a congressional investigation led to the Treaty of 1880 that stipulated the removal of the White River bands to the Uintah Reservation in northeastern Utah. The Uncompahgre band was to be given a small reservation in the vicinity of the confluence of the Colorado and Gunnison Rivers. Aware of the value of these agricultural lands, however, the commission charged with enforcing the terms of the treaty, under the direction of Otto Mears, manipulated the location process using a loophole in the treaty language, and the Uncompahgres were given lands in Utah near the Uintah Reservation. The Southern Ute bands were left on the small reservation in southwestern Colorado that had been given them by the Treaty of 1873. 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).

5.2.3 Military Occupations and Establishment of Fort Crawford

Between 1875 and 1879, black soldiers, also known as Buffalo Soldiers, from the Ninth Cavalry were stationed at Fort Garland in southwestern Colorado. Buffalo Soldiers from Fort Garland spent time away from the post engaged in unpopular duties such as removing white settlers from Ute lands and providing security during disputes over treaty violations committed by the miners and settlers flocking to the Colorado Territory. Buffalo Soldiers from D Company of the Ninth Cavalry also played a part in the Battle of Milk Creek.

Nankivell writes, "Occasionally, troops from other posts, particularly the 9th Cavalry (Colored) from Fort Lewis, 109 miles to the south, visited the post, and at various times the garrison of Fort Crawford made practice marches through the adjacent country" (1934:62).

According the oral history provided by William Shepherd and Enoch John Shepherd,

> William Shepherd came over the divide to Ouray in 1877 with four horses and a wagon. There was a stage road as far as Indian Creek on the Lake Fork of the Gunnison, but from there there was only a trail, and they had to make their own road. A company of Negro soldiers [Buffalo Soldiers] had been sent in to the Uncompahgre Valley to move the settlers off the Reservation, and they had had to build their own road (Shepherd 1934:70-71).

Following the Meeker Incident in 1879, Colonel Mackenzie, stationed at Fort Garland was dispatched with part of his command to the Uncompahgre Valley. In 1880, six companies of cavalry and nine companies of infantry traveled from Fort Garland over Cochetopa Pass to the Gunnison River.

> We were near the Uncompahgre agency...and it was not difficult to see why the Uncompahgre was so much desired by the whites. It was practically the only piece of land within hundreds of miles available for cultivation; could be easily irrigated, and had an inexhaustible supply of water (Nankivell 1934:55).

Mackenzie's command reconnoitered in the Uncompahgre and Gunnison river valleys and on the Grand Mesa, keeping peace between native inhabitants and prospectors for mines who were invading the Ute country in ever-increasing numbers. At the same time the Uncompahgre reservation was examined in detail for the site of a new military post. General W.T. Sherman wrote in his letter to the Secretary of War, dated at Chicago, April 3, 1880:

> . . . General Mackenzie will be ordered forward as soon as wagons can be used on the road by Saguache and Del Norte to the Uncompahgre Agency, and thence to reconnoiter forward as far as the junction of Gunnison and Grand Rivers, to select a site for a considerable Post, one that will insure peace in all that region. For this purpose a hundred thousand dollars will be indisputably necessary and I earnestly advise that you ask this sum of Congress at the earliest date possible, because the post ought to be built this year. . . . With a good strong post on the Gunnison, and the two indicated at White River, and on the Animas, I feel certain that the Army can enforce the peace in that mountain region for some time to come" (Nankivell 1934:55). [A photostatic copy of this letter is in the library of the State Historical Society of Colorado. Along with other documents relating to Fort Crawford, it was presented to the Society by Major Nankivell.-Ed.]

On July 21, 1880, a temporary supply camp was established on the west bank of the Uncompahgre River about four miles north of the Los Pinos Agency and eight miles south of the site that was later to become the town of Montrose. Mackenzie's cavalry and part of the infantry were withdrawn to Fort Garland for the winter, leaving Major Joshua S. Fletcher, Jr., with his command of Companies A, B, C, D and E, 23rd US Infantry, numbering about 250 officers and men to construct the post at the supply camp. "There was but little timber in the valley of the Uncompahgre, a few scattered groves of cottonwoods along the river bottoms constituting practically the only supply, and lumber for the building of the post had to hauled in from the pine and spruce forests to the south. A sawmill was established on the reservation [at Government Spring], and the logs were sawn into pickets and boards for the construction of various buildings" (Nankivell 1934:56-57).

Buildings consisted of barracks for four companies, officer's quarters, post headquarters, a hospital and matron's quarters, a guard house, quartermaster's storehouses, a commissary store house and cellars, ordinance store houses, a bakery, quartermaster's corrals and shops, an ice house, trader's quarters, store, and storehouse (Plates 5.4 and 5.5). Mrs. Winifred Pollock Fairfax stated the following about the first winter in the supply camp and life at the new post, "The logs from cabins were erected in an undried state with pitch oozing

Plate 5.4. Cantonment on the Uncompahgre, ca 1886 (Goodman, Charles, Denver Public Library, Western History and Genealogy Dept., Call No. Z-7190).

Plate 5.5. Officer's quarters Cantonment on Uncompahgre, no. 107 (Goodman, Charles, Denver Public Library, Western History and Genealogy Dept., Call No. CHS.X9446).

from them. These were covered with condemned canvas tent flies. The canvas was used on the walls and ceilings to keep the pitch from dropping on, or coming in contact with the occupants." Supplies were furnished from depots at Fort Leavenworth, Kansas. Wood, hay, and straw were procured in the vicinity by contract. Water for drinking and cooking was pumped by steam power from a well near the bank of the Uncompahgre River into a tank and distributed by wagon. Water was also obtained from the river by an irrigating canal (ibid:57-59). In 1884, David Wood, a local forwarder and commission merchant in Montrose, shipped 1,516,171 pounds of merchandise to the cantonment, which accounted for one quarter of the weight transported in that year (Wood and Wood 1979:172-173.)

Early in 1881, Mackenzie returned from Fort Garland to remove the Ute people to Utah, but his stay was short-lived. He was again withdrawn from the district and the garrison at the cantonment was reduced to four companies of the 14th Infantry under Lieutenant Colonel Henry Douglass, which detachment relieved the original garrison from the 23rd Infantry in October, 1881. The camp settled down to routine garrison duty, interspersed with occasional social functions and hunting expeditions into the adjacent game paradise in the mountains to the south and southeast. It was assumed that the cantonment would be shortly abandoned, which was met with a "storm of protest" from the settlers in the region, urging for the retention of the troops in western Colorado ((Nankivell 1934:61). President Grant formally declared the establishment of the Cantonment on the Uncompahgre on March 12, 1884. In July 1884, the military reservation was reduced in size to 8.55 square miles, and in March 1885, jurisdiction of the tract was ceded by the State of Colorado to the United States.

In 1886, the cantonment was "designated 'Fort Crawford,' in honor of the late Captain Emmet Crawford, 3rd Cavalry, who died January 18, 1886, at Nacori, Mexico, of a wound received in an attack made on his command of Indian scouts by a force of Mexicans, while in pursuit of hostile Indians" (ibid:62).

From 1884 to 1889, only seven officers and 89 enlisted men were stationed at the post. This number increased to 12 officers and 148 enlisted between 1889 and 1890. On the departure of the troops, the post fell into disrepair and was transferred and turned over to the Secretary of the Interior for disposition, as it was no longer required for military purposes. The post was placed in charge of a caretaker and the buildings sold at auction to settlers in the area. The old hospital ward was bought by Mr. E.L. Hays and moved by him to his land near the present Riverside School, five miles south of Montrose on the highway to Ouray. James A. Fenlon, who conducted the settler's store at the post for many years, acquired title to that portion of the reservation on which the post proper was located, by patent from the US government (Nankivell 1934:63). After making proof on the deed in 1895, he deeded it to his wife, Mrs. Lizzie C. Fenlon, who came to the fort as a young bride in 1881 "and is still living on the site of the old fort, her house being on the north edge of the old parade ground. This parade ground still exists; the young cottonwoods that surrounded in the '80s are now stately trees, and the parade ground itself is a beautiful meadow" (ibid:62).

The Solid Muldoon Weekly reported: Christmas at Cantonment (Fort Crawford) was an exceedingly pleasant occasion. There were some three hundred presents for the old and young. This is in addition to vocal and instrumental music and hand-made inspiration (Solid Muldoon Weekly 1886:3). Other reports indicate the Cantonment organized relief efforts for the Irish Land League of America during the Irish famine (Solid Muldoon Weekly 1883a:3) and had a baseball team (Solid Muldoon Weekly 1883b:3).

5.2.4 Early Sawmills and Operators in the Uncompahgre National Forest

> The first mill to be constructed was near Government Springs and was operated by the soldiers at Fort Crawford. The next mill was erected by Elisha Darling, of Montrose, in the year 1884, west of Montrose, in the yellow pine stands. This lumber was produced cheap, and brought a price of $14.00 at the mill. After the establishment of the sawmills, the lumber industry was a big factor for Montrose, in those days. Enormous quantities were necessary to supply the needs of the fast building community, as well as the construction of the railway, and the miles in the vicinity of Ouray. As high as 126 M ft. B.M. of railroad bridge timber [was] being loaded out of Montrose in one day.
>
> A large part of the present day roads through the Forest were first constructed by the early sawmill men. As the yellow pine stands became exhausted, it was necessary for them to extend their operations to the spruce belt higher up on the mountain. Portions of the Divide Road were constructed by Mr. Darling during his operations.
>
> In the early days the stumpage appraisal of the time was handled by the Department of the Interior, until the Bureau of Forestry was established. Much timbered land was bought under the old Timber and Stone Act, quite a lot homesteaded, and it was usually the best stands of timber thus secured for patent (Keep 1934:246-247)

The Uncompahgre National Forest map depicts “Darling Mill” near Iron Spring at the point where the Montrose Nucla Road meets the Divide Road. Darling Lake is located a couple of miles to the west (USDA Forest Service 1935).

5.2.5 Historic Settlement Period

On 1 September 1881, western Colorado was completely opened to the whites, and the late 1800s saw the progressive opening of western Colorado to homesteading, ranching, farming, and mineral exploration. Important to this development 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. 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 were not required to live on the land or make improvements, as was required under the Homestead Acts. Consequently, the first filings for land acquisition by cattle ranchers, farmers and miners were completed as exemptions (Moores 2000: ix).

Interest in the potential agricultural lands of western Colorado (namely the Uncompahgre, Gunnison, Colorado, Dolores, San Miguel, White, and La Plata River valleys) had been growing for some time prior to the Utes' banishment, and by the spring of 1881 frontier towns closest to the Ute lands were "crowded with people, anxious to enter the Reservation and take possession of the most desirable locations (Haskell 1886:2)." Only days after the last of the Utes had been expelled, settlers began rushing onto the old reservation lands. Settlement activity spread quickly – during the autumn months of 1881 land claims were staked, townsites were chosen, and railroad routes were surveyed (Haskell 1886, Borland 1952, Rait 1932). However, because the former reservation lands were not officially declared public lands until August 1882, the first year of settlement activity was marked by a degree of uncertainty regarding the legality of land claims.

When finally announced, the 1882 declaration did not allow homestead entries on the newly opened lands, but only preemptions, or cash entries, at the rate of $1.25 per acre for agricultural land, $5.00 per acre for mineral land (Borland 1952:75). The settlers raised their own food and availed themselves of the plentiful game in the area. Gardens, hay fields, and orchards were planted, and irrigation ditches were dug to divert creek's water to cultivated fields. Families and individuals moved in to pursue a ranching and farming lifestyle with the average homestead about 160 acres.

The life of a pioneer was one of toil. Often, families grasped every chance they could get to supplement their income; especially after the cattle industry started to experience a downturn in the late 1880s due to inclement weather. Many pioneers sold the hides they obtained from deceased cattle or deer. Other resources were tapped. A new round of settlement occurred in the early 1900s that was made possible by technological advances and better knowledge of scientific techniques in farming, as well as increased rainfall (although variable), which lasted into the early 1920s (Church et al. 2007:115). Populations in western Colorado counties steadily increased between 1890 and 1920. By 1930, however, the population had dropped.

5.2.6 Development of the Cattle Industry

After the establishment of the first Ute reservation in Colorado in 1868, the government supplied 1,200-2,500 head of cattle as an inducement to take up farming and ranching practices. The cowboys drove the cattle ahead of the Ute to the original Los Pinos Agency. Ranger John Keep indicates that the first stock cattle on the Uncompahgre Plateau were driven from the Gunnison Valley to the Uncompahgre Valley in 1875 when the Los Pinos Agency headquarters was moved to the Uncompahgre River. The cowboys who made the journey were Alonzo Hartman, Jim Bishop, George Beckwith, Jim Kelley, Antonio Madrill, and Sidney Jocknick. "They were Ute cattle and were brought in to supply beef for the men who were getting out the lumber and building material for the construction of the Indian Agency, which was soon to be removed to the Valley of the Uncompahgre" (Keep 1934:253).

It was also reported that Pumphrey and Loutsenhizer, upon securing the contract from the Government, drove in 5000 head, trailing them from the San Luis Valley. After the Utes were removed in 1881, they went out of business, and sold small bunches of breeding cattle to the mines and railroad construction camps. Also from this first outfit, many of our present day herds of cattle are built (ibid).

One of the main influences on the rise of populations was The Stock-Grazing Homestead Act of 1916, which opened up new public domain to stockmen and farmers on a far greater scale than ever before and became the most popular homestead legislation ever passed. This act applied to all public lands in Colorado, and provided 640 acres of non-irrigable, non-timbered land "chiefly valuable for grazing and raising forage crops" (Schlebecker 1975:208). Much of the land was used for wheat instead of grazing, but could not be filed on until 1918. The act encouraged migration to the upland parcels of the Uncompahgre but its impact was not really felt until after 1920.

In the Ouray district, cattle ranching began in 1881-1882 (although it is entirely possible that it had begun earlier than the Ute Removal by non-resident cattlemen) and sheep followed about 25 years later. In 1889, a very dry summer was followed by a harsh winter with freezing rains and insurmountable snows. Thousands of cattle perished. Hard times followed in the 1890s when a drought literally dried up homesteads that employed dry farming as their economic base. Those that practiced agriculture were limited to the canyons with flowing water where irrigation could be employed. A few sold their homesteads and ranches to move into towns and pursue a less strenuous life. Others capitalized and expanded their holdings, and many of the ranches grew to astounding sizes. Large herds of cattle were accumulating, grazing the valley floors and the vast open ranges of the surrounding mountains, driven to the uplands via trails leading up the various gulches and canyons.

Prior to the 1890s, early herders drove cattle overland to seasonal ranges and market places. Before railroads arrived to transport them, West Slope cattle traversed the mountainous terrain to reach markets as far as Wyoming and the Dakotas. Although west central Colorado never witnessed the extensive drives famous on the Great Plains, Longhorns served as the basis for many herds during the 1880s, and were driven from Texas into the region. For example, in 1883, Charles Sieber brought 8,000 head from Texas into the Glade Park area of the northern Uncompahgre Plateau (Mehls 1892:111-112).

Cattle were grazed on public lands by ranchers who acquired title to the water sources, most of which became cow camps with cabins and other improvements used by the cowboys in summer. The entire Uncompahgre Plateau was cattle range in 1905 when it was incorporated into the National Forest Reserve System, which was established primarily to regulate logging and grazing (Crum and Keene 2009). The name "7N" is likely the name of a cattle outfit or cow camp. As early as the 1890s, Rifle became the largest volume livestock rail shipping point in Colorado (Mehls 1982:112), and during this time most of the ranchers that grazed the Uncompahgre Plateau used this railhead. Cattle were shipped out of the area for a good profit; likewise, new breeds were introduced and cattle herds improved.

Inevitably, conflict arose over grazing rights between cattlemen and sheepmen, which led to the end of open grazing (1860s to early 1900s) and legislation governing grazing rights. The large cattle outfits in the region fought to preserve the Open Range policy in the face of incursions into their territory by homesteaders and, worse yet to them, *sheepmen*. Groups were formed to stop or impede their introduction. Terrible, violent range wars erupted with the first attempts to bring sheep onto the open range, because cattlemen believed the animals "grazed to the roots."

Sheepherders and their animals were killed or driven back to Wyoming. Cattlemen staged numerous similar attacks in Parachute Creek, in Delta County, on Glade Park, in the Plateau Valley, and in Gunnison County around the turn of the century. As with these other areas, conflicts between sheep owners and cattle ranchers were heated on the Uncompahgre. Escalante Creek near the Gunnison River was the scene of an infamous shootout over the cow-sheep conflict in 1917 that resulted in two deaths (Marshall 1998:30). Occasionally, the sheep growers retaliated but never with the aggression displayed by the stockmen. Obviously, the conflict was, for many, a racial one; cattle were usually owned and tended by Anglo-Americans, while sheep were often run by Mexican-Americans or Basques (Mehls 1988:115). A number of aspen carvings around the Grand Mesa and Uncompahgre Plateau were made during the 20th century by New Mexican or Basque shepherds; after about 1970 such sheepherders were rarely employed.

The battle of the Yellowjacket Pass in 1920 marked the climax of the cattle-sheep war and brought public focus and sympathy for the sheepmen (Athearn 1976:82). The combination of small ranchers banding together with sheepmen and the creation of the National Forests with their requirements of grazing permits broke the power of the big ranches. The result of the conflicts on the Roan Plateau was the Rees-Oldland Bill of 1933, which was aimed at settling these disputes by dividing the range. Finally, the Taylor Grazing Act was enacted in 1934, which regulated grazing on federal land and marked the end of open grazing (Bury and Bury 1991:167).

Today, grazing and hunting are primary activities on the Uncompahgre Plateau. During the first half of the twentieth century, however, logging was common within spruce and ponderosa pine stands on the Uncompahgre Plateau. Timber was harvested with saws and then transported to portable sawmills, all of them no longer in existence, using horses or tractors. Lumber was hauled away in wagons – and later, tractors and trucks. To access the forests of the Uncompahgre and remove the timber, the Divide Road was established, which runs north-south down the length of the Plateau between Unaweep Canyon on the north to the

Dave Wood Road on the south. The date of construction of the road is unknown, but it was improved as a “truck trail” by a Civilian Conservation Corp (CCC) project during the 1930s. The road is thought to correspond to the location of an old Indian trail (Crum and Keene 2009). Transfer Road and the ranger station was a place where lumber from the mills was switched to wagons or trucks from bobsleds during winter logging.

Pioneers of the cattle industry were responsible for many of the place names on the Uncompahgre Plateau:

> The Roberts Brothers were pioneers of the cattle industry around Delta. Besides being cattlemen, their business consisted of breeding and raising race horse stock. They commenced operations in 1882, and constructed a trail up Cottonwood Creek, and up to the top of 25 Mesa, what is now known as the old Roberts Trail. Their camp originally is what is now known as the 25 Camp on 25 Mesa, and occupied at present by Russell Davis [Davis Point is named after he and his brother]. 25 Mesa was originally called Home Mesa. The name was changed later to 25 Mesa, by Mr. J.D. Dillard, the leading cattleman of the country, from the presence of the 25 cow brand being run here, and also the cow camp being located in Section 25 [The Starvation Point 7.5 minute quadrangle map (1994) shows the “Davis Cow Camp” within Section 25 (T. 48N., R. 14W.)].
>
> Monitor Creek and Monitor Mesa, received their names after a famous stallion, which ran on this mesa with his band of mares.
>
> Potter Creek was named after the stallion “Potter,” also owned by Roberts Brothers, as was Little John Mesa and Springs, named in honor of another stallion.
>
> John Love brought cattle onto the plateau in 1885. He maintained his rights and holdings to Love Mesa, which still retains his name.
>
> Criswell Creek was named after Al Criswell who brought cattle into the Criswell Creek and Basin country.
>
> A Mr. Wanamaker brought the 7N brand into the country. He maintained his holdings on what is now called 7N Mesa, the Mesa still bearing that name.
>
> Sawmill Mesa was originally called Briggs Mesa, named after another of the famous Roberts stallions. It was later changed to the name of Sawmill Mesa, from the presence of a number of sawmills.
>
> Goddard Creek and Goddard Basin, were named after Ed Goddard who

brought cattle into this county in 1885.

Pool Creek received the name from the establishment of a camp on this creek, a short distance above Roubideau Creek. The camp was established for the purpose of having a community camp and pooling all the cattle in this section. The remains of the cabin are found along the creek bank.

Socks and Dan Mesa on the head of the Escalante, received its name from two old pensioned saddle horses, owned by Mr. Sam Maupin, which when turned out in the spring, used this mesa for their range.

Traver Creek and Traver Mesa received their name from Ike Traver, who established himself in the cattle business in this vicinity during the year 1884. He controlled this portion of the range.

Johnson Springs, a spring along the Montrose-Horsefly Road was named after Mr. John Johnson, who settled on this land on August 22, 1889.

Ashley Point, or Ridge named after the Ashley Cattle Co., which was the first outfit to run cattle in this vicinity after the Indians were removed.

Davis Point or Ridge, named after the Davis Brothers, who were the first to run cattle in this vicinity.

Cabin Creek, named from the fact that Henry Paine, from whom Paine Mesa is named, constructed a cabin on this creek, which is on the west side of Paine Mesa. The remains of the old cabin can still be seen.

Jacksonville, an old settlement on the Big Cimarron River, was named after Captain Jackson, whose old cabin is today standing in ruins (Keep 1934:254-256).

6.0 UTE ETHNOHISTORY

Dominquez Archaeological Research Group has participated in many studies that emphasize the importance of Ute cultural heritage as it is connected to lands in Colorado, Utah, New Mexico and Wyoming. Dominant themes that have emerged from Ute consultations are the concepts of cultural landscapes and heritage areas, which include environs containing native plant and animal communities, landforms, and other features that form living landscapes, and that may have cultural or religious importance to the Utes (Ott 2009:5, 63). This chapter discusses anthropological data, historical documents, archaeological recordings, and ethnobotany relating to the Ute's occupation of western Colorado, and provides a bibliography for books, reports, and documents relating to ethnohistory and ethnobotony.

During the prehistoric, early historic (proto-historic) and late historic periods the Uncompahgre Plateau was primarily inhabited by the ancestors of the members of the Ute Indian Tribe (Northern Ute), Ute Mountain Ute Tribe, and Southern Ute Tribe. These are federally recognized Indian Tribes. The Uintah and Ouray Indian Reservation of the Ute Indian Tribe is located in northeastern Utah. The headquarters of the Ute Indian Tribes is in Fort Duschesne, Utah. The Ute Mountain Ute Tribe's reservation is in southwestern Colorado, northwestern New Mexico and southeastern Utah. The headquarters of the Ute Mountain Ute Tribe is in Towaoc, Colorado. The Southern Ute Tribe's reservation is in southwestern Colorado. The headquarters of the Southern Ute Tribe is in Ignacio, Colorado.

Archaeological evidence of Ute origins and past lifeways is limited in part due to their ancestors' nomadic, low impact lifestyle. Based on the appearance of Uncompahgre Brown Ware in the region, Ute ancestors made their appearance in the territory by ca. AD 1350 (Conner et al. 2014a: 5.5.23). By the mid-seventeenth century, Ute bands inhabited a vast territory that spanned from eastern Utah through Colorado and into northern New Mexico (Callaway, Janetski and Stewart 1986).

Aboriginal Utes were highly mobile, migrating seasonally across diverse environments in small groups of 10 or 15 extended family members. Their material culture was for the most part lightweight, portable, and ephemeral, allowing for only what they could cache or carry (Duncan 2003; Smith 1974; Fowler and Fowler 1971; Fowler 2000; Burns 2004). It might be said that life was movement for the Utes; Powell's 1868-1880 survey manuscripts included the Northern Ute word pa-ant-ni, meaning to "walk about; to live" (Fowler and Fowler 1971:189). The Utes inhabited "a broad landscape ecology" (Burns 2004) that integrated their seasonal subsistence patterns into a spiritual and social framework, as summarized below by James Goss (2003) and Richard Lewis (1994):

They had a diversified economy of meat, pinyon, and lots of roots and berries. So they had a very balanced diet just off of nature. They were able to maintain themselves as their ancestors did for thousands years by big game hunting and exploiting these plant resources. So the unique thing about the Utes is that they had such a rich environment… this mountain environment with its diversity, and the abundance of game back in those days (Goss 2003).

Ute groups practiced seasonal mobility, moving with the availability of game and plant foods. Oral traditions describe the seasonal rounds of families in relation to a central mountain within their associated territory. Groups kept winter camps at lower elevations, and ranged into higher elevations during the warmer months to hunt and gather resources (Burns 2003:4, 14-15). The ceremonial cycle was performed in tandem with the seasonal movements of the bands, with summer ceremonies taking place in higher mountain settings, and fall and winter ceremonies occurring in lower valley camps (Burns 2003:5).

The Ute language is one of four Southern Ute Numic languages within the Uto-Aztecan family. Regional Ute dialects exist, but they are mutually intelligible. The Ute refer to themselves as Nu'-ciu, Indian people (Callaway, Janetski and Stewart 1986:365-366). Other terms used include Nuche and Nuutsiyu, both of which mean Mountain People (Burns 2003:16). Ute society centered around the extended bilateral family, and periodic congregation of related or affinal kindreds to form local residence groups of from twenty to one hundred persons. These groups frequently traced relations through the matriline and resided matrilocally, but membership was fluid and flexible enough to adjust to personal and local environmental realities. Local leaders were older men who, through persuasion, influence, and proven ability, achieved a level of consensus for their plans. Most groups recognized specialized leaders who directed specific activities (hunting, moving camp, dances, or raiding) and had little or no authority over the group in other matters (Lewis 1994:30).

Residential groups were integrated into bands. Some researchers (for example, Calloway, Janetski and Stewart 1986:338-339) have noted that band membership was relatively fluid and that some bands had multiple names depending on the source. Maps and documents from the mid-18th Century up to the late 19th century indicate that the Utes were broadly divided into as many as twelve bands. The eastern bands traditionally ranged over a large portion of Colorado and northern New Mexico, while the western bands occupied a large portion of Utah. Eastern bands include Muache, Capote, Weenuche, Tabeguache (also known as Uncompahgre), Parianuche/Sabuagana, and Yampa. Western bands include Uintah, Timpanogots, Pahvant, Seuvarits, Sanpits, and Moanunts.

Larger "band" organization was limited to periodic congregations for defense, for spring Bear dances, or for summer hunting or fishing camps. Bands consisted of local residence groups linked by bilateral kinship networks and their common territorial range – specific features usually reflected in their band name. Local groups and even extended family groups remained relatively autonomous, because most bands lacked formal political organization. Local leaders in band councils (which could include women) decided necessary matters subject to community approval. Dominant groups often provided the most influential leaders – leaders who ultimately came to the attention of Spanish, Mexican and Euro-American officials looking to negotiate with a single "chief." Ute bands recognized their larger group identity in custom, language, and territory, and remained united through kinship, trade, and defense against common enemies, but there was no larger Ute "nation" with long-lasting political allegiances or tribal councils (Lewis 1994:191).

The Numic expansion to this region began with the onset of the Little Ice Age (Petersen 1981). It was the defining climatic episode of the Late Prehistoric and Historic periods, spanning the period from AD 1300 to 1870 (Figure 6.1). During this time, Europe and North America were subjected to bitterly cold and prolonged winters that reduced the growing season by several weeks. Two colder phases have also been identified. The first began around AD 1300 and continued until the late 1400s. It was followed by a slightly warmer period in the 1500s. Then, a marked decline in temperatures occurred between AD 1600 and 1800, which was the height of the Little Ice Age. The cause is unknown, but the coldest part, ca. AD 1645 to 1715, was coincident with an episode of low sunspot activity, and solar cooling, called the Maunder Minimum 2 (Eddy 1976). At that time, the Northern Hemisphere was about 1° Celsius (1.8° F) colder than present.

The environmental effects of prolonged periods of cold temperatures creates significant impacts on growing seasons of domesticated plants and would have lowered elevation levels of primary floral resources. It can also have devastating effects on trees; and, although cooler and moister temperatures are generally good for the spread and growth of pinyons, the cold extremes of the 17th century would likely have reduced pine nut production and affected the growing cycle of new trees. These temperature levels coupled with deep snows would have produced significant die-off of large mammal populations, as well. Because of these factors, the approximate 100 year dip in temperatures between ca. AD 1600 to 1700 – with a low mark about AD 1640 to 1650 – may have driven aboriginal Numic populations south and west to warmer climates in New Mexico, Arizona and Utah.

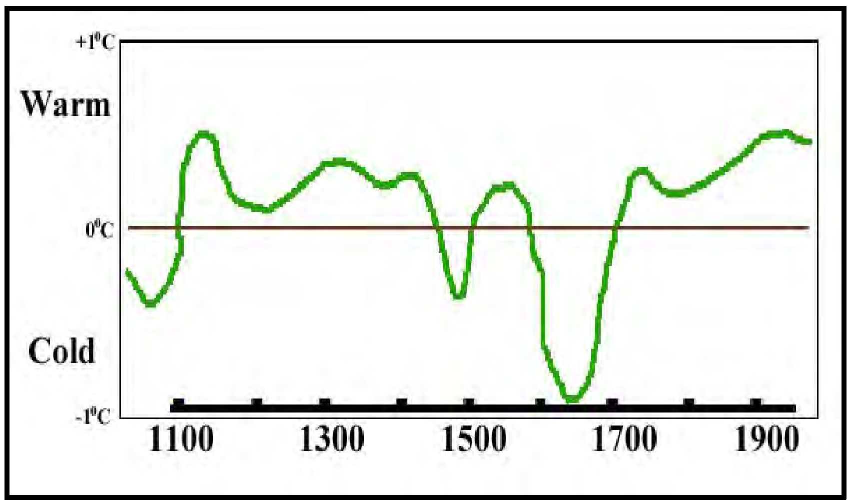


Figure 6.1. Fluctuations in temperatures during the Little Ice Age. (After Lamb 1969 and Schneider and Mass 1975.)

The migration from the Great Basin and movements south during the Little Ice age brought the Numic groups into contact with Apaches, Navajos, Pueblos Comanches, Kiowas, Arapahos, and, in the early 1600s, with Europeans. Horses were likely acquired during that time. New trading relationships were forged and new technologies acquired. With the acquisition of the horse came the reduction and ultimately the demise of the production of Uncompahgre Brown Ware. If this is truly a parallel occurrence, then a record of luminescent dates for this ceramic should reflect the transition to a horse-riding culture.

Prehistorically, Utes had traveled on foot and used domesticated canines to help with light transport of their material goods (Callaway, Janetski and Stewart 1986; Simmons 2011). But their way of life changed dramatically during the eighteenth century as they acquired increasing numbers of horses, metal tools, and other trade goods from the Europeans (Simmons 2000; Smith 1974; Blackhawk 2006; and Sanchez 1997). Equestrian mobility significantly expanded the Utes' regional presence (Lewis 1994; Blackhawk 2006). Many of the Utes were successful in the intertribal horse trade which spread throughout the Colorado Rockies and the surrounding plains to the north, east and south during the eighteenth century; and, they were prominent participants in the widespread raiding and warfare that swept through Colorado and surrounding regions – continually fueled by Spanish demand for captive human labor and Ute demand for horses (Blackhawk 2006). Population estimates for the Utes during the early historic period vary widely, but it is broadly agreed that the entire population of all Colorado Ute bands probably never exceeded 10,000 (Simmons 2011:16).

By the mid-nineteenth century Euro-American settlement surged into Ute territory, driven by mining, ranching, logging, and railroad ventures. The increased Euro-American population disrupted traditional land use and mobility patterns among the Ute (Burns 2003:5). Eventually, these disruptions resulted in rising conflicts with the American settlers, which resulted in a series of treaties and agreements that drastically shrank the Ute land base. The treaty of 1849 (Calhoun Treaty) directed that the United States had lawful and exclusive jurisdiction over the Utes and the vast territory over which they hunted (Iden 1929:5). With the signing of this treaty by seven Ute bands, the Utes irretrievably entered the sweep of American expansion into the West. Subsequent treaties, agreements and land cessions constrained the Utes into ever smaller territories during the next few decades, "as a strong surge of settlement, based on mining, ranching, timbering, and railroading directly intruded into the lands and the mobility upon which the culture and life ways of the Utes depended" (Burns 2004). By the late 1870s the Eastern Utes were "among the last free roaming Native Americans in the United States" (Baker et al. 2007:74). A second treaty was signed in 1863, and a third treaty was signed in 1868. The 1868 treaty established a 15 million acre treaty in southwestern Colorado (Iden 1929:16). Prior to the 1868 treaty, Ute territory in Colorado encompassed 56 million acres (Callaway, Janetski and Stewart 1986: 355).

With the discovery of precious minerals in the San Juan Mountains, the United States negotiated the Brunot Agreement, which reduced Ute lands in Colorado to 3 million acres. The Brunot Agreement (1873) guaranteed to the Utes, in perpetuity, the rights to hunt and gather within the ceded lands. The Colorado reservation was established on the lands around the Piedra, San Juan, and Navajo Rivers. After the Meeker uprising in 1881, the Northern Ute bands were moved to the Uintah and Ouray Reservation on the Green River in Utah (Burns 2003:33-34.) Due to their participation in the Meeker uprising, the Northern Ute bands lost their hunting rights within the ceded Brunot Agreement lands. The Hunter Act of 1895 opened much of the Ute reservation in southern Colorado to homesteading and sale. At that time, the Capote and Muache bands moved to the area that became the Southern Ute Indian Tribe's reservation. The Weeminuche band moved west to a reservation around the settlement of Towaoc, which is now the Ute Mountain Ute Reservation (Burns 2003:38; Southern Ute Tribe 2017).

6.1 Ethnographic Record

The ethnographic record for the Utes extends from the early Spanish Colonial period to as recently as 2019 (Athearn 1992; Steinbrecher and Hopkins 2019). Early historical records contain a multiplicity of names and spellings for regional Ute groups or bands (Jorgensen 1965a; Callaway et al. 1986:338), and early maps of the period are typically little more than sketches of major geographic and ethnographic features. Nevertheless, most early region-scale maps of western Colorado provide relatively reliable coordinate references and scale (Francaviglia 2005; Carter 1999) by which topographic features can be correlated with later historical records.

The earliest documentation of historic period Utes specific to the Uncompahgre Plateau was provided by the 1776 expedition of Dominguez and Escalante to find a route from Santa Fe to the California Spanish Missions (Peterson 1977:3-9). The expedition maps created by Captain Mierra identifies the Uncompahgre Plateau as "Sierra de los Tabeuaches." In his journal entry for August 23, 1776, Escalante states, "We…ascended a hill along the foot of the Sierra de los Tabehuaches (so-called because it is inhabited by the Yutas of this name)…we were overtaken by a Yuta Tabehuache…" The Tabehuache Yuta agreed to guide the Escalante party and left to get his family. The next day Escalante states that, "Before twelve o'clock the Yuta reached the place where we were awaiting him, accompanied by his family, two other women, and five children…We gave food to all of them and the wife of our guide presented us with a little dried venison and two plates of dried manzanita berries" (Peterson 1977:6-10). This entry provides insights into the pre-horse Tabeguache Utes, and describes that deer and wild berries were standard fare, with the Utes living in small family residential groups.

In the decades following the Dominguez- Escalante expedition, until the 1820s, there were few direct incursions into west central and northwestern Colorado by Euro-American interests. The fur trade rush during the early decades of the 1800s heralded even more "revolutionary transformation" of Ute life (Husband 1984:IV-12). Trading posts and Euro-American trade goods became an everyday part of the Ute cultural experience, and in 1848 the American victory in the War with Mexico marked the "beginning of the end for Ute sovereignty in the region" (Husband 1984:IV-12).

The Ute, however, were not the only indigenous people in the region who were adopting equestrian lifeways during this period. The Eastern Shoshone, mounted on horses, occupied lands north of the Ute in western Colorado and appear in the regional ethnohistories of the Yampa and Green Rivers (Jorgensen 1972; Baker et al. 2007). The Comanche held similar status on the east, along with other plains groups – namely the Cheyenne, Arapaho, and Lakota. The Shoshone and Comanche, even though they share language affinities with the Ute, have distinct ethnographic profiles, and their presence in northwestern Colorado is pointed to by both archaeological and ethnohistorical evidence. In northwestern Colorado, in historic periods, ethnic groups appear to have shifted repeatedly in the Yampa and White River drainages.

As shown in Figure 6.2, the northern boundary of Ute occupation in west central Colorado late in the eighteenth century probably did not reach beyond the local northern extent of the Colorado River drainage (Baker et al. 2007:46-49). This supposition, based largely on the Dominguez and Escalante journal from 1776 (Chavez and Warner 1976), is supported to some degree by several rock art panels – located in Canyon Pintado south of Rangely and in West Salt Creek Canyon north of Grand Junction – which exhibit characteristics of the "Plains Biographic Style." Cole (1987:222-224) attributes this style of rock art – described as developing ca. AD 1750 (Keyser 1975, 1977, 1984, 1987) – to either Shoshone or Comanche groups.

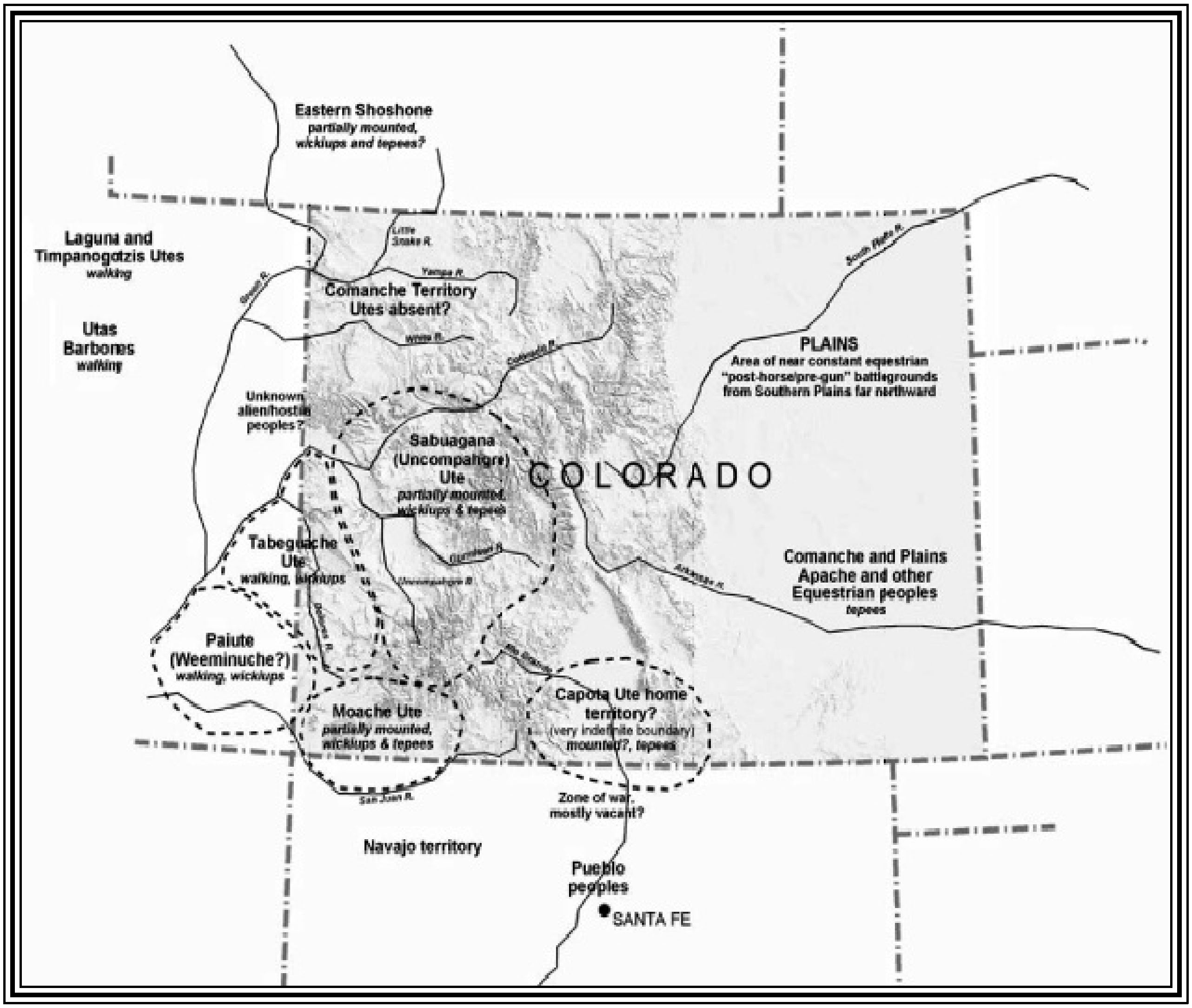


Figure 6.2. Map showing the "distribution of Native American peoples in the late eighteenth century and end of regional protohistory" (Baker et al. 2007:47).

It wasn't until the explorations of the mid-nineteenth century by Beale and Heap (1853), Gunnison (1853) and Fremont (1853/54 and 1857) that there is again mention of the Utes in the vicinity of the Uncompahgre Plateau in historical records. In the seventy-seven years since Escalante and Dominguez passed through the area, it appears that the Utes had become well adapted to horse culture and herding culture possessing Euro-American goods; having domesticated foods and tipis; hunting buffalo in the Front Range Parks; and, having large summer rendezvous gatherings. A dynamic change had occurred from a very long-lived hunting-gathering society to a complex culture that integrated elements from very diverse sources.

On July 2, 1853, Heap notes an encounter with "...we suddenly found ourselves in the midst of a large flock of tame goats, behind which was a band of about fifty mounted Utahs, to whom they belonged….Most of the men had good rifles and their horses were all in fine condition… and from their store presented me with a plentiful supply of dried buffalo, deer and antelope…" (Peterson 1977:14. Beale went on to describe a village as having, "Hundreds of horses and goats…" They were soon provided with typical Ute hospitality, and were served "…some cornmeal boiled in goats milk with a little elk fat" (Peterson 1977:15). After observing the gathering for the mid-summer rendezvous, Heal and Beale describe an encampment of about six large deer-skin lodges..." on the northeast flank of the Uncompahgre Plateau near the confluence of the Uncompahgre and Grand Rivers. The journals of Gunnison, Beckwith and Fremont all mention "Tah-bah-was-chi" Utes in the vicinity of the Uncompahgre Plateau near present day Delta, Colorado (Peterson 1977:16-17).

Early historical records contain numerous names and spellings for regional Ute groups or "bands" (Jorgensen 1965a; Callaway et al. 1986:338), and early maps of the period are typically little more than sketches of major geographic and ethnographic features. Nevertheless, most early region-scale maps of western Colorado provide relatively reliable coordinate references and scale (Francaviglia 2005; Carter 1999) by which topographic and topological features can be correlated with later historical records. Numerous examples of maps produced in the early to mid-nineteenth century by Humboldt (Figure 6.3), Pike, Fremont, Gunnison, and other explorers and cartographers have helped trace the lineage of the Utes who inhabited areas surrounding the Uncompahgre, Gunnison, Colorado and White River drainages during the period, as well as other Numic-speakers who periodically visited the region for hunting, trading, and raiding (Chavez and Warner 1995; Baker et al. 2007:46-49; Hämäläinen 2008).

By 1861, Ute lifeways were being seriously impacted by the immigration of American settlers. Head, the agent of the "Tubuache Utahs" reported that they ranged from the San Luis Valley all the way to the Grand River were it flows into the Colorado (present day Grand Junction, Colorado). He reported that this country is the "gold region." "It is filling up with energetic gold hunters, who make it their permanent home. The wild game is exterminated, and all sources of subsistence of the Indians is extinct. In the winter the Indians must be fed or die" (Peterson 1977:18). In less than 100 years of Spanish and American contacts, the traditional lifeways of the Utes were beginning to fading away.

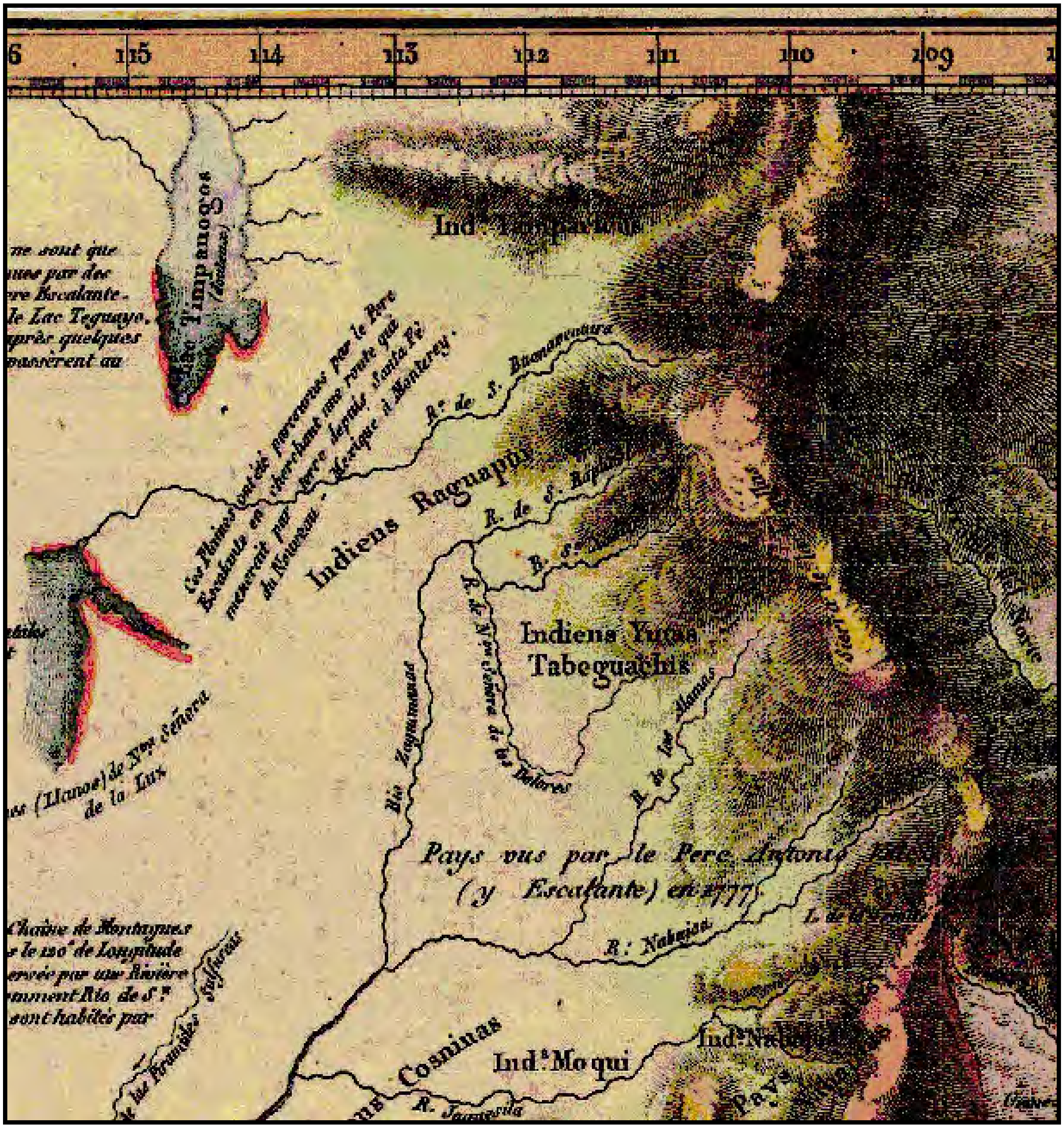


Figure 6.3. Detail of Alexander von Humboldt's Map of the Kingdom of New Spain first published in 1809 (Humboldt 1811). The Great Basin at that time was the "least explored and most poorly understood" region of Spain's northern frontier (Francaviglia 2005:41), and Humboldt's map included numerous geographic errors. Nevertheless, this detail identifies the "Yamparica" and "Tabeguachi" Ute bands, which can be traced forward to the present day White River and Uncompahgre Bands of the Northern Utes, respectively. The "Raguapui" are probably antecedent to the "Sabuaganas," who later merged with the other northern Colorado Ute bands (Baker et al. 2007; Simmons 2000).

Major John Wesley Powell, the founder of the United States Ethnography Survey, did ethnographic fieldwork with the Utes intermittently between 1868-1880. Systematic ethnographic study of Ute lifeways began during John Wesley Powell's surveys of the Colorado Plateau and Great Basin. His work comprised the "first systematic survey of Great Basin Indian demography and political organization" and continues to be a "baseline document for Great Basin aboriginal demography" (Fowler and Fowler 1971:97-119). Powell's surveys focused predominantly on Numic-speaking groups in western and southern areas of the Great Basin, but he also met some of the Northern Utes, first on the White River in Colorado and later in Utah on the Uintah Reservation. He recorded vocabularies from Ute-speaking groups he identified as Tabuats, Yampaats, and Uintah (Fowler and Fowler 1971), and his records include perhaps some of the first photographs taken of Utes in their aboriginal territory (Plate 6.1).

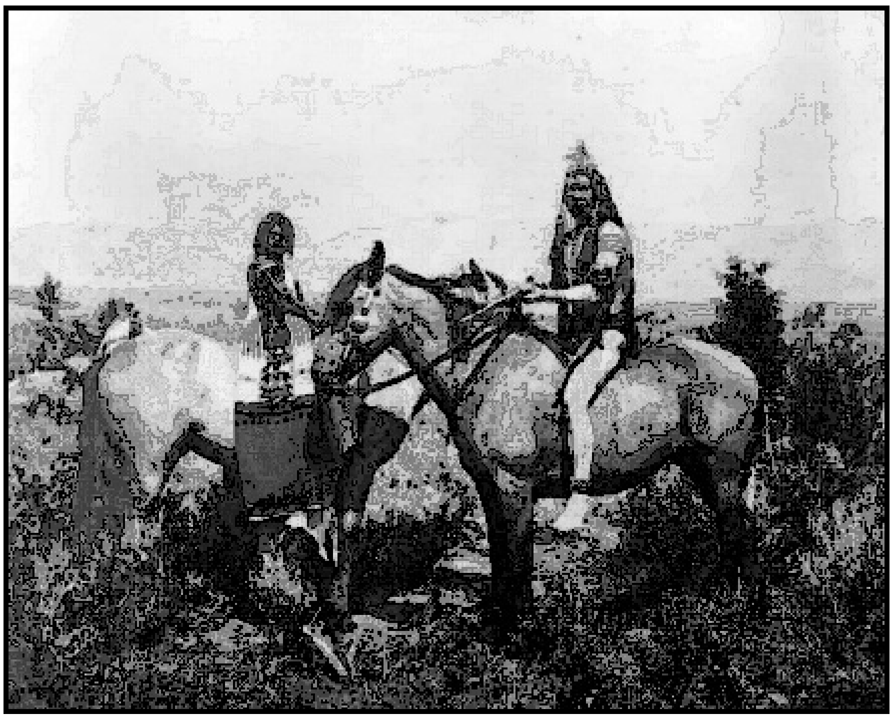


Plate 6.1. Utes in the Uintah Valley, photographed by J.K. Hillers during the Powell Expedition of 1873 or 1874 (Hillers 1873).

Fortunately, Powell was able to observe and document many unchanged traditional Ute lifeways,

> "The Utes are nomadic. A tribe will move around a grand circuit which has been previously determined in council, often taking for its completion several months or even a year. This constant moving is necessary to successful hunting. [Also] every season has its peculiar nets, seeds, fruit or roots, and the places where such articles of food are found in abundance largely determine the course of their wanderings…The wise chief or man who is most respected, is the one who has the greatest success in

> taking his tribe to points where the most abundant subsistence may be found…(Peterson 1977:7)

The geographic extent of Ute territory at its apex is generally accepted as having reached from western Utah to the eastern slope of the Rocky Mountains in Colorado, and from northern New Mexico to the northernmost reaches of western Colorado (Figure 6.4). Population estimates for the Utes during the early historic period vary widely, but it is broadly agreed that the entire population of all Colorado Ute bands probably never exceeded 10,000 (Simmons 2011:16).

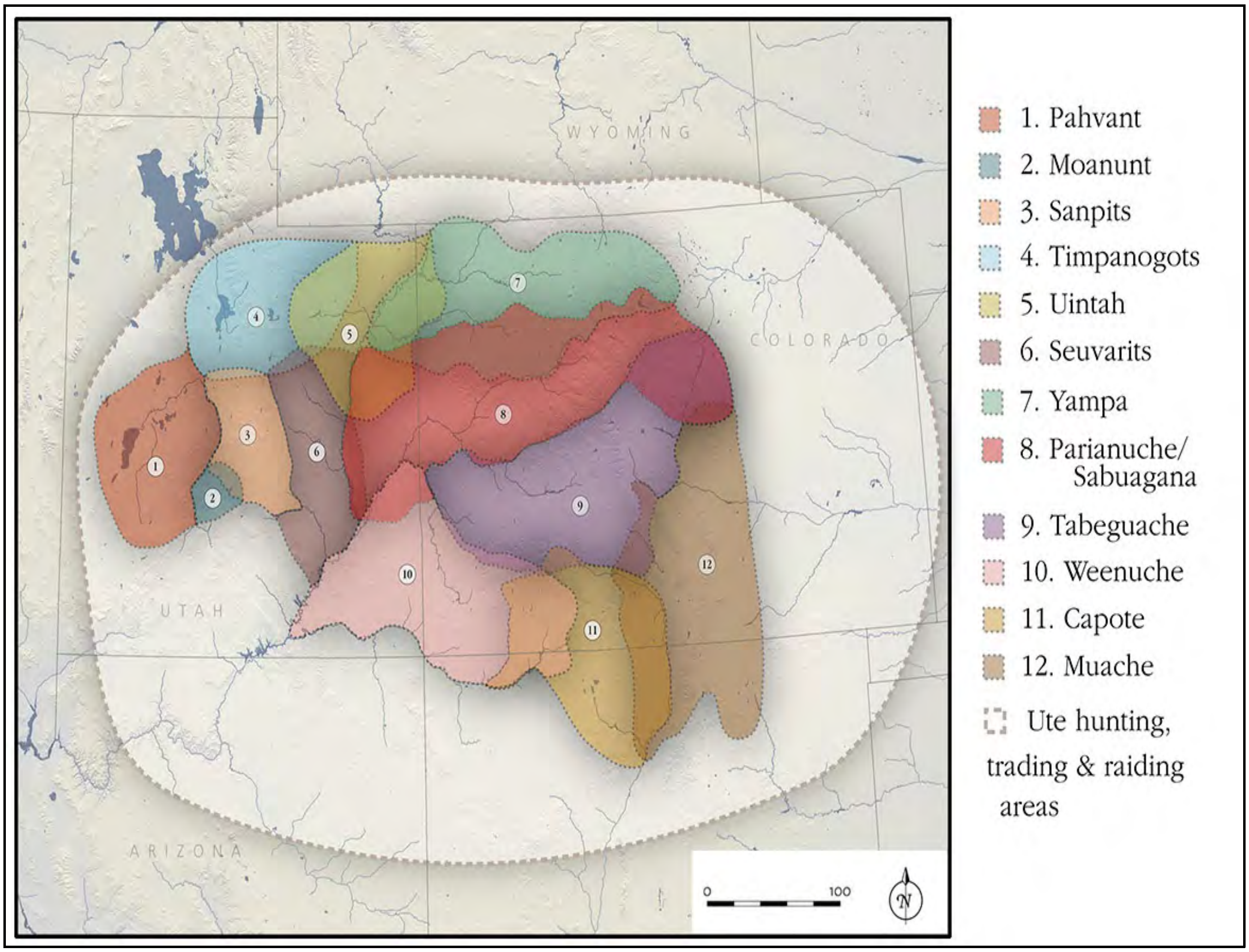


Figure 6.4. Approximate extent of aboriginal Ute territory and distribution of generally recognized historic Ute bands, ca. AD1600-1861 (after Simmons 2011:18).

As Ute territories shrank, they were subsumed first by Utah Territory in 1851, then Colorado Territory in 1861, and finally by the State of Colorado in 1876. Western Ute groups were constrained to the Uintah Reservation in Utah in 1861, and Utes in southern Colorado were pushed into the Southern Ute Reservation beginning in 1873. Ultimately, in 1881, the White River and Uncompahgre Utes were forcibly removed from Colorado to lands alongside the Uintahs in eastern Utah. The three groups subsequently organized as the Ute Indian Tribe of the Uintah and Ouray Reservation in 1937, each with equal representation in their Tribal Business Council (Ute Indian Tribe of the Uintah and Ouray Reservation 1937), and their joint lands are now known by that name (Figure 6.5).

Ethnographic work with the Utes has continued into the 20th and 21st centuries. In the 1990s and 2000's the federal agencies funded several important Ute ethnographic studies. These studies generally conducted literature searches, oral histories and field work with Ute informants.

Important work was done by the linguist Dr. James Goss in the 1950s-1990s, through which he illuminated the connections of the Ute's language and their spiritual and physical landscape. According to Goss, "Movement was a basic value (for the Utes). That is, you could say they had a sacred mandate, passed on to them by tradition from deity, that they were supposed to do this. They were supposed to have these ceremonies at different times of the year in different environments: That is, their Bear Dance in the pinyon, juniper and oak woodlands. Their summer ceremonies, which evolved into the Sun Dance, in the high mountain meadows, where they hunted. And that would have been at the summer solstice, at the first of summer. And then in the fall, they were supposed to be down out of the mountains by the beginning, the 21st or so of September. Subsequently, they had their fall pinyon harvest, and were not supposed to go up in the mountains again until spring. But after the pinyon harvest, they were supposed to be in their winter camp. And that was a pattern that wasn't just economic, but it was sacred. (They) had a sacred mandate to do it" (Goss 2003).

In 2003, Sam Burns with the Office of Community Services, Fort Lewis College contributed, "The Utes of West Central Colorado, The Uncompahgre and White River Bands." This work provides significant information on Ute history, culture and lifeways and Ute Trails in the vicinity of the Uncompahgre Plateau. Burns included references to the meanings of several Ute place-names, including Tab-eh-watch, which is translated as "People who live on the warm side of the mountain" (Bennett 1999:15). This translation of Tabeguache was confirmed by Uncompahgre Ute Informant Clifford Duncan (Julie Coleman, personal communication 1996).

6.2 Archaeological Record – Ute Lodges

Historically, the Yampatika-Uncompahgre Ute Band based in the Uncompahgre River valley occupied the Uncompahgre Plateau (Crum and Keene 2009). Ute lodges (often label with the generalized term "wickiups"), culturally modified trees, and rock art have been documented on the Uncompahgre by Buckles (1971), Martin et al. (2005a, 2005b, 2013), Martin and Shelton (2015), Fike and Buchanan (1994), Conner and Ott (1976), and others. Wickiups are well documented in the historic records as the primary architectural feature of the Utes of western Colorado and the mountains, although they should not be considered clear cultural markers (Gilmore et al. 1999:323 and Scott 1988).

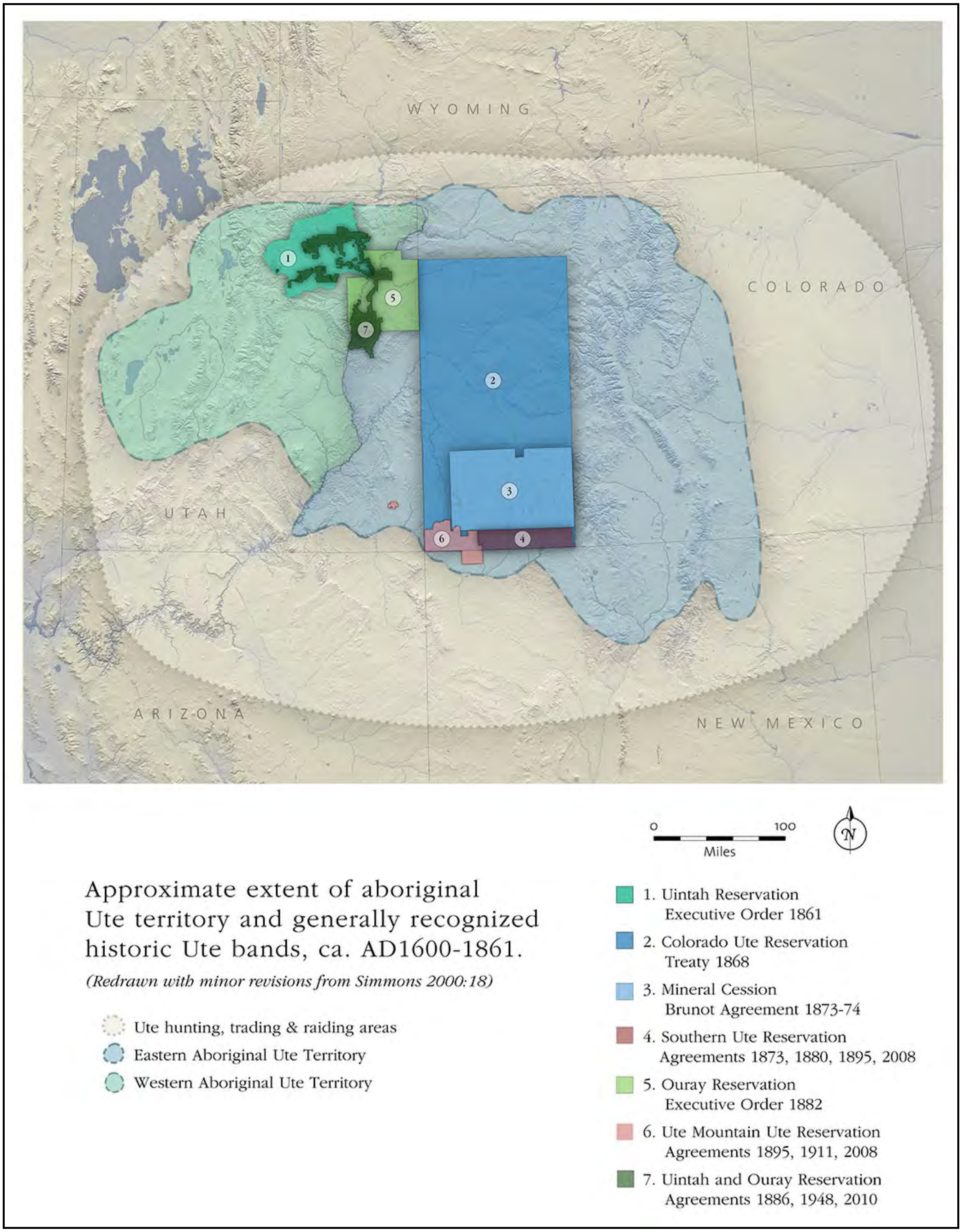


Figure 6.5. Chronology of historic Ute territory, reservations and land cessions, ca. AD 1861 - 2010 (Wroth 2000:2; Simmons 2000:18).

Archaeological evidence of ancestral Ute occupation includes the remains of conical shelters, which have undoubtedly been made for millennia by the Native inhabitants of Colorado, the American West, and throughout the world. It is primarily those surviving surface structures from the last two to three hundred years or less that remain, although tentatively, as part of the archaeological record. Of those that do, a majority can be irrefutably identified as being of Ute construction. These structures and features are rapidly disappearing as a result of natural deterioration, fire, human destruction – whether intentional or not, livestock and wildlife impacts, ips beetle destruction of pinyon support trees, and other physical threats (Sanfilippo 1998:19).

Much of our understanding of Ute wooden structures is derived from ethnographic descriptions, illustrations, and photographs rather than strictly those from archaeological contexts. Wooden structures employed by the Utes in western Colorado include: conical timber structures, tipis, wickiups, lean-tos, tripods, leaning and horizontal utility poles, hunting platforms, brush corrals, and brush fences. The habitation structures, which are generally referred to as *Ute Lodges* by the Utes, are of the first four types, and are discussed below.

Conical timber structures are made of multiple poles (30-60) that resemble a tipi and were likely covered and have been recorded in Colorado from Rocky Mountain National Park to Bodo State Park (near Durango), usually above 8000 feet elevation. None have as yet been identified on the Uncompahgre Plateau. They differ from the tipis and wickiups by number of poles per structure, floor size and headroom, and are usually found as isolated features.

By the nineteenth century, eastern bands incorporated skin tipi structures (Steinbrecher and Hopkin 2019:109). Tipis were constructed using six to ten elk or buffalo hides, and were transported using a travois or with pack animals (Calloway, Jenetski and Stewart 1986:349). They are large conical wood structures usually consisting of 6-14 poles – either free-standing or built into trees for support and are covered. Most exhibit evidence of internal fire hearths. Several sites containing tipis have been recorded on the Uncompahgre including a cluster of five at 5ME469, four at 5MN1519, and a single structure recently recorded as 5MN10514. It is notable that small lean-tos or windbreaks have been found in association with the tipis at 5ME469 but are not associated with the wickiup villages.

Small conical wood structures (wickiups) are the most common Historic Ute habitation feature recorded in the region. They usually consist of 4-10 poles – either free-standing or built into trees for support and covered with skins or, later, canvas. The word “wickiup” is derived from the Proto-Algonquian word “wigwam.” The Ute word for house, home, or wickiup is “kunnee” (Sanfilippo 1998:19); however, these small structures would more appropriately be categorized as sleeping rooms or short-duration shelters, as opposed to actual domiciles or homes such as tipis. Although a great majority of the recorded wickiups are in the western portion of the state and are constructed of juniper, and to a lesser extent pinyon poles, conical structures made from aspen poles have also been recorded at higher elevations in the mountains, often leaning against lodgepole pine or aspen support trees (Gilmore et al. 1999: 325-236) or freestanding (Martorano et al. 1999:142). Wickiups continued to be constructed by Utes into the 1920s.

The wickiups were typically expedient and of significantly less formalized construction than tipis consisting of narrow poles typically collected as dead wood. Doorways were informal openings with no apparent preferences as to cardinal direction. Wickiups frequently incorporated brush or bark coverings, sometimes bolstered by the existing boughs of un-limbed poles. Hide, canvas, cloth, and other coverings were also employed, with or without formal smoke holes. Both internal and external hearths are common, however other activity areas, such as lithic workshops, tend to be situated elsewhere and not within or near the sleeping structures. Infrequently stones are found where they had been placed at the base of the poles as support or as weights for coverings. Wickiups within the database of the Colorado Wickiup Project [DARG ongoing project] range from under a meter to over 5.5 meters in diameter and from 1.3 to over 2 meters in interior headroom. Some structures had unprepared dirt floors while others had prepared juniper bark mat floor coverings, or simply had juniper bark scattered over the floor.

Sanfilippo's (1998:366-368) Colorado wickiup studies have shown that the highest frequency (35%) of wickiups occurs between 6,234 and 6,561 feet in elevation, 75% of the sites have a permanent water source within 2.2 kilometers, and 99% are on elevated locations to maximize or minimize breezes, to avoid the cold air drainage in the river valleys and canyon bottoms, and to provide visibility for viewing the movements of game and people. All of Sanfilippo's wickiup sites occurred on slopes of 30 degrees or less, with 76% on slopes of eight degrees or less. As could be expected-in order to maximize the warmth of the sun and for purposes of shelter from the weather, the aspect or orientation of the sites ranged in all directions other than north.

As described in their field notes, the Huscher's report observed over forty wickiups on the Uncompahgre Plateau (Huscher and Huscher 1939). Sites containing the smaller conical wood pole structures were recorded by Buckles at sites on Monitor Mesa (5MN42 and 5MN65) located about 4.5 miles north of Spring Creek Canyon, and in the valley of Monitor Creek (Lee Ranch Wickiup Village 5MN41, and Monitor Creek Wickiup Site 5MN44). These sites are located in the pinyon/juniper belt, and Buckles speculates that they were positioned to take advantage of the "periodic but unpredictable crops of nuts" (Buckles 1971:591-592).

At 5MN41, where six wickiups were recorded, all were described as "fairly uniform structurally and in orientations (Figure 6.6). They were built next to either pinon pines or juniper trees...leaned against the limbs of the trees forming structures with roughly conical shapes. The poles are presumed to have been dead tree limbs at their time of original usages... None have evidences of axe cuts and the butt ends on all appear to have been broken or split either by natural processes of falling as dead trees or limbs or by men breaking or pulling them off... The wickiups were all built on the eastern side of trees within a limited range of compass degrees...in part dependent upon the positions of protruding limbs upon which the poles were placed.... It is probable that these structures [wickiups] were covered with canvas skins, although two of the wickiups characterized as potential menstrual huts exhibited evidence of having been covered with green pine boughs. Fire pits – unlined and very shallow basin type – can be found internally or externally placed in relation to the strictures and in central to eastern peripheral positions...” (ibid.: 635-636). Notably, Wickiup 4 was considerably larger than the rest having a domicile floor length of 18 feet and a head room of 11 feet, which may indicate that it was a communal house of sorts for the extended family group. Also, Buckles’ assessment of two of the smaller wickiups as menstrual huts that were apparently covered with pine boughs is indicative of an important cultural aspect of these small encampments.

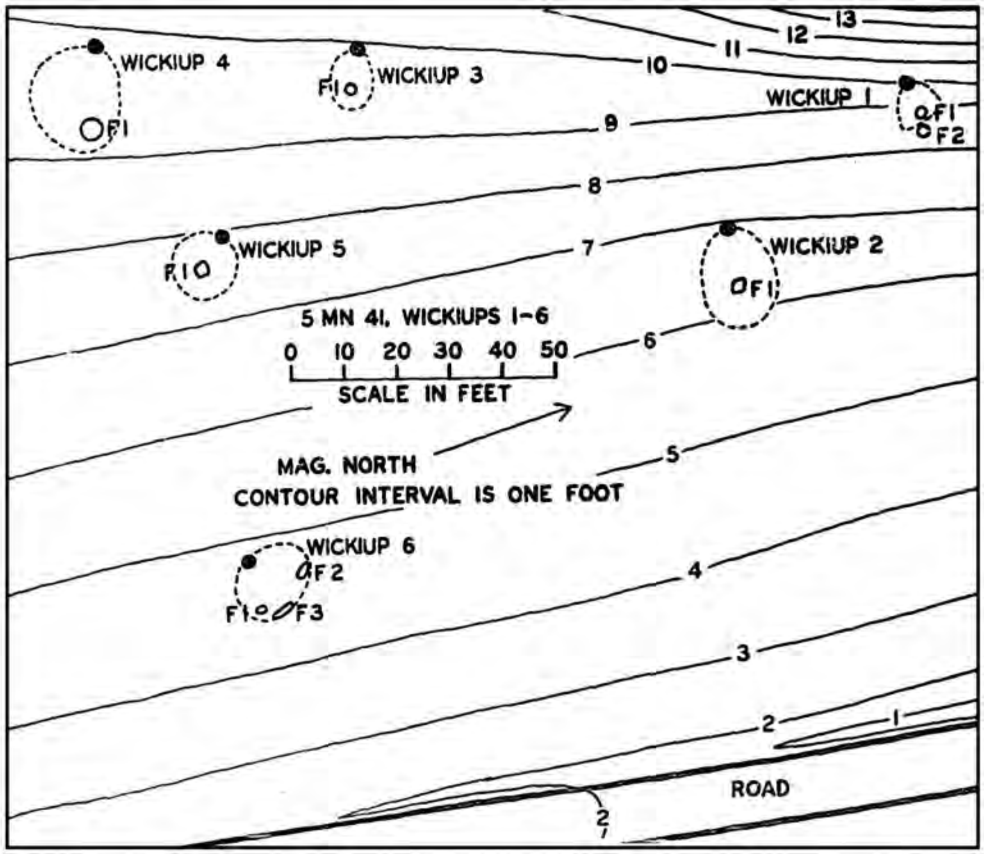


Figure 6.6. Planview site map of 5MN41 showing the distribution of wickiup structures (Buckles 1971:Fig. 64,p.633).

Dominquez Archaeological Research Group, Inc. (DARG), with funding from the Colorado State Historical Fund (SHF) and the Bureau of Land Management (BLM), initiated the Colorado Wickiup Project (CWP) in 2003. The primary objective of the project is to mitigate the loss of information about Colorado's aboriginal wooden features to the extent possible by thoroughly recording all known wooden feature sites, collecting materials for chronometric analysis, and conducting extensive data recovery – including metal detection and excavation – of significant sites. Long-range goals of the project have included the development of a dedicated aboriginal wooden feature data base and facilitation of collaborative research and education through information sharing and professional and public outreach. DARG undertook three projects funded by SHF that sought to relocate and update the records for Buckles’ wickiup sites including: 2016-AS-010, 5MN42; 2017-AS-001, 5MN44 and 5MN65; and, 2017-AS-002, 5MN41. Results of those projects found that many of the wickiups recorded by Buckles (1971) have collapsed, and those recorded at 5MN41 no longer exist. These projects and others have shown the importance of continued preservation efforts for the wooden structures as many have deteriorated or been otherwise destroyed by environmental and human impacts.

6.3 Ethnobotany

Ethnobotony is an important component in any ethnohistory that uses a synthetic or holistic approach to the various data. Primary references for the Ute ethnobotony of the region are Fowler (2000), Smith (1974), and Stewart (1942).

Fowler's (2000) list of foods eaten by the Utes has pinyon nuts as their most important crop, which it may have been. However, according to Bettinger and Baumhoff (1982:496-500), the Numic Speakers concentrated more heavily on small seed gathering. Small seeds from grasses, sunflowers, amaranth, Indian rice grass, greasewood and globe mallow would have been available in the valleys and in relatively good supply into the higher elevations of the Uncompahgre. Fowler and Fowler (1971:42) used Powell's (1868-1880) description of the labor intensive collection and preparation of seed gathering: "The seeds of a very great variety of weeds and grasses are used for food. They are collected chiefly by the women and children. For this purpose a large conical basket holding from two to three bushels is used; it is carried on the back with a strap over the head." Powell also described seed collection with use of a small fan to sweep into a smaller hand-held two gallon basket, and then emptied into the larger basket. They were then winnowed and roasted using a large woven tray. They then could be ground into flour for mush or cakes, and dried for addition to stews. Seed products, stored in buckskin sacks, could be preserved for future use (Fowler 2000:93).

Above about 7000 foot elevation, in the Transition Zone vegetation community, berries including chokecherries, elderberries, buffalo berries, service berries, currants and strawberries were all likely part of the gathered resources. Fowler (2000:92) reports that acorns from Transitional Zone scrub oak (Quercus gambelii) were eaten raw or roasted by the Ute Mountain Ute and Uncompahgre Ute; and, Stewart (1942:250) notes that the Ute Mountain Ute ground acorns into a flour for mush. Roots were also collected by the Ute. Yampa (wild carrots), and Spring Beauty (Indian potatoes) have been identified as two root types gathered in the eastern Uintas and along the White and Yampa River valleys. The White River band of Utes take their name Yampatika (yampa eaters) from the wild carrots. Also, Lang (1953:8) mentions the Utes collecting sego lily roots, which he called Indian potatoes. Stewart (1942:251) includes other plants in the Ute diet including roots of rabbit brush, tule seeds, and prickly pear cactus – pads, flowers, and seed pods. Gel from pads was also used for medicinal purposes. Besides floral resources, Utah Utes (Pahvant, Tompanowots) were reported eating insects like ants, cicadas, crickets and grasshoppers (Stewart 1942:245), but the White River and Uncompaghre Utes reportedly had food taboos that included porcupine, grasshoppers, locusts, horses and snakes (Smith 1974:46).

Two studies concerning ethnobotany research for the Uncompahgre have more specific information concerning Ute plant use for food and shelter. Both were prepared by Sally McBeth (2008, 2010). In her Ethnographic Overview for the Colorado National Monument (2010), McBeth provided an assessment of plant seasonality and availability by elevation for the Uncompahgre Plateau. She also set out to examine Ute oral traditions and ceremonies associated with plant collection, but concluded that:

> Ute oral traditions and ceremonies associated with the collection of plants were not forthcoming in any of the interviews or casual conversations associated with this project; likewise, there is little detail in the ethnographic or ethnobotanical literature. It is probable that much of this information has been lost as Utes' traditional lifestyles have been replaced with twentieth and twentyfirst century convenience.

Somewhat contrary to her later work, McBeth’s 2008 document entitled “Ute Ethnobotany Project” was a summary report of a cooperative project by the Grand Mesa, Uncompahgre, and Gunnison National Forests (GMUG) and the Grand Junction Field Office of the Bureau of Land Management (BLM-GJFO). Instrumental in that project’s organizing and funding were Sally Crum (Archaeologist, FS-GMUG) and Aline LaForge (Archaeologist, BLM-GJFO). The project brought together Ute elders, educators and students from the Northern Ute Tribe with a local herbalist, an ethnobotanist, an ethnographer, and representatives of Mesa College and Colorado State University. They visited localities on the Northern Uncompahgre Plateau, Grand Mesa and the Piceance Basin, and together compiled a list of edible and medicinal plants used by the Utes. That list is included as Appendix A of this document.

6.4 Bibliography for Ethnographic Research

A bibliography for future ethnographic research in western Colorado was compiled during this project. It includes known literature sources and those of limited distributions that were previously assembled in regional offices of the BLM and Forest Service in Grand Junction and Montrose, the Colorado National Monument, and Rocky Mountain National Park. Some of the resources found in those offices include documents detailing their outreach programs with the Ute Tribes. It also includes information accumulated by DARG through past projects and associations with the Ute Tribe. It is extensive and comprehensive and therefor is included as an appendix (Appendix B).

7.0 NATIVE AMERICAN TRAILS AND PIONEER ROADS: AN ETHNOHISTORICAL REVIEW

One of the guiding inquiries for this project concerned the location and recording of a trail in Spring Creek Canyon that may have been used by Native Americans. This section is essentially a literature review of historic maps, oral histories and memoirs that were used to determine locations of Native American trails and historic pioneer roads of the Southern Uncompahgre Plateau. The following historic maps were consulted: those of F.V. Hayden's survey of southwestern Colorado between 1874 and 1875 (Hayden 1881a), and a survey of western Colorado completed between 1874 and 1876 (Hayden 1881b); G. M. Wheeler's maps of southwestern Colorado between 1875 and 1877 (Wheeler 1878); Louis Nell's topographic map of Colorado from General Land Office surveys and other authentic sources in 1884; the USGS 15 minute quadrangles of Montrose (1909), and Paradox Valley (1916); and, the Uncompahgre National Forest map published by the USDA Forest Service in 1935.

Oral histories relevant to the project area consist of a series of interviews conducted between 1933 and 1934 for the State Historical Society of Colorado by the Civil Works Administration (CWA). As part of that project, the Montrose County series interviews were conducted by Arthur W. Monroe. Memoirs utilized include *Uncompahgre,* by Muriel Marshall; *Trails and Trials*, by Eda Baker Musser; I Hauled These Mountains in Here, by Frances Elizabeth Wood and Dorothy Wood; and an article from *Colorado Magazine* titled Fort Crawford, Colorado, 1880-1890 by Maj. John H. Nankivell,

7.1 Ute Trails of the Southern Uncompahgre Plateau

Throughout prehistory people of the New World traveled on foot. Routes of movement – paths and trails – are omnipresent in an aboriginal archaeological landscape (Earle 2009:254-257). 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 a "path" is difficult because by definition they are without much physical modification or permanence. Trails, on the other hand, are regional, long-distance, 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.

Over *at least* the past 700 years the Utes have walked and later rode horses over Western Colorado following ages old trails and likely creating numerous new trails and paths. It is anticipated that modern roads and highways have followed the main Native American trails, including those in the Spring Creek Canyon area (illustrated in the Settlement History section). Previous cultural resource investigations for the region have identified specific trails on the Southern Uncompahgre Plateau.

Some two to three hundred years ago, as they acquired horses from the Europeans, Native American mobility became significantly more expansive, and their material culture more substantive. For the Utes, their regional presence became more pronounced (Lewis 1994; Blackhawk 2006). Nevertheless, in either mode, by foot or on horseback, Ute mobility relied on their knowledge and use of trails and trail networks across varied and often ruggedly complex terrains.

John Wesley Powell, one of the first anthropologists to record observations of aboriginal Ute lifeways, went so far as to remark that:

> It is curious to notice with what tenacity an Indian clings to a trail; a path which has been followed by his forefathers is sacred to him, and though in the constant and rapid erosion of the gulches and sides of the hills and mountains these trails have become very difficult yet he never abandons them when they can by any possibility be followed, even though a shorter and better road is very perceptible (Fowler and Fowler 1971:39).

Therefore, prehistoric and historic trails, to the extent they can be reliably identified, represent perhaps the clearest and most direct evidence of aboriginal mobility patterns we can find today. A report in 2003 (Burns) discussed the location of several trails across the Uncompahgre Plateau:

> As part of a project assessing archaeological sites in the Uncompahgre Plateau area Alpine Archaeological Consultants, Inc. in Montrose has searched for Indian trail information in Government Land Office records, USGS 1:24,000 topographic quad maps, and state archaeological site records. They have found three Indian trails inside the Uncompahgre National Forest: the Forty-Seven Creek Trail (on USGS topographic quads Nucla, Windy Point, and Starvation Point, Colorado); Horsefly Creek Trail (on USGS topographic quads Horsefly Creek and Government Springs; identified from GLO records); and Indian Creek Trail (on USGS topographic quad Calamity Mesa; identified from GLO records) (Personal communication between Rachel Smith Gebauer, Alpine Archaeological Consultants, Inc. and Liesl Dees, 17 Jul, 6 Oct 2003).

Hayden’s map of western Colorado illustrates the Navajo Trail. From the Uncompahgre Agency (Colona), the Navajo trail extends west to Horsefly Creek, across Sanborn Park to Wrights Mesa, through Naturita and thence along the north edge of Paradox Valley into Utah. At least two additional trails are shown heading south from the Agency; one that joins with an east-west trail along the south end of Log Hill Mesa. The other crosses this trail at the town site of “Dallasville” and continues to Leopard Creek and Hastings Mesa. Many other trails fork off of the Navajo Trail, heading south to Gypsum Valley and north along the Uncompahgre Plateau. This trail crosses the south ends of Monitor Mesa, Sawmill Mesa, Love Mesa, Kelso Mesa, and Long Point. It follows Blue Creek and then turns north, skirting south of Big Dominguez Creek to Unaweep Canyon. These trails extend in both directions in Unaweep Canyon and also continue north to Glade Park.

G. M. Wheeler, working for the US Army Corps of Engineers, created a map, Part of Southwestern Colorado between 1873 and 1875 and 1877 (published in 1878), in which he labeled a trail, “Indian Trail to the San Juan” (Wheeler 1878). This route corresponds well to Hayden’s map of SW Colorado, completed on behalf of the USGS, which labels the same general route as “Trail to Ouray” (Hayden 1881b). Hayden completed his survey work for this area between 1874 and 1875.

In 1884, Louis Nell created a pocket map, “Nell’s Topographical & Township Map of the State of Colorado,” which he compiled from US Government Surveys and other authentic sources. It is full color by county. The trails depicted on the Nell map correspond to Hayden’s. Although this map does not indicate “Indian Trails” per se, his map does include what appears to be a reference to a Ute place name, “Daweepanoonis Cr.”; now known as Horsefly Creek. A gazeteer of Colorado confirms the spelling, indicating Daweepanoonis was “a creek in Ouray County, a left-hand branch of Uncompahgre River” (Gannett 1906:54).

Six trails (Indian Creek, Forty-Seven Creek, Wrights Mesa, Horsefly Creek, Shavano Valley, and an unnamed trail designated as 5ME504) have been identified in other contexts and source materials (Greubel et al. 2010; Reed and Smith Gebauer 2004). Additional trails were sought and digitized for comparison with other historic and archival sources, specifically, General Land Office survey maps were checked for indications of Indian trails. As trails specifically identified as Indian Trails were encountered and continued onto other maps, the trail was continued, whether specifically identified as an Indian Trail on the subsequent map. As settlers moved into the area it is probable that many of the early travel routes utilized on the Uncompahgre Plateau originated as Native American trails. The aforementioned trails are described below.

Indian Creek Trail and 5ME504 Trail

The Indian Creek Trail is a short trail, roughly 250m (800ft) long, which runs along a steep slope less than ½ mile south of Indian Creek. The slope is just north of Outlaw Mesa. This trail was identified as an “Old Ute Trail” on GLO survey maps. It may be associated with the 5ME504 trail, which states in the site description, “This trail was used by Utes to by-pass the high waters of the Dolores River and enter Pinon Mesa. It was a summer trail. Ute Creek to the west was also part of an Indian Trail” (Baldi 1976).

There is also a complex of Indian trails mapped from GLO surveys in Township 50N and 51N, Range 18W. Numerous trails are depicted, showing a route up Calamity Creek. A route splits off at Indian Creek and based on the historic roads and foot trails shown on the Uncompahgre National Forest Map, loops back around to Ute Creek. GLO Maps depict an Indian trail at Ute Creek as well as scattered trails that may have been used to access the Tenderfoot Mesa area. Hayden also shows a route traveling from the Navajo Trail north to this area to cross Unaweep Canyon as 5ME504 does, and on to Pinon Mesa and Glade Park.

Forty-Seven Creek Trail

The Forty-Seven Creek Indian Trail was identified on four USGS quadrangle maps (Big Bucktail Creek, Nucla, Windy Point, and Starvation Point). It begins at Pinto Mesa and heads north to the confluence of Forty-Seven Creek with Tabeguache Creek. It continues north along Forty-Seven Creek to a point where it climbs out to the east toward the North Fork of Tabeguache Creek, ending at Starvation Point. Here, the trail is depicted as a two-track road on the Starvation Point 7.5 minute quadrangle map. A historic map of the Uncompahgre National Forest shows an "Indian Trail" that starts east of Coal Canyon and runs north on Pinto Mesa to the confluence of Tabeguache Creek and Forty-Seven Creek. From there, Forty Seven Trail heads north and then east, crossing the North Fork of Tabeguache Creek, and ending near "Cobb Springs Campground" (USDA Forest Service 1935). The spring is present on the Moore Mesa 7.5 minute quadrangle map.

Muriel Marshall described the Forty-Seven Creek trail as well.

> Heading down Indian Creek, the Uranium Road follows (but in this case has not wiped out) one of the plateau's numerous Ute trails that led from good wintering country down on lower benches and river valleys, along both sides of the crest, and up to good summering and hunting country on top....
>
> Among several of the latter [trails] on the plateau is a racetrack on Round Mountain, reached by a still discernable trail up Tabeguache Canyon and 47 Creek to the northeast flank of the mountain where a large cave provided emergency shelter, saving the trouble of building brush wickiups. This cave is also said to have been used by outlaws in later years (Marshall 1998:47-48).

The trail marked "Indian Trail" appears on the 1935 Uncompahgre National Forest Map near 47 Creek and Tabeguache Creek (See the map section of this report). Muriel Marshall describes trails in this area in her publication *Uncompahgre (1998)*. One trail led from a wintering area, up Tabeguache Canyon and Forty-Seven Creek to a large cave on Round Mountain's northeast flank. Utes ran their horses on a nearby racetrack on Round Mountain (ibid.:48). Marshall also describes a trail now obscured in part by the 25 Mesa Road leading from the Uncompahgre Plateau to Delta. She writes that the trail branched at the mountain's foot, with an eastern fork leading to the Elk Mountains, crossing the Gunnison River "at a ford deep in Black Canyon by access of the Ute Trail sag in the steep granite rim," with portions of the trail still visible. The other branch continued to Delta, again obscured by the road, to the Gunnison River ford below Delta, and then continued north to Grand Mesa hunting grounds, with a racetrack along the way in the mesa's lower slopes (ibid.:132).

North of Forty-Seven Creek Trail is Smokehouse Springs Campground, located on the Starvation Point 7.5 minute quadrangle map (1994) which depicts the "Smokehouse Campground" within Section 9 (T. 49N., R. 14W.). Marshall retells a piece of local legend, "The Utes built the smokehouse and used it to 'make meat' every year in hunting season. That's where they made deer jerky for their winter meat supply. The smoke wasn't to cure the meat, the way we cure pork, but just to keep the flies from laying maggot eggs in it (Marshall 1998:123). The naming of the spring site was told differently in Forest Service records: "Smokehouse Spring near the Divide north of Columbine Pass, was named because of a smokehouse being built at this point by the Roberts Brothers. In the early days they killed and smoked quite a lot of deer meat at this point" (Keep 1934:254-256). Both stories may be correct if the Roberts Brothers found remains of a pole structure and replaced it with lumber (op.cit.:124).

The following oral history details contact with Navajo hunters. John Porter references the 47 Cattle Company winter quarters. The Uncompahgre Forest Service Map (1935) notes that a camp for 47 Cattle Company was located along Forty-Seven Creek, northeast of Round Mountain. The USGS topographic 7.5 minute series map also depicts Forty-Seven Cow Camp on the Starvation Point quadrangle. It is unknown if this is the "winter camp" Roper speaks about; however, it can been assumed based on the references to Tabeguache Basin. How John F. Roper Took the Navajos Out of Western Colorado (Roper 1934:17-19):

In his account, John F. Roper recalls how he took the Navajos out of western Colorado in about 1887 or sometime shortly thereafter. While in the White River area trapping, he had many encounters with the Ute band removed from the Uncompahgre area. He and his companion, Berry Thomas, son of Captain Thomas, had pitched their tent on what is known as the "Rabbit Hills," where game was plentiful. The following is his account:

> After setting traps and dressing deer pelts into buckskin, from which we made our hunting suits. we frequently met Indians, among whom was one Augustus and Chipeta, the former a chief or leader of the hunting parties and the latter the wife of Chief Ouray. They met these several times during the winter and often traded eagle feathers for their buckskin. He continues,
>
> Later, we found several squads in teepees all around us, and after a visit or two, I was surprised to learn that I had caused them to "Vamoos" to the reservation, leaving the good hunting grounds for us. Now, I shall try to explain how this came about. Before leaving Grand Junction, I tried to find suitable buttons for a buckskin suit. Failing in this, I then accepted an offer of Police buttons, which a merchant had on hand. These were strong, brass buttons with the word POLICE on them. These were on my hunting suit. The Indians had some one among them who could read and gave the alarm to others-- calling me the "Buckskin Police," (meaning the game warden).

Due to interactions of violence between game wardens and local Ute hunters, the party of Ute left the area. After a successful winter in trapping and hunting, Roper made up his mind to move to the Uncompahgre Plateau area:

> Not finding any good prospects, I learned that the 47 Cattle Company had sold out and abandoned their winter quarters. So I moved to this place and made a nice little home.
>
> While living here the Navajo Indians ventured into Tabeguache Basin and were slaughtering deer for their hides. The White People decided to drive them out and were making ready to start, when some one said: "Let's get the bear hunter to go with us." So they sent for me and when I was informed about the Indians, I told them my experience on White River, and said that I would make it work here. All I asked was for some one to drive up to the Cross Camp. John Blake volunteered to do this, so with my Buckskin suit and Police buttons, I represented myself as "Game Warden" and succeeded in moving them out without any difficulty.
>
> This was prior to the start of the C. C. Company. All of the old time cowboys, the Rays, Galloways, Bood Moore, Chas. Reed, Brammiers, Blakes, and Payson, and many others will verify my statements above (Roper 1934:17-19).

Wrights Mesa Indian Trail

The Wrights Mesa Indian Trail, identified from the GLO records, is approximately 8 km (5 miles) long and runs northwest to southeast of the town of Norwood, Colorado (Greubel et al. 2010). The trail takes a relatively straight path across Wrights Mesa above Naturita Canyon. GLO maps adjacent to the known trail were also examined for the presence of identified Indian Trails. Trails were found to the east of the mesa in the vicinity of Iron Springs Mesa and McKenzie Creek, to the south toward Lone Cone, and to the north in Maverick Draw and the San Miguel as it flows toward Pinon, where the trail likely converged with the known trail following Horsefly Creek. Smaller Indian Trails are identified as they cross section lines within this township. Importantly, the trail follows the general route of Hayden's Navajo Trail and is likely one and the same.

Horsefly Creek Indian Trail

The Horsefly Indian Creek Trail is roughly 8 km (5 miles) long and parallels the North Fork and the West Fork of Horsefly Creek. Although the north end of the trail terminates around Government Springs, to the north it is identified as the Government Springs Road. It is very likely that this route may have been used to travel to the Uncompahgre Valley prehistorically and the Los Pinos Indian Agency in later years. The trail was identified from the GLO records. Hayden's Navajo trail follows Horsefly trail at its east end; however, as the Horsefly Creek trail turns to the north to follow the creek, Hayden shows a trail diverting to continue from there, while the Navajo trail stays on a western course.

Shavano Valley Rock Art Site Trail

A trail is associated with the Shavano Valley Rock Art Site (5MN5) on the northeast slope of Shavano Valley west of the town of Montrose, Colorado. The trail reportedly runs roughly 200m (700ft) downslope at the north end of the site (Reed and Gebauer). The trail was not identified on any historic maps. According to the oral history pertaining to Lewis Emerson Ross,

> Lew Ross claims to be the only man in the lower part of the Uncompahgre Valley who is still living on the ranch he located in 1881. His place is the site of the old supply camp of General MacKenzie, who removed the Utes from the Valley. He also tells us that there used to be deep trails from Shavano Valley down to the Agency, near Colona, where the Indians had gone after their rations (Ross 1934:16).

Additional Trails

Ranger John Keep recalls many trails, some of which were mentioned above, and others that are not depicted on maps as such. Based on the description below, these could be identified on the Uncompahgre National Forest Map, which was created at about the same time as his interview. An account of early Ute Trails according to Ranger Keep:

> Many routes of travel were maintained by the Utes while residing in the country. Some of their main trails are still distinguishable in the present day, while others are entirely obliterated by non use or overgrown by vegetation. There is one old trail crossing the Roubideau Canyon, about where the present site of the Roubideau-Moore Creek Trail is laid out across the canyon. Remnants of another trail still exist [north?] through East and Horseshoe Basin, crossing the numerous canyons and mesa to 25 Mesa, thence across Sawmill Mesa to the Dry Fork of the Escalante. Another main trail was maintained by them, through the forest near Dew Drop Hill on the Dave Wood Road, and thence to Horsefly Creek, and on across to the San Miguel Country. Their hunts and travels were distributed over the entire plateau, and another main trail extended along the crest of the Divide the entire way. Arrowheads and other signs of their presence can be found almost anywhere on the plateau.
>
> Interesting carvings and picture rocks can be found today, one located in Shavano Valley, west of the town of Montrose, another in Dry Creek Canyon, three miles south of the farming section, and another on the Dry Fork of the Escalante Creek west of Delta. What these rocks represent is a matter of theory. Rude drawings of deer, elk, hunters, fish, and other signs are readily distinguishable. Some seem to think the drawings were made for the benefit of travelers giving information of the resources in the country. Others are inclined to believe they were constructed by some artistically inclined soul, giving vent to his feelings with the crude implements which were at hand. No farming or

> cultivation was carried on by them in the valleys, except small patches of corn now and then. They depended almost entirely for their living and existence, from the game, fish, and fruit contained in the country (Keep 1934:249-250).

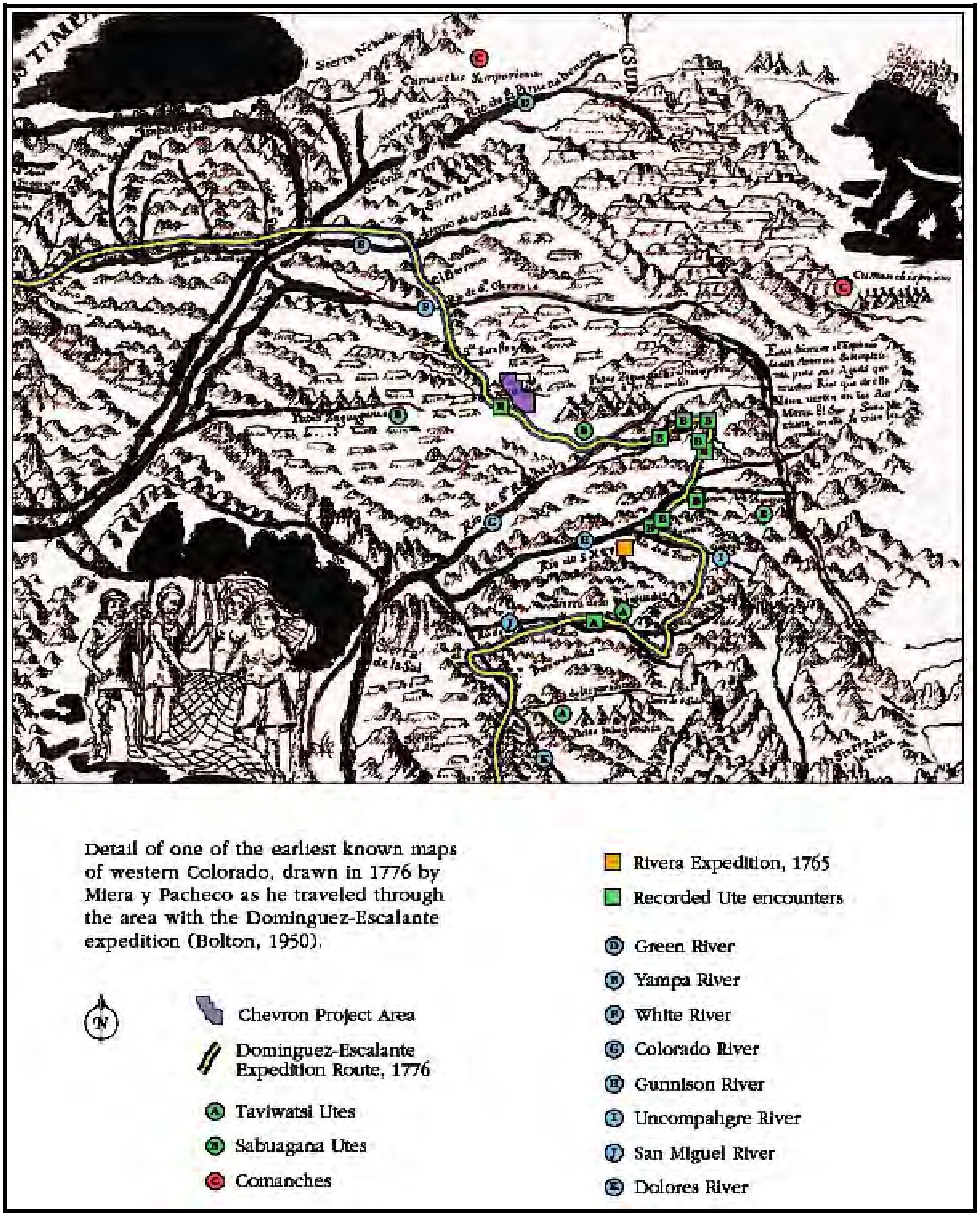
Eda Baker Musser writes, “A Ute Indian Trail led onto Kelso Point probably from the head of Kelso Creek in the Escalante Creek drainage system. A well-defined Ute trail ran across Long Point in the headwaters of Escalante Creek on the Uncompahgre Plateau” (Musser 1986:131).

When analyzed as a network, a few general conclusions can be drawn. It appears that the main east-west trail system across the southern Uncompahgre is the Navajo Trail, illustrated on Hayden’s map of Western Colorado. From the top of the Uncompahgre Plateau, its western extension follows the north side of Naturita Creek, then divides into trails heading south to Gypsum Valley (through Dry Creek Basin), west through Paradox Valley toward La Sal Junction in Utah, and northwest along Roc Creek (Outlaw Trail) toward the Moab area. As the trail proceeds east from the Naturita area and accesses the top of the Uncompahgre Plateau, it branches in three directions with one that heads northwest ultimately crossing Unaweep Canyon (avoiding the deep canyons of the Dolores River) and proceeding to Pinon Mesa and Glade Park. The branch to the north at the top of the Plateau heads toward Surface Creek, the confluence of the Gunnison and Uncompahgre Rivers (Riveras’ route), and then on to Grand Mesa. The main east-trending trail leads to the Uncompahgre Valley (Dominquez and Escalante Expedition route along what is now the Government Springs Road). When it reaches the Valley, the trail divides again with one trail heading northwest along the Valley floor, another eastward toward Lake City, and the other southward into the San Juan Mountains.

7.2 Dominguez and Escalante Expedition Route near Project Area

The first serious Euroamerican exploration of the western Slope area was conducted in 1765 by Juan Antonio María de Rivera. While following the path that became known as the Old Spanish Trail he named several of Colorado’s rivers, including the Navajo, San Juan, Piedra, Pinos, Florida, Animas, and Dolores Rivers. Initially following along a similar route into Colorado in 1776, explorers Francisco Atanasio Dominguez and Silvestre Velez de Escalante set out to find a route to Monterey, California (Figure 7.1). They followed Native American trails used by Juan de Rivera as far as the top of the Uncompahgre Plateau, where they met and traded with Utes who became their guides for the next legs of their journey. Ultimately, they returned to Santa Fe in 1777, opting not to attempt crossing the Sierra Nevada Mountains during winter. That expedition was the last official Spanish foray into central and northwestern Colorado and the region remained largely unexplored until the early nineteenth century, when American trappers, traders and surveyors began to scout the intermountain West. Fortunately, the Dominguez and Escalante Expedition maintained detailed logs – translations of which were consulted for the following discussion.

A careful review was made of The Dominguez-Escalante Journal for the period when they crossed the Uncompahgre Plateau near the project area (Chavez 1976:24). According to



Detail of one of the earliest known maps of western Colorado, drawn in 1776 by Miera y Pacheco as he traveled through the area with the Dominguez-Escalante expedition (Bolton, 1950).

Figure 7.1. Annotated detail of one of the earliest known maps of western Colorado, drawn by Miera y Pacheco with the Dominguez and Escalante expedition in 1776 (Bolton 1950). Several Ute and Comanche encampments were recorded on Miera's map and the expedition's journal described a number of encounters with Utes, including a group of eighty Sabuaganas mounted on horseback on eastern Grand Mesa.

this translation, on August 25, 1776, the explorers traveled to and rested at El Ojo de Lain [Government Springs area], a "copious spring" lying on the northern flank of the sierra [Uncompahgre Plateau]. By the end of the next day the expedition had traveled to the Uncompahgre River and then on to the spring at the present location of Chipeta Lakes State Fishing Area. The passage reads as follows:

> "On the 26th [August] we set out from El Ojo de Lain toward the northeast and traveled one league. Here the path we were following splits in two, one toward the east-northeast [along Horsefly Creek] and the other toward the northeast [present day Government Springs Road]. This one we followed, and after going two leagues and a half northeast we finished descending the sierra and came upon the banks and meadows of El Rio De San Francisco – among the Yutas called Ancapagari (which, according to our interpreter, means Red Lake), because they say that near its source there is a spring of red-colored water, hot and ill-tasting. On this river meadow, which is large and very level, there is a very wide and well-beaten trail. We went along it downstream for a league and a half northeast and halted next to a big marsh greatly abounding in pasturage, which we named La Ciénega de San Francisco [present day Chipeta Lakes]. Today five leagues [a distance of about ~ 13.5-14 miles].

The rationale for determining this route for the trail centered on backtracking from the Chipeta Lakes area (using ~ 2.68 miles per league) along the Uncompahgre River then turning southwest along a route that presently follows the Government Springs Road. By doing so, it seemed likely that the El Ojo de Lain spring is the current location of Government Springs, from which the well-maintained road to the valley takes its name. Accordingly, the interpreted route is one that has the expedition leave Government Springs on August 26th heading northeast and downslope along the mesa between Dolores Creek and Horsefly Creek canyons – ending at the mouth of Horsefly Creek. Continuing to the Uncompahgre River, the expedition intersected a trail that followed the River in a northwest direction about 4.0 miles (1.5 leagues) to the large marsh of present day Chipeta Lakes. Notably, the text states they traveled *northeast* and downstream; however, that direction is contrary to the local geography, as the river runs northwest (Figure 7.2). In the translation and perhaps in the log itself, the direction was corrected in their record for August 27th: "we set out from La Ciénega de San Francisco, downstream, and heading northwest" (ibid:25).

A Tabeguache Ute guide joined the expedition on August 24th at a camp on the south-west side of the Uncompahgre (ibid.:22). The Ute guided the expedition along what was later called the Navajo Trail and away from two other trails: one that followed the Old Paradox Road and the other that approximated the Dave Wood Road. Both of those routes would have brought the Spanish into the Shavano Valley, an area of spiritual importance to the Utes.

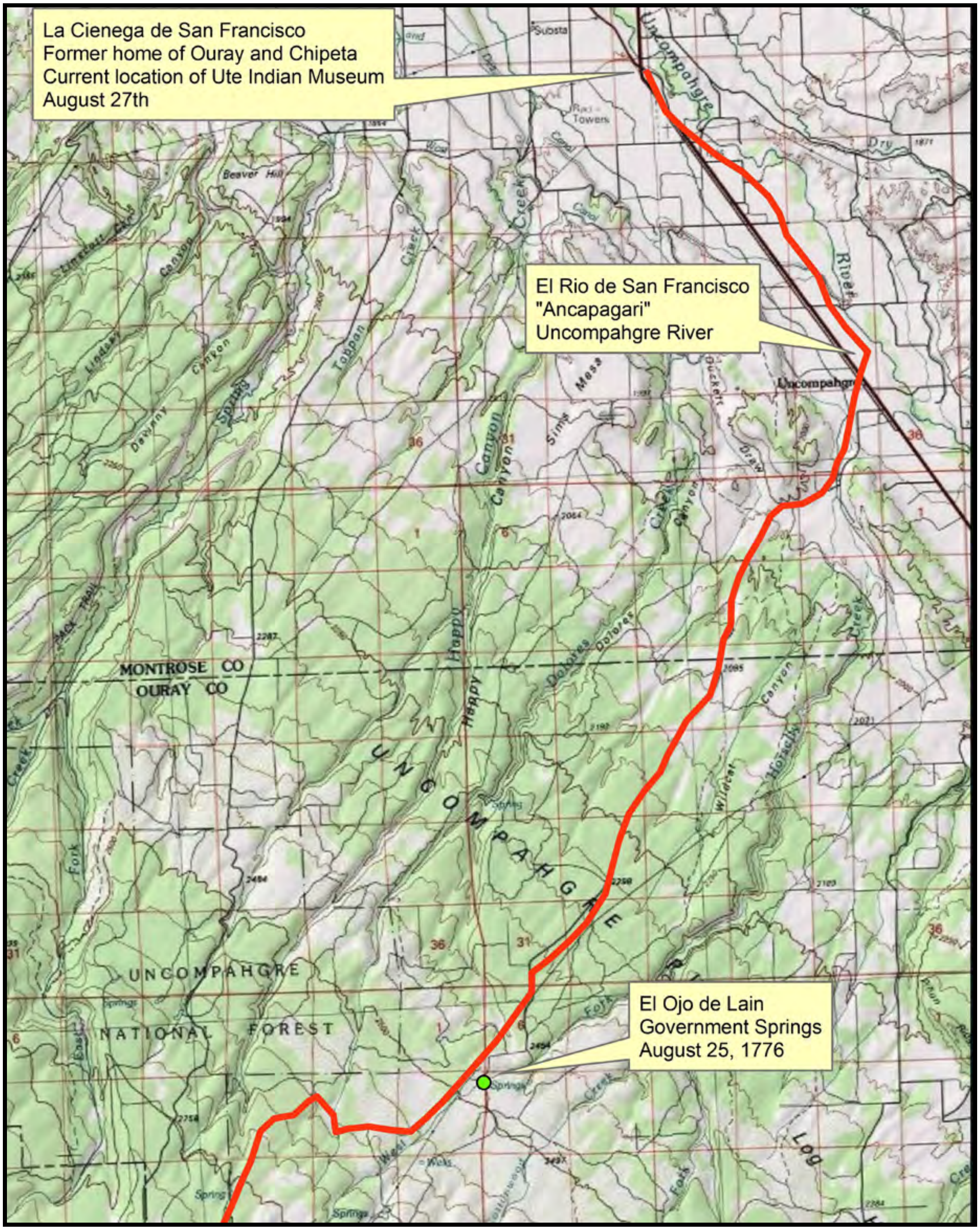


Figure 7.2. DARG's interpreted route of the Dominguez and Escalante Expedition on the southeast side of the Uncompahgre Plateau: arrival at El Ojo de Lain on August 25th, 1776; travel along the Navajo Trail [Government Springs Road] to the Uncompahgre River; arrival at La Cienega de San Francisco on the 26th and departure on the 27th.

7.3 Pioneer Roads

An examination of General Land Office (GLO) maps and other documents indicated that the rims of Spring Creek Canyon had important historic roads that connected the Uncompahgre River Valley with the San Miguel River Valley. These included the Old Paradox Wagon Road (northwest side), the Dave Wood Road (southeast side), and a portion of the Navajo Trail that became the Government Springs Road . Figure 7.3 provides a reduced scale map that shows these trails that became pioneer roads in relation to Spring Creek Canyon and the Southern Uncompahgre Plateau. The routes illustrated in Figure 7.3 are some of the best examples of Native American trails that became routes for the early and modern roads used to connect important regions of the Southwest.

Roads were the life blood for the early settlers, bringing provisions from distant suppliers. This section provides information compiled by early researchers, which was in part derived from oral histories by some of the early settlers or their descendants. As previous indicated, much of the following information was found in a series of oral histories conducted by Arthur W. Monroe for the Civil Works Administration between 1933 and 1934. The following has information about the first roads in the Uncompahgre Valley, and specifics about the three main roads that crossed the Southern Uncompahgre Plateau.

Early Roads of the Uncompahgre Valley, according to Ranger John Keep:

> One of the first roads constructed in the Valley, was laid out and built by Jay. J. Ross, who now lived where Spring Creek empties into the Uncompahgre River between Olathe and Montrose. He laid out a road from Montrose to Brown, later named Colorow, and still later changed to Olathe. The original road through the Valley was laid out by Hayden in 1875. The route commenced at Old Fort Crawford, and kept on the west side of the river, across the mesas, crossing the Spring Creek Mesa, Ash Mesa, and California Mesa, finally crossing the Gunnison River just above the mouth of Roubideau Creek, continuing down the east side of the Gunnison to the Ford on the Colorado River at Grand Junction and thence on to Salt Lake City and Utah.
>
> The first road through the Forest was laid out by Dave Wood, from Montrose, across Horsefly to Leonard, and thence to Telluride. This was laid out in 1882, for the purpose of freighting supplies to the then booming town of Telluride. Montrose was the nearest rail point, and this portion of the D&RG RR was the main line from Denver to Salt Lake City.
>
> Horsefly Mountain received its name during the days of the early freighting through this country on the Dave Wood road. It is a fanciful name, and applied to the shape of the mountain. It was called by some, “Mosca Hill,” Mosca meaning fly in Spanish.

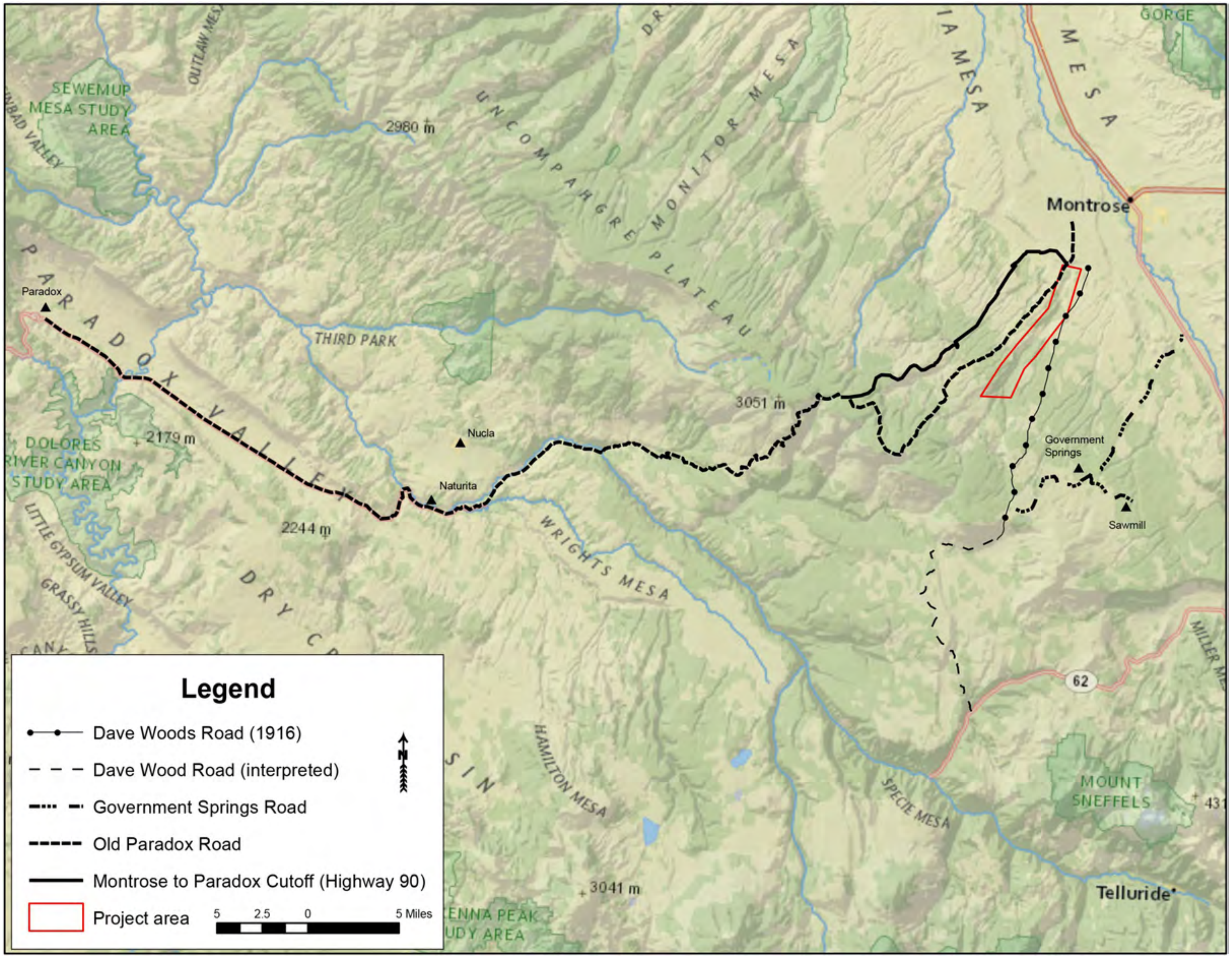


Figure 7.3. Map of historic trails and pioneer roads in the Spring Creek Area.

On the road, a saloon and roadhouse were established at the foot of what is now known as Dew Drop Hill. The remains of the dwelling and old buildings are now gone, but this portion of the road still retains the name of Dew Drop Hill, originating from the name of this early road house (Keep 1934:244-245).

The Old Paradox Road (5MN2991 and 5OR930)

The Old Paradox Road was in use at least as early as 1884. According to its site form:

> The road was mapped by government land surveyors as early as 1884. It is indicated simply as a "Road" on 1884 General Land Office plats (T47N, R11W and R12W, the "Wagon Road Paradox to Montrose (1892 GLO plat of T47N, R14W), the "Montrose and Paradox Road" (1903 GLO plat of T47N, R13W and T47N, R15W) and as the "Montrose and San Miguel Road" (1903 GLO plat of T48N, R14W). It thus appears that the road was being used as early as 1884 and possibly even as early as 1881 with the removal of the Ute Indians to reservations. Cattle were trailed into the San Miguel River drainage in the summer of 1881 by Dick Durbin, who started one of the area's first cattle companies - the Club Cattle Company. While it is uncertain to whom the Club Cattle Co. was selling cattle to, other cattlemen were selling beef cattle to the government for the soldiers and Indians at Fort Crawford, located a few miles south of Montrose (Smith 1937:13). Cattle were being grazed in the Horsefly country soon after the removal of the Utes by the Ashley Cattle Company, but again it is unknown if this company was using the Old Paradox Road. While references to the Old Paradox Road are confined primarily to General Land Office Plats, it does appear that cattle were being grazed in the San Miguel River area, Paradox Valley, and the Horsefly areas by the very early 1880s, almost immediately after removal of the Ute Indians (Smith 1937; Mehls 1982). The rush for unfenced grazing land appears to have been quite intense during the early cattle years. By 1906, one year after the formation of the Uncompahgre National Forest, the Forest accepted 183 stock grazing applications. These permits ranged from as few as two to as many as 2,149 (the Club Cattle Company) head. In all, 28,803 head of cattle and horses were permitted to graze on forest lands (Smith 1937).
>
> The Old Paradox Road has historical significance in that it probably played a major role in the economic development of west-central Colorado. It was undoubtedly one of the first roads linking the Paradox and Uncompahgre Valleys. The removal of the Ute Indians from the Uncompahgre Plateau and surrounding region in 1881 spurred a rush by cattleman to secure choice grazing areas now opened up with the removal of the Utes to reservations. The arrival of the railroad in Montrose in 1882 alleviated the problem of stock drives over great distances to cattle markets in Wyoming and the Dakotas (Mehls 1982:111-112). Obviously the development of roads and stock trails to the

railheads was essential to the expanding cattle frontier. The Paradox Road appears to have met this demand and provided a transportation route for western Colorado and possibly southeastern Utah cattle and sheep ranchers to move their herds to the newly established railhead at Montrose.

Newspaper accounts of the Paradox Road indicate it was used as a primary seasonal route from Montrose to the Paradox Valley: “In summer when there is no snow on the divide the more direct route is from Montrose over what is known as the Paradox road. This is the road traveled by the settlers of that valley who come here to buy all their supplies, this being the nearest and most accessible trading point. The distance from Montrose to Paradox on a straight line is less than sixty miles” (Montrose Enterprise 1898a:7). For settlers it was also a preferable route to the (Dave) Wood Road, “The county commissioners of Montrose county have appointed Road Overseer Bouling to put the Paradox road between Montrose and Spring creek in repair. This makes a fine road to Paradox valley and dodges the Wood toll gate” (Colorado Mining Gazette 1886:1). Editorials written in the early months of 1898 also expressed concerns over route improvements in order to divert traffic to Montrose rather than Delta:

> There is going to be a great deal of travel into the Paradox valley this spring and summer. The travel should naturally and properly start from Montrose, cross the Uncompahgre Divide above the C. C. C. Sheep creek saw mill, and pass down through Pinon and Naturita to Paradox. If that route is made passable, Montrose is the nearest and best outfitting point for the parties going into the valley. Not only that, but she is the source from which all supplies must be drawn. Groceries, flour, hardware, merchandise of all kinds, and in considerable quantities must be freighted into the valley this summer; and with a decent wagon road across the divide and connecting Pinon and Naturita, Montrose will get practically the entire trade.... I have said that unless the road from the Sheep creek saw mill to Montrose is shortened and improved part of that trade will go to Delta. It is also true that unless the road is built along the trail down the river from Pinon to Naturita, a considerable portion of the trade will never cross the divide at all, but will stop at Shenandoah, Norwood, and Saw Pit, all of which points now have merchants who know the value of the Paradox trade and will bid for it (Montrose Enterprise 1898b:5).

As a result of discussions and surveys that proceeded throughout 1898 it was determined that a cutoff road should be constructed, diverting from the Divide road near Iron Springs, and proceeding along what is currently known as State Highway 90:

> From Iron Springs said road to run due east, crossing East Dry Creek canon at point where the Temple ditch comes on top of the canon on the east side, intersecting the Temple road into Shavano valley. We recommend the road be surveyed and laid out as above. We estimate the cost of putting said road, as recommended, in shape for reasonable travel, to be $1,500 exclusive of

> donation work, this to include all bridge and culvert work. We find the old road from Montrose to Naturita to be 69 miles in length by way of Cottonwood. We find the road above proposed would be about 45 miles in length, using the old road only 6¾ miles (Altrurian 1898:1).

The road was established as State Highway 90 in the 1920s. It was entirely paved by 1963.

Government Springs Road

The "Government Spring" provided water for the Calvary post Fort Crawford. According to an oral history interview conducted with Forest Ranger John H. Keep, of the Uncompahgre National Forest:

> The first sawmill of any record or consequence, was erected by the Government, near what is now known as Government Springs, near the present boundary of the Forest, west of the town of Colona. The mill was operated by the soldiers located at Fort Crawford, and it is said to have cost around $40.00 per M. Ft. B. M. to produce. Their operations extended to the Yellow Pine Regions only.

Lumber was utilized throughout the occupation of the cantonment to provide lumber for continuous repairs to the buildings. On January 5, 1886, one of the barracks was destroyed by fire and troops were used for carpentry work and labor. Monetary amounts allotted for building posts was so small that the structures themselves were in constant need of maintenance (Nankivell 1934:62).

Marshall states, "It [Log Hill] was so steep on the downside that in order to keep the wagon from beating the team to the bottom, they applied a sort of emergency brake – a felled tree, hooked on and dragging behind. As a result, the hill became deforested and the bottom cluttered (Marshall 1998:152).

Dave Wood Road (5MN9392 and 5OR1052)

David Walker Wood was the owner of a livery stable in Pueblo, Colorado, and added passenger wagons starting a "fast line." The Denver & Rio Grande Railroad made a contract with Wood to move his business to the end of the track. As the railroad grew, Wood's offices moved as the "end of the line" changed from Garland City, Canon City, Alamosa, Gunnison, Sapinero, Montrose and Dallas. His teamsters hauled supplies of all kinds needed to operate mines, including food, machinery, dynamite, coal, passengers, and ore. In 1893, he lost his freight business during the economic panic, an estimated worth of at least $250,000. The road was then used by farm and ranch homesteaders that came to the Horsefly area in the early 1900s.

The following account from the book, I Hauled These Mountains Here, Dave Wood describes the construction of the Dave Wood Road in the spring of 1884:

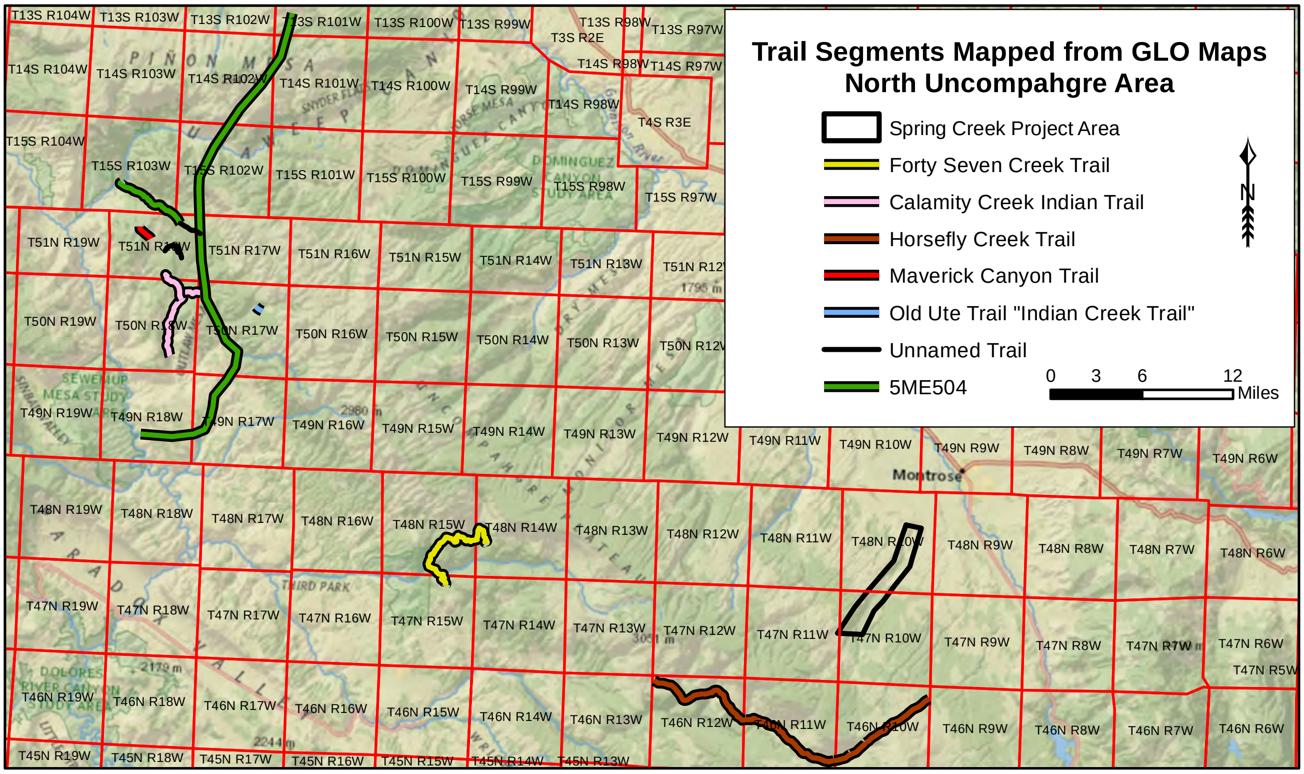
> A hard winter with plenty of snow caused unprecedented floods in the spring. The railroad through Black Canyon of the Gunnison was flooded so deep that freight trains were abandoned entirely. Passenger trains piloted by a light engine came through when it seemed possible.
>
> It was plain there would be no freight for the mountains for a month at least. My whole outfit would be idle. I felt I had to do something to hold the men together. I had investigated a route over the divide, down Horsefly Mesa and on across the mesa to a gulch leading down to Leopard Creek. My men and teams went to work and built the road (still known as the Dave Wood Road) from Montrose to Leopard Creek, a distance of 33 miles. The last miles down to Leopard Creek were very heavy work.
>
> In that day money was made to build roads. In this day roads are built to make money. My road cost me $15,000. It was a good road, too. On the Telluride run, our freight teams saved two days round trip, and three hours each way for stages. The road gave us good service for more than seven years, with a nominal expense for upkeep. Today the road would cost at least $4,000 just for the last mile down the canyon to Leopard Creek – $400,000 to $500,000 for the entire road. Of course it would have to be wider for cars and trucks than for wagons (Wood and Wood 1977:178-181).

Wood gave his road to the two counties it runs through – Ouray and Montrose. The modern road is said to run exactly along the original alignment. The photo below (Plate 7.1) is identified as Eugene Smith's Place, near Horsefly, Colorado Sept 1st 1886. It served as a stop for the Wood Transportation Lines (Wood and Wood 1977:181).

Plate 7.1. Eugene Smith's Place, a stop along the Wood Transportation Lines.

7.4 ARCGIS Data

From DARG's trails-mapping effort, an ARCGIS database has been compiled for Federal lands east of Unaweep Canyon and the Dolores River, north of the San Miguel, west of the Uncompahgre River, and south of the Gunnison River (attached disc contains the ARCGIS data). This data was compiled from the maps listed at the beginning of this report segment. Figures 7.4 through 7.10 provide graphic illustrations of the GIS data. Use of this information in files searches for inventory projects on State and Federal land may help with their on-ground identification. Potentially, this data may be used in the assignation of Ute (Nuche) place names to localities and bring forth ecological knowledge buried in the Ute language. As time goes by, the generational loss of this knowledge of sacred places tied to landscape ecology increases, and use of the trails data combined with archaeological site records may aid in its preservation.



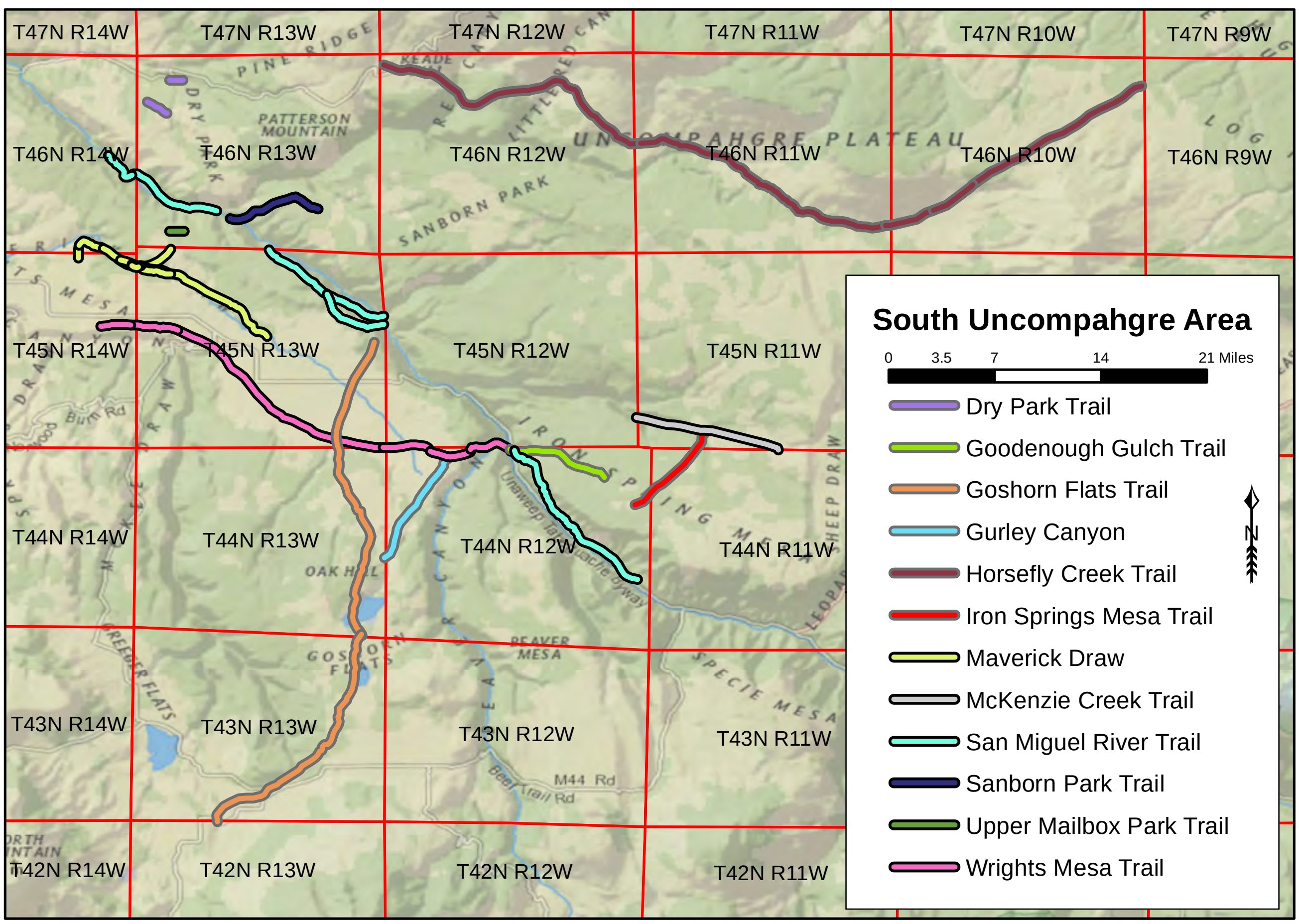


Figure 7.4. Trail segments identified from GLO maps for the Northern and Southern Uncompahgre.

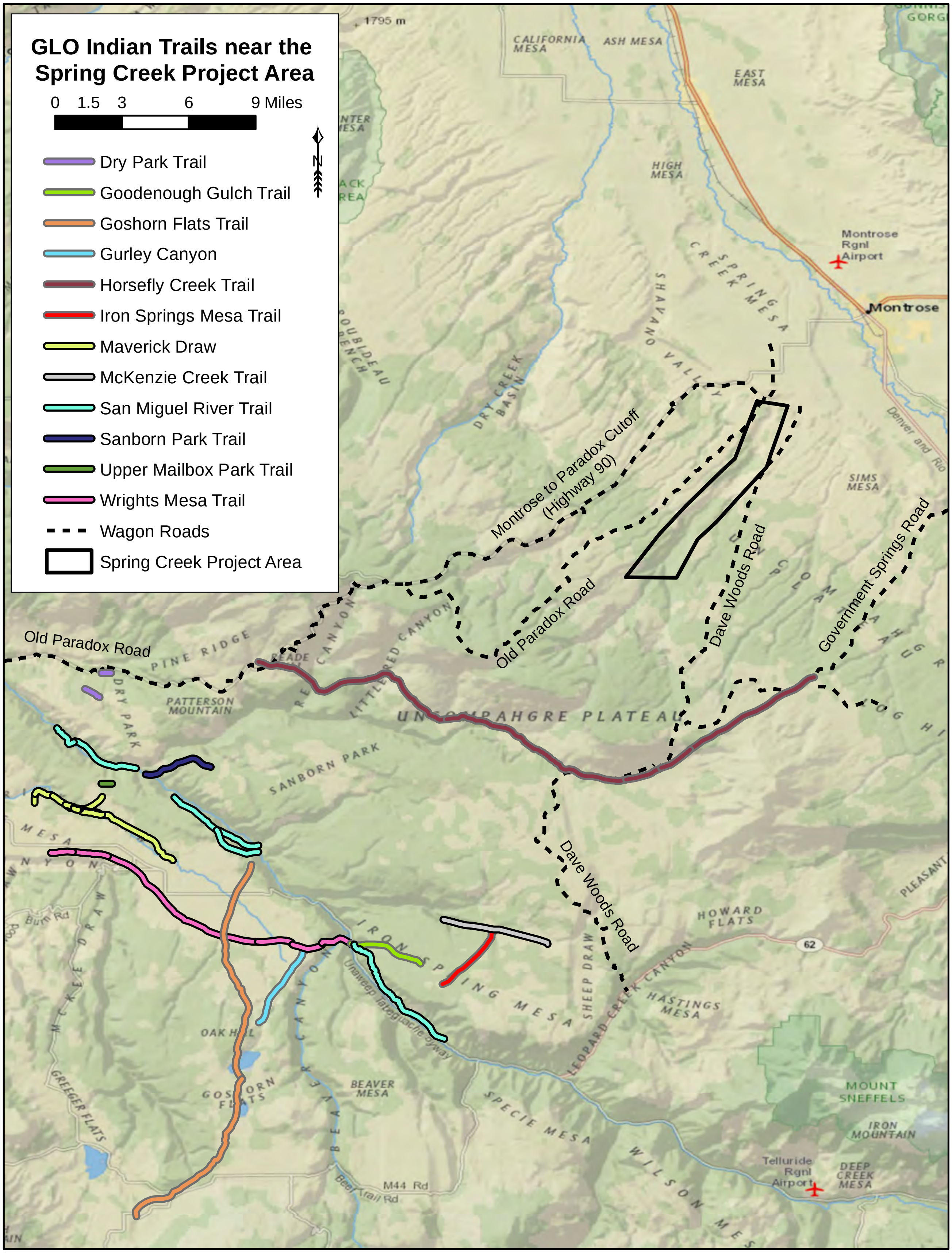


Figure 7.5. "Indian" trails identified on GLO maps Near the Spring Creek Project area.

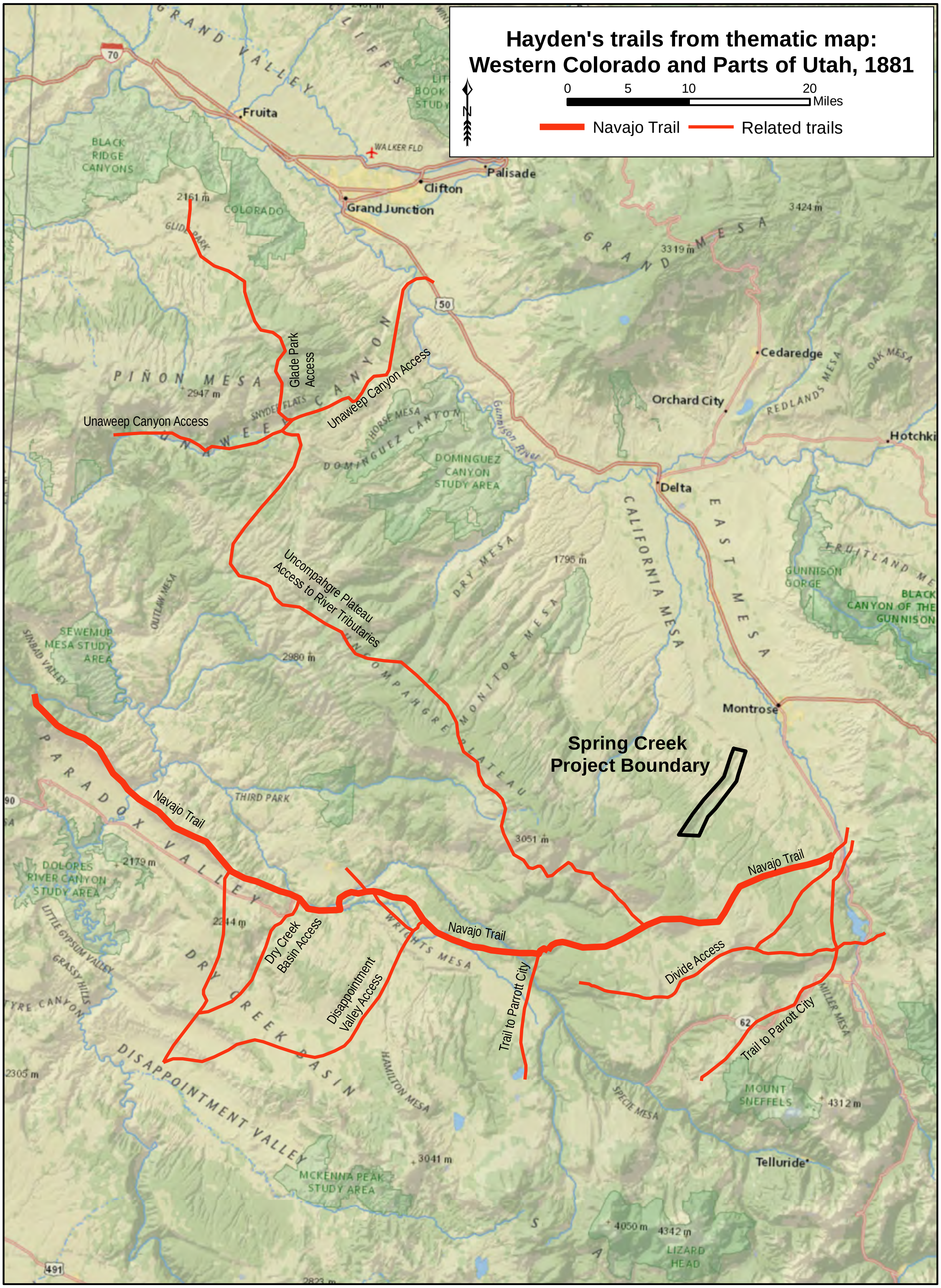


Figure 7.6. Trail segments identified from Hayden's regional thematic map.

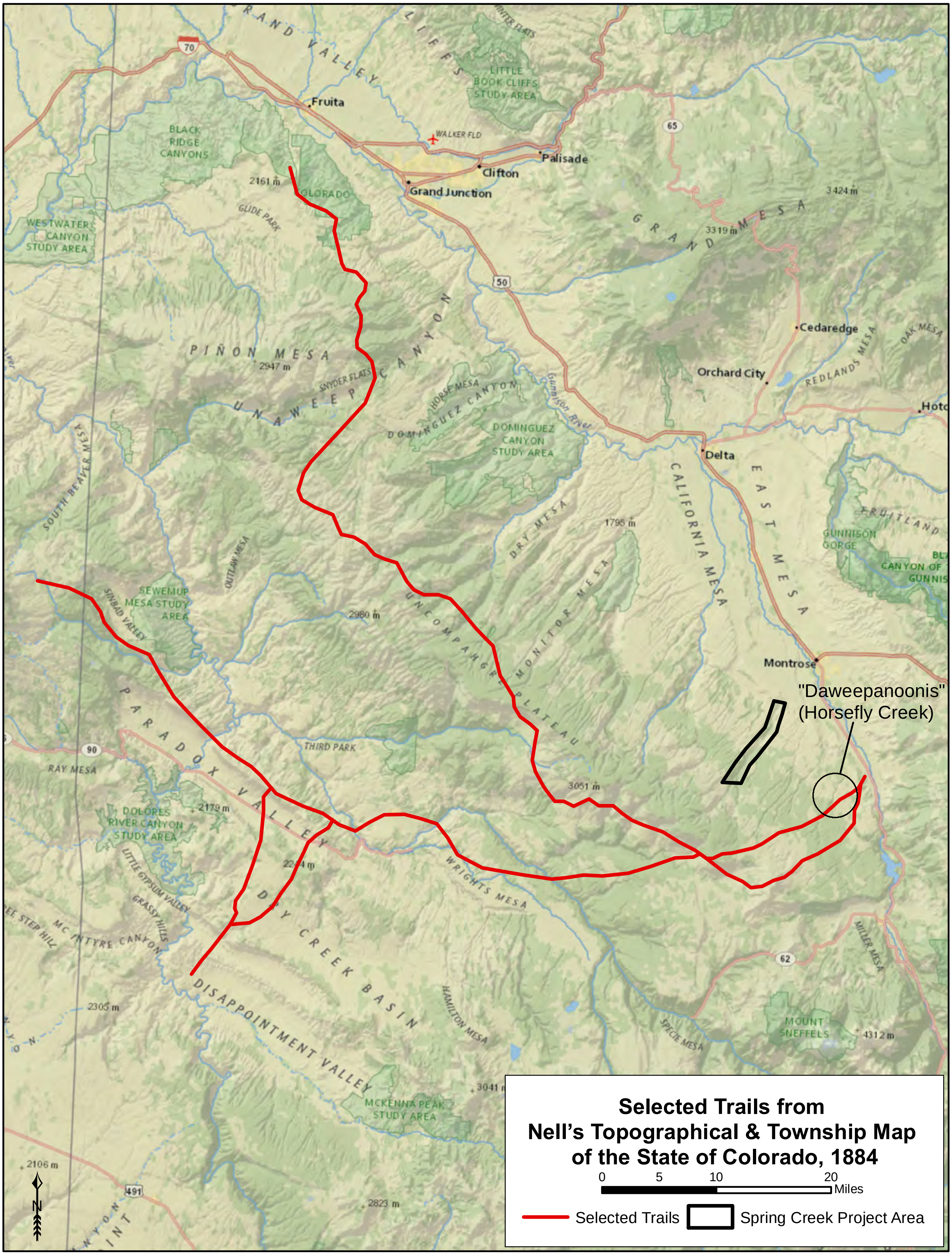


Figure 7.7. Selected trails from Nell's Topographic & Township Map of 1884.

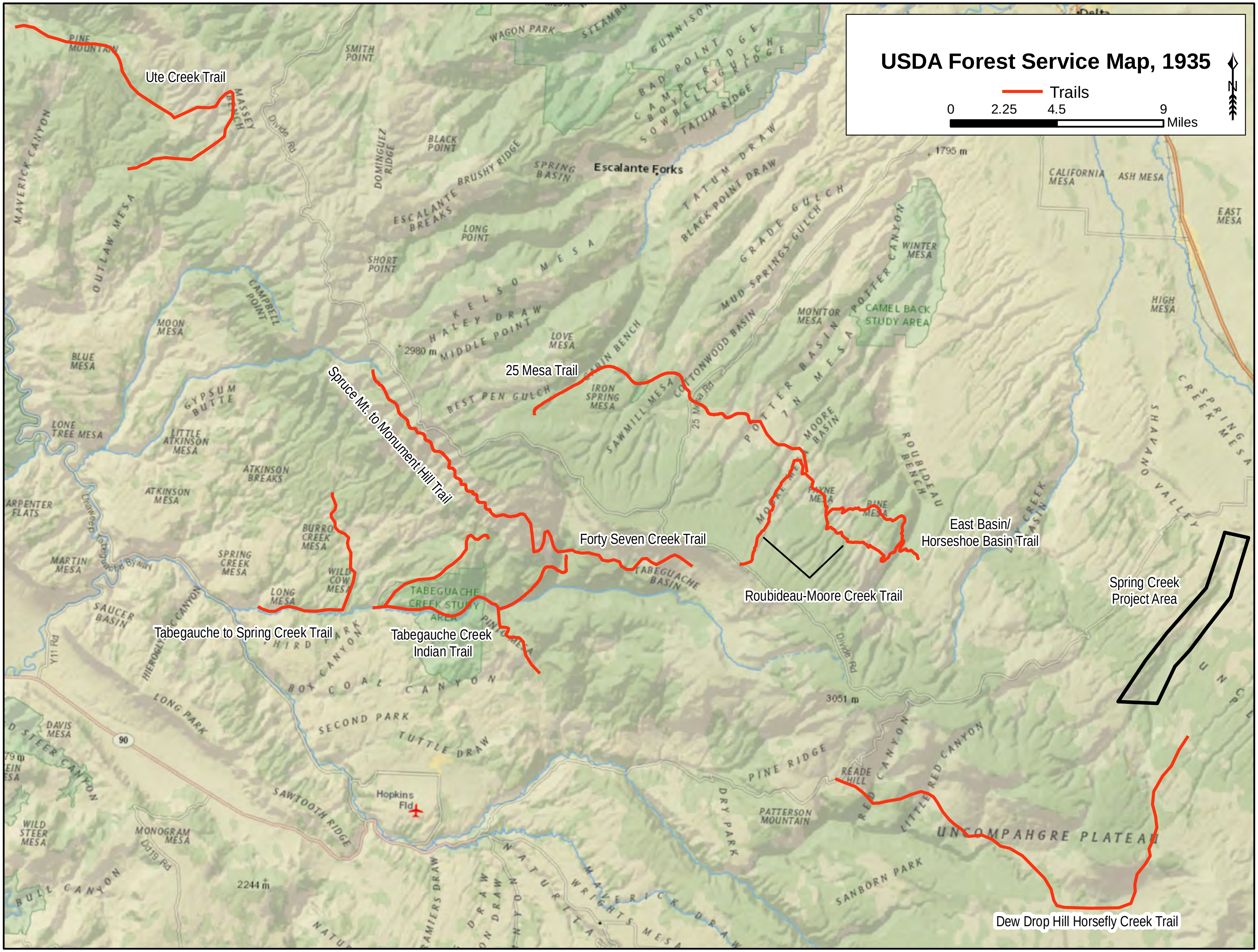


Figure 7.8. Trail segments identified from the USDA Forest Service 1935 map.

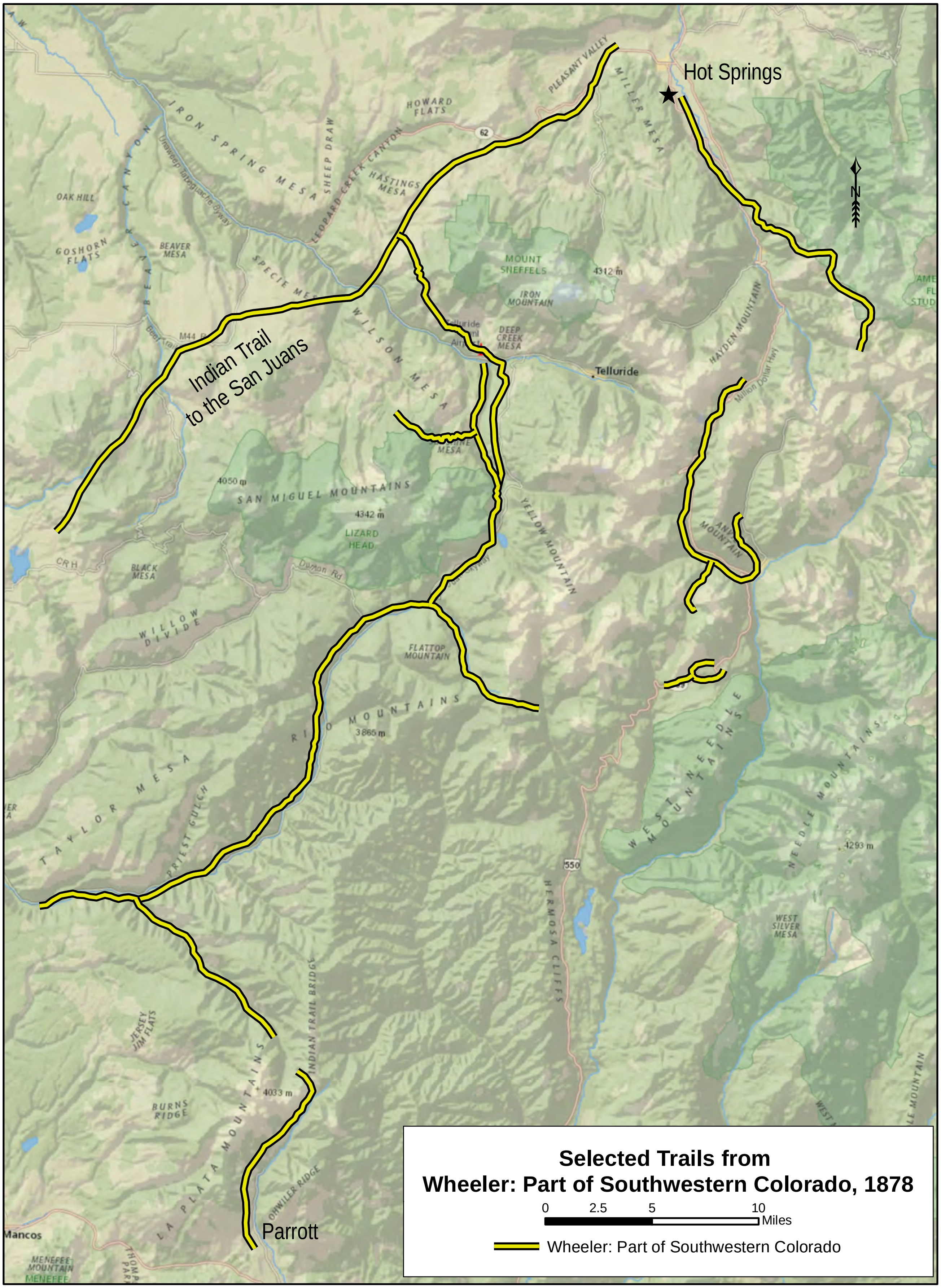


Figure 7.9. Selected "Indian" trails from Wheeler: Part of Southwestern Colorado map of 1878.Hot Springs , as shown on Wheeler maps of 1878.

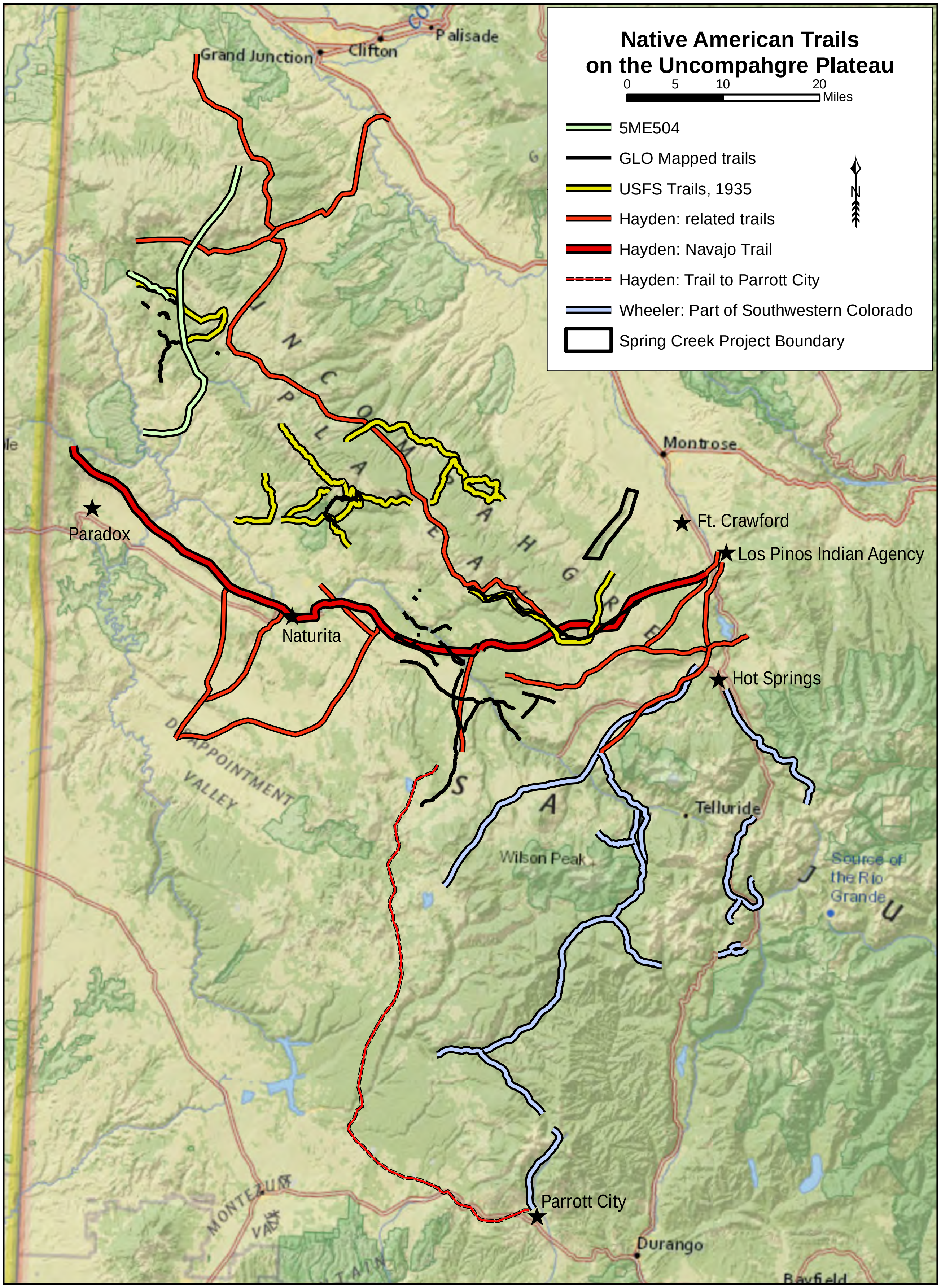


Figure 7.10. Composite map of Native American trails identified on the Uncompahgre Plateau and those leading south.

8.0 STUDY FINDINGS

This portion of the report provides descriptions of the sites revisited and newly recorded, a summary of the radiocarbon data collected during the inventory, and a reassessment of the route of the Dominquez and Escalante Expedition. The cultural resources reconnaissance inventory recorded a total of 28 sites and 10 isolates. Five previously recorded resources, 5MN576, 5MN6651, 5MN6652, 5MN6839 and 5MN7419 were revisited and reevaluated. Twenty-two prehistoric sites (5MN10981 through 5MN10998, 5MN11009, 5MN11010, 5MN11306 and 5OR2173) and one trail 5MN1009/5OR2174 were newly recorded. Nine prehistoric isolates, 5MN11000 through 5MN11008, were also newly recorded. This portion of the report briefly describes the sites and provides field evaluations. Appendix A contains the radiocarbon analyses from ICA. Location data for the above cultural resources is provided in Appendix C, and Figures C-1 through C-4 depict the location of the cultural resources in relation to the project survey area. Additional detailed information for those resources is provided in the attached OAHP Forms (only in BLM and OAHP copies).

8.1 EVALUATIONS OF SITE SIGNIFICANCE

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 Bureau of Land Management Uncompahgre Field Office (BLM) and State Historic Preservation Officer (SHPO). Title 36 CFR 60.4 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.*

8.2 RECORDED SITES

Site **5MN576** was originally recorded as a large lithic scatter by Jerry Fetterman in 1977. The site was relocated with the present project and newly mapped and photographed. From the original recording, the site was described as:

> Large lithic scatter on gentle talus southeast facing slope. The northwest extent

of the scatter is the most dense. There are no lithics in the drainage or on top of the slope. Vegetation: Pinyon, juniper, sage, yucca, cholla, prickly pear. Soil: Tan, Rock alluvium of undeterminable depth. Collections: 50% of observable material. Water: 50m southwest to an unnamed intermittent drainage and 2km to Spring Creek (permanent as marked on USGS map). Condition was stated as “washed.”

The site is located approximately one kilometer east of Spring Creek within soils classified as Barboncito-Rock outcrop complex, a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipslopes of cuestas and summits of mesas (NRCS Soils website). The underlying bedrock is comprised of sedimentary rocks from the Dakota Sandstone and Burro Canyon Formation (sandstone, shale, and conglomerate) of Jurassic age. The nearest water source is an unnamed intermittent drainage located 45 meters southeast of the site. Vegetation is old growth pinyon and juniper trees with small sagebrush and bunch grasses.

The present visit relocated the site and mapped two loci, A and B, in an area measuring 220m northeast to southwest by 50m northwest to southeast which parallels the drainage to the southeast. Locus A measures 85m northeast to southwest by 28 meters northwest by southeast and defines the southwest portion of the site. Numerous artifacts and features were mapped, including a projectile point, a biface tip fragment, a butchering tool, three scrapers, a spokeshave, debitage, and two thermal features. The two thermal features within the locus are 45 meters apart and were designated Features A-1 and A-2. The feature to the southeast, designated Feature 1, contained suitable charcoal for sampling, was collected and processed. The feature to the north, Feature 2, is a small cluster of five pieces of fire-cracked rock (FCR) and lacks charcoal or ash. No potential for radiocarbon dating was present.

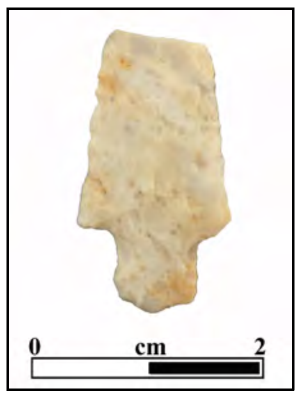


Plate 8.1. Projectile point recorded in 5MN576 Locus A, near Feature A-1.

The projectile point is a stemmed point of white/tan chert (Plate 8.1). It is classified as Type 8 of Berry’s Projectile Point Classifications for the Uncompahgre Plateau (Berry 2019). It is a type with an associated temporal period range of about 7000 years and thus renders it unusable as a diagnostic. An AMS date recovered from a nearby thermal feature is 550±30 BP (Cal 1310 -1360 AD, 40.5%; Cal 1380 - 1440 AD, 54.9%; [ICA ID #19C/0602]), which places the feature’s use during the early Ute occupation ca. AD 1310-1440.

The biface tip fragment is of white chalcedony, and the butchering tool is of gray mottled claystone and displays a chisel end. The scrapers are of varied materials and styles: a brown claystone, discoidal shaped scraper on a primary flake; a black siltstone end scraper with a possible perforator on one end; and, an ivory quartzite end scraper constructed also of an expedient style on a flake. The spokeshave is large, of sandstone and was clearly utilized as a shaft smoother.

As for the debitage, 17 flakes were individually recorded within this locus, along with two flake concentrations. The specimens vary in material types with quartzite the most prolific (n=7), followed by chert (n=5), basalt (n=3) and one each of siltstone and claystone. One of the chert flakes exhibited pockmarking. The concentrations are at the north end of the locus. One measures 2 x 3 meters, contains six extra large flakes of quartzite, one of mudstone and appears to have been a butchering locality. The other is comprised of seven small, interior flakes, four of chert and three of claystone within an area measuring 1.5 x 2 meters.

Plate 8.2. Small point made from a flake, 5MN576 Locus B.

Locus B is located at the north end of the site, 110 meters northeast from Locus A. This locus contained only a few scattered artifacts including a small "flake" type projectile point (Plate 8.2), and a few microflakes on an anthill. One of the materials represented on the anthill was "pumpkin" or Morgan Formation chert likely secured from one of the quarries on Cross Mountain north of the Yampa River. This Locus also contained a thermal feature (B-1) that exhibited surface charcoal and small burnt bone fragments. An AMS date recovered from a nearby thermal feature is 220 ±30 BP (Cal 1640 - 1690 AD, 37.7%; Cal 1730 - 1810 AD, 44.7%; Cal 1930 - ?AD, 14.0%; [ICA ID #19C/0601]), which places the feature's use during the late Ute occupation ca. AD 1640-1810.

A small projectile point was found that is at first glance just a flake. However, the same type has been found on other sites in the region and has been associated with the Ute occupation. Another example of this point was recorded at 5MN10935, a multi-component site on Dry Mesa (Plate 8.3).

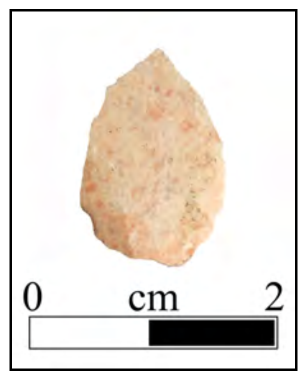


Plate 8.3. Small point made from a flake recorded at 5MN10935.

In general, the site appears to represent multiple occupations during the Numic period ca. AD 1300-1880. This site is an example of a strategy of high residential mobility in which foragers exploited the area, using serially occupied residential camps from which foraging trips of a day or less were undertaken. It may also indicate a serially occupied camp where the residents choose not to occupy the exact same location, but one adjacent, which seems to be the pattern for the Utes. It is anticipated that the site will contribute additional important information in the area between the sampled loci.

<u>Evaluation and Management Recommendations</u>

Two of the site's loci have yielded important scientific information concerning the Ute occupation of the region during the past 600-700 years. Since it is likely to provide additional information it is field reevaluated as eligible for inclusion on the NRHP. Protection and preservation are recommended. The site lies within six meters of the BLM Broken Arrow

Trail. Due to the proximity of the site to a recreation trail, periodic monitoring to assess impacts to the site is recommended.

Site **5MN6651** is a prehistoric open camp of unknown cultural affiliation originally recorded by Patricia Walker-Buchanan and Robert Dello-Russo, PhD., in 2003, with the Upper Dave Wood Hazardous Fuels Treatment Inventory, on file at the BLM-Uncompahgre Field Office [MC.LM.R517]. The original site datum was not relocated in the field with the present project. The site appeared as previously recorded with the addition of a newly noted mano, several metate fragments and two flakes. At the time of the original recording, it was stated that the site appeared to have limited research potential as described below.

> The site is discrete, low density, open lithic and groundstone scatter of unknown affiliation located on a narrow northeast-aligned ridge between the rims of Spring Creek Canyon and a tributary canyon. The site is situated on a fairly level, constrained neck on the ridge, with the rim of Spring Creek Canyon about 150 meters to the west and the rim of the tributary canyon about 185 meters to the east. The setting is an open but dense pinon-juniper woodland, with many large trees which appear to be old growth relicts along with numerous second generation trees. There is evidence of heavy wood-cutting on the site and in the area, with many ax and saw-cut trees and abundant slash. Soils are tan silty sandy loams. Light and dark gray shale from the underlying Mancos Formation strata is exposed in areas adjacent to site, primarily near the canyon rims. Site size is approximately 40 meters east-west by 30 meters north-south, and site elevation is 7390 feet above sea level. The artifact assemblage is comprised of groundstone and flaked lithic debitage. Groundstone forms the nucleus of the site, with a cluster of five partly buried metate fragments found in a 2 meter diameter area in the southwestern side of the site adjacent to the two-track road. The metates are all thick tabular slabs with unifacial grinding and pecking, and may actually be from a single broken slab. A sandstone mano fragment with light grinding and visible striations was found nearby. At the eastern edge of the site was a sixth, complete metate, also a thick sandstone slab with heavy pecking and light grinding. The chipped stone artifacts (n=25) are limited to reduction flakes (cortical and non-cortical) and a single irregular core. The core is white quartzite and the flakes include white quartzite, pale gray quartzite, mottled gray-and-red chalcedony, and white chalcedony. The lustrous hue of one of the chalcedony flakes appeared to be the result of fire-altering. No tools nor diagnostic artifacts were found. There were no identified features, although there was a dark, discolored soil area exposed in the road around the mano.

Since the site was extensively recorded in 2003 the purpose of the present site visit was to assess its condition and search specifically for evidence of datable, thermal features and any new diagnostics that may have surfaced. The site condition remains as previously recorded, despite increased activity in the area by the a two-track road. Thermal features were sought at length and none were observed within surface contexts. Additionally, no diagnostic artifacts were newly noted.

Evaluation and Management Recommendations

The site was field evaluated as not eligible to the NRHP. No change is made to that evaluation due to the lack of potential for subsurface depth of cultural fill. The site is not likely to yield additional information important to the prehistory of the area. No further work is recommended. The site lies 360 meters southeast of BLM Lower Springs Creek Trail.

Site **5MN6652** is a prehistoric open camp recorded in 2003 by Patricia Walker-Buchanan and Robert Dello-Russo for the Upper Dave Wood Hazardous Fuels Treatment Inventory. They characterized the site as large, and likely having cultural materials dating to the middle or late Archaic Era. The original site datum was relocated in the field with the present project. There were no notable changes to the site. At the time of the original recording, it was stated that the site appeared to have significant research potential as described below.

> The site assemblage, which consists of around 100 artifacts of both chipped and ground stone, is broadly scattered across the site, with one main artifact concentration located at the northern end of the site. This concentration appears to be the nucleus of the site, and encompasses a 25 meter diameter area within which a mano, three metate fragments, a projectile point, a blade flake tool, a biface tool fragment, and numerous reduction flakes (dominated by dark red or maroon siltstone) are present. Lithic debitage is abundant across the rest of the site and includes dozens of additional reduction flakes and irregular cores, along with several utilized or retouched flakes, expedient flake tools, and five more metate fragments. The metates were all unifacially ground (some lightly) and pecked, and shaped from tabular, tan-colored sandstone or quartzitic sandstone slab fragments. One metate fragment appeared to be a spall, possibly from the affects of thermal altering. The single mano is a bifacially ground and shaped quartzite cobble.
>
> A high number of irregular cores were present (n=7) and included a variety of material types: three of pale green chert, one a tan quartzite, one of banded gray quartzite, one a maroon siltstone/mudstone, and one exhausted core of petrified wood. A variety of other toolstone types are represented, including pale-to-medium-hued green chert, gray chert, red-brown chert, white chert, translucent chalcedony, white chalcedony, maroon siltstone/mudstone, black-and-tan petrified wood, greenish-grayish-tan andesite, and quartzites, including white, light to medium grays, purplish-gray, and tan. Both cortical and non-cortical flakes are represented. The diagnostic projectile point is nearly complete (tip missing), is biconvex in blade cross-section, has a lanceolate, serrated blade with slightly concave lateral edges, and an obliquely-shouldered, slightly constricted stem (Plate 8.4). The morphology of the

Plate 8.4. 5MN6652, stemmed point recorded in 2003.

blade may be the result of resharpening on the haft or from use as a knife. Stemmed projectile points are used throughout much of the Archaic Era, with the stemmed variants generally subsumed under the Gypsum style, or the Elko or Gatecliff Contracting Stem types, with a wide range of dates from roughly 6000 —200 B.C. (Reed and Metcalf 1999). [The point is classified as Type 8 of Berry's Projectile Point Classifications for the Uncompahgre Plateau (Berry 2019). It is a type with an associated temporal period range of about 7000 years and thus renders it unusable as a diagnostic.]

Since the site was extensively recorded in 2003 the purpose of the present site visit was to assess its condition and search specifically for evidence of datable, thermal features and any new diagnostics that may have surfaced. The site condition remains as previously recorded, despite increased activity in the area by the Lower Spring Creek recreation trail. Thermal features were sought at length and none were observed within surface contexts. Additionally, no diagnostic artifacts were newly noted.

Evaluation and Management Recommendations

Original evaluation:

> Since the site is situated in a setting with at least some soil depth, has a time diagnostic artifact, and has excellent potential for intact buried deposits, particularly within the large central activity area, the site is field evaluated as eligible to the National Register of Historic Places. The site should be avoided by future land management impacts; and test excavation should be considered to establish the nature and extent of the subsurface deposits and to obtain chronometric and subsistence data which may corroborate the temporal range inferred by the diagnostic artifact and provide data relevant to the research domains important to the prehistory of the area.

The site remains field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The site lies 270 meters southeast of BLM Lower Springs Creek Trail.

Site **5MN6839** is newly identified as a prehistoric open camp. It was originally recorded as an isolated find in 2003 by Patricia Walker-Buchanan and Robert Dello-Russo for the Upper Dave Wood Hazardous Fuels Treatment Inventory. Their original recording was:

"The isolated find consists of 12 flakes of orthoquartzite, chert and petrified wood, along with 3 projectile point fragments. The first point is a Uinta Side-notched point of gold-dark brown streaked petrified wood [16 x 13 (base width) x 2 mm; neck width = 9 mm]; Second point is white chert midsection (11x11x2 mm); Third point is corner-notched w/ expanding base / broken mid-blade / made of gray orthoquartzite [11x14 (base width) x 4 mm; neck width = 10 mm] (Plate 8.5)."

The present visit to the locale identified numerous additional prehistoric cultural manifestations including a scraper, four manos, a metate, a thermal feature and a few more pieces of debitage. Thus, the resource has been updated and recorded as an open camp.

The prehistoric open camp, is located on a small knoll west of Spring Creek an elevation of 6840 feet. Vegetation consists primarily of open juniper forest with a sparse understory of scattered sagebrush and cactus. At least 90 percent of the ground is visible and much has been disturbed by use as a road/parking area, likely for modern hunting activities. Soils are classified as Barboncito-Rock outcrop complex, a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipslopes of cuestas and summits of mesas (NRCS Soils website). The underlying bedrock is comprised of sedimentary rocks from the Dakota Sandstone and Burro Canyon Formation (sandstone, shale, and conglomerate) of Jurassic age. The nearest water source is the head of an unnamed, ephemeral drainage of Spring Creek located 175 meters to the west.

Plate 8.5. Site 5MN6839, view of projectile point fragments from the original recording (Walker-Buchanan and Dello-Russo 2003).

Overall, the site measures approximately 35 meters in diameter and contains two loci, one along the north boundary and the other at the south. The locus on the north is comprised of a few scattered flakes, a mano, and a thermal feature. The mano is of sandstone and is triangular in shape; it is unclear if this was intentional or has broken this way. It has been bifacially utilized and there is a small amount lichen present. Interestingly, the mano has two ground surfaces per side. The material of the flakes is quartzite and chert. One quartzite flake at the northwest corner of the site is large and has been utilized.

The thermal feature contains a cluster of fire-cracked rock in roughly a 50cm diameter. No ashy soil or charcoal is evident. The feature appears to be deflated and has poor potential for radiocarbon dating.

The locus on the south of the site is exposed in an open area that has sustained sheet wash erosion and use as a parking area with quasi roads leading off in four directions. This area appears to be the location of the original recording (2003). Newly mapped are three manos, a metate and a concentration of 14 or more flakes. Two of the manos are cobble types and display bifacial grinding, one is of granitic material while the other is quartzitic, both are fragments only. The third mano is a shaped, pecked, sandstone loaf mano (Plate 8.6.)

The metate is a unifacial, fairly thin, shallow basin type, made of sandstone, and having lichen present. It appears to have once been rectangularly shaped but has sustained a fracture at one corner. The debitage consists of 14 plus flakes of quartzite and chert. The flakes are all tertiary in stage and small to medium sized.

Plate 8.6. Fragment of a loaf-mano recorded at 5MN6839, characteristic of the Late Formative period.

Notably, the previously recorded projectile point fragments were not collected in 2003, and were not relocated with the present visit. This may be due to erosional factors on the knoll or conversely, due to illicit collection. It is obviously a popular location for modern recreational activities: hunting, cycling and hiking.

Prehistoric activities at the site may have included tool refining and manufacture, floral and faunal processing, and short-term habitation/occupation. The site, on the knoll, affords a good vantage point on the ridge, both down valley and down into the canyon. Based on the previously recorded projectile points, a Formative period affiliation can be ascribed. The Uinta Side-notched point and loaf mano are diagnostic of the late Formative period ca. AD 1000-1300. In site 5GF133, located near the town of Battlement Mesa, a Uinta Side-notched point was found in association with a Tusayan black-on-white ceramic sherd and Tusayan Corrugated sherds, dating ca. AD 1100-1300 (Conner and Langdon 1987).

The site is in poor condition. Its proximity to the nearby paved road has facilitated visitation by campers, hunters, and recreationists. Two-tracks bisect the site and have made access easy and disturbed the surface. Unauthorized surface collecting has likely occurred. Soils are shallow and bedrock is exposed throughout. There is no apparent depth of cultural deposits.

Evaluation and Management Recommendations

The site is field evaluated as not eligible for inclusion on the NRHP due to the lack of potential for subsurface depth of cultural fill. The site is not likely to yield additional information important to the prehistory of the area. No further work is recommended. The site lies midway between two BLM trails, the Lower Spring Creek Trail at 100 meters to the southwest and the Dakota Rim Trail at 110 meters to the northeast.

Site **5MN7419** is a large, multi-component prehistoric open camp originally recorded in 2003 by Patricia Walker-Buchanan and Robert Dello-Russo for the Upper Dave Wood Hazardous Fuels Treatment Inventory. The site was relocated in the field with the present project. There were no notable changes to the site. At the time of the original recording, it was stated that the site appeared to have significant research potential as described below.

> The site is field evaluated as eligible to the NRHP. Most significantly, the site has a potentially dateable thermal feature which could provide chronometric and subsistence data, it has activity areas represented by groundstone and tool concentrations, and, areas within the site have potential for up to 1/2 meter of soil depth (notably in the vicinity of the thermal feature). The diagnostic artifacts from the site suggest occupations in the Late Paleoindian, Archaic and Late Prehistoric periods, indicating that the location was desirable as a campsite through time [Plate 8.7]. Although no particular environmental variable clearly points to why, it is conceivable that a spring was formerly present in the incised drainage located just beyond the western boundaries of the site. If so, the site could have relevant settlement data as well as potential for additional and intact buried cultural deposits which could contribute data to the prehistoric research domains outlined in the Northern Colorado River BasinContext (Reed and Metcalf 1999).

Plate 8.7. Projectile points recovered by the 2003 inventory. Note Foothill Mountain types on bottom row.

The artifacts and features of the site appeared as previously recorded. “The artifact assemblage on the site is very large (n=100s) and diverse and occurs primarily in 2 clusters to the east-northeast and to the southwest of the site datum. Other artifacts are broadly scatter across the site.”

“Cluster 1 is approximately 5m in diameter and includes 4 slab metate fragments, 2 polishing stones, 3 fire-cracked rocks, 1 fire-cracked quarulte cobble, 2 bifaces, 1 biface-thinning flake, 1 spurred endscraper, 1 possible double-spurred endscraper, 1 bifacial knife tip, 1 bifacial parallel-sided tool (knife), and 1 uniface. The assemblage in Cluster 1 appears relatively undisturbed and probably represents the remains of an activity area where hide processing (scraping, cutting, polishing) occurred. Cluster 2 is much larger than Cluster 1, measuring about 30 m NE-SW x 20 m NW-SE. It contains at least 100 reduction and sharpening flakes, 1 uniface, 1 slab metate, 1 biface, 1 graver, 1 large (Middle-Late Archaic) corner-notched (or split stem) projectile point, and 1 Late Prehistoric comer-notched projectile point. Fire-cracked rock and another biface fragment are adjacent to the northwest of Cluster 2. Other significant artifacts found on the site include another biface, 2 Jimmy Allen Late Paleoindian projectile point bases, 1 Jimmy Allen projectile point mid-section (from a 3td point), 1 probable resharpened Jimmy Allen point, 2 Middle Archaic stemmed projectile point fragments, 1 palmwood graver, irregular cores and a large " turtleback" scraper [Plate 8.8]. Tool stone materials include white, red, red-brown, cream and gray orthoquartzites, various quartzites, red-brown mudstone, white chert, mottled yellow and cream chert, maroon red chert, brown palmwood, white quartzite, dark gray chert w/ purple speckles, and sandstone. Several of the material types appear to be exotic (e.g. palmwood) which is consistent with highly mobile hunter-gatherer groups (Late Paleoindian, Archaic).

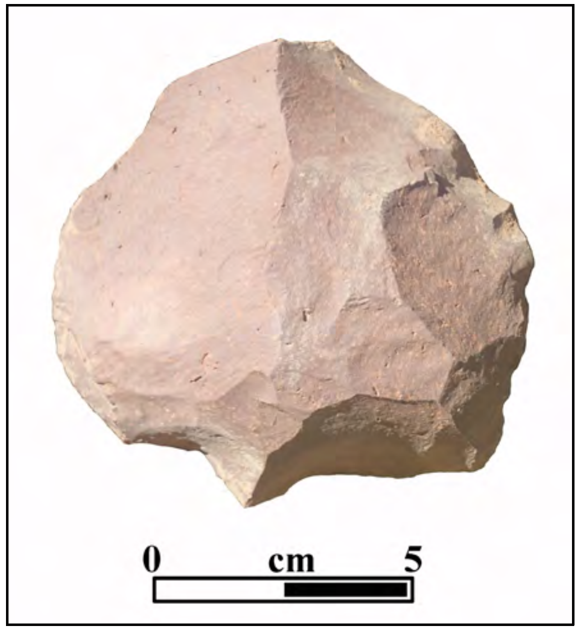


Plate 8.8. “Turtleback” scraper associated with Cluster 2. Associated with Late Paleoindian point fragments.

Using georeferencing, the original site map was superimposed with the presently observed cultural manifestations and the site map was updated using a Trimble Geo XT unit and ArcMap. In doing so, the site boundary was expanded to the west, although not because of new finds per se, but because of the increased mapping accuracy.

Since the site was extensively recorded in 2003 the purpose of the present site visit was to assess its condition and search specifically for evidence of datable, thermal features and any new diagnostics that may have surfaced. The site condition remains as previously recorded, despite increased activity in the area by the Lower Spring Creek recreation trail. Thermal features were sought at length and the only one located was the previously recorded one at the northwest corner of the site. The feature, which measures roughly 4 x 2.5 meters, contains fire-cracked rock and bits of charcoal. The feature has good potential for radiocarbon dating.

Soils are classified as Barboncito-Rock outcrop complex, a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipslopes of cuestas and summits of mesas (NRCS Soils website). Although these soils are considered shallow, on the site the shadows and sheets are phytogenic in nature, meaning they 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. Thus, depth of cultural fill is unknown but considered a possibility due to these accumulated soils.

Evaluation and Management Recommendations

The site was deemed officially eligible by the State Historic Preservation Officer in 2005. Due to the presence of the potentially datable thermal feature, the previously recorded diagnostics and the relatively undisturbed nature of the site, its original field evaluation of eligible is substantiated. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The site lies 580 meters northwest of the BLM Spring Creek Traverse Loop Trail.

Site **5MN10981** is a newly recorded prehistoric open camp. The site is located on a ridgetop along the northwest side of an unnamed intermittent drainage, midway between Spring Creek on the west and Tappan Creek on the east. Elevation is 6510 feet. Vegetation consists of a fairly young pinyon and juniper habitat with an understory of scattered sagebrush and prickly pear cactus. Ground visibility at the time of survey was very good, with at least 90 percent visible. Soils are classified as Barboncito-Rock outcrop complex, a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipslopes of cuestas and summits of mesas (NRCS Soils website). The underlying bedrock is comprised of sedimentary rocks from the Dakota Sandstone and Burro Canyon Formation (sandstone, shale, and conglomerate) of Jurassic age.

A metate defines the north end of the site which consists overall of lithic debitage, ground stone and a single piece of burnt bone. The metate is a unifacial, sandstone slab metate with lichen over half of the dorsal surface. The lateral edges show evidence of shaping. Ten and a half meters southwest of the metate lies a bifacial, sandstone sub-rectangular loaf mano (Plate 8.9). The specimen is rare in that one side is flat and the other convex with a circular wear pattern, which suggests this mano was used on both slab and shallow basin metates. Similar manos have been found in pithouse contexts at 5GF126 and 5ME16786 that have associated dates of 2600-2800 BP (Conner et al. 2014:7.20). A meter southwest of the mano a single, small piece of burnt bone was recorded.

Plate 8.9. Loaf mano recorded at 5MN10981.

The remaining artifacts include five flakes of various material, including chalcedony, quartzite, chert and siltstone. These are distributed in a five meter diameter area. The flake of chalcedony appears utilized as evidenced by retouched edges.

Activities at the site likely included vegetal processing, tool manufacture/maintenance and possibly cooking as evident by the burnt bone, although no definable thermal features were observed, which may be due to the shallow nature of the soils. Bedrock is exposed throughout the site and there is no subsurface potential for depth of cultural fill. Additionally, the site may have undergone illicit collection due to its proximity to the Dave Wood Road which is located about a quarter mile to the east.

Evaluation and Management Recommendations

Due to the lack of thermal features, the lack of diagnostic artifacts and the low potential for subsurface depth of cultural fill, the site is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended. The site lies 90 meters northwest of the BLM Rusty Buckets Trail.

Site **5MN10982** is a newly recorded prehistoric open camp. The site is located on a ridgetop along an unnamed intermittent drainage on its northwest side, midway between Spring Creek on the west and Tappan Creek on the east. Elevation is 6520 feet and the vegetation consists of a fairly young pinyon and juniper habitat with almost no understory. Ground visibility at the time of survey was very good, with at least 90 percent visible. Soils are classified as Barboncito-Rock outcrop complex, a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipslopes of cuestas and summits of mesas (NRCS Soils website). The underlying bedrock is comprised of sedimentary rocks from the Dakota Sandstone and Burro Canyon Formation (sandstone, shale, and conglomerate) of Jurassic age.

Artifacts and features are widely distributed within an area measuring approximately 32 meters (NE-SW) by 8 meters (NW-SE). At the far northeast corner of the site, designated Locus 1, two similar butchering tools of tan claystone were recorded. Eleven meters to the west-southwest of these tools is a flake concentration containing debitage and five large flake tools (butchering tools) of reddish-tan claystone. At the southeast edge of the concentration a bifacial, light tan sandstone cobble mano fragment was noted. The weathered mano fragment displayed evidence of pecking and is disk shaped.

Locus 2, at the southwest corner of the site, contains a thermal feature designated Feature 1, a flake, a butchering tool and a metate. Feature l is a collapsed slab lined thermal feature, with fire-cracked rock, charcoal and ash visible. Notably, the rocks within the feature possess a good amount of lichen. Adjacent to this feature on the north side is a large, unifacial, sandstone shallow basin metate. The metate contains lichen as well. Four meters southeast of Feature 1 lies a butchering tool of gray claystone. A very large, secondary flake of dark gray siltstone lies 2.6 meters northest of the butchering tool in this locus.

Although Feature 1 appears collapsed, it may yield depth of cultural fill that may contribute to the site's potential for additional significant information regarding cultural affiliation, site function, seasonality, subsistence, social organization, technology, extra-regional relationships, site formation and transformation, and paleo-environmental data.

Evaluation and Management Recommendations

The site is field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The site lies midway between two BLM trails, the Rusty Buckets Trail at 150 meters to the southeast and the Broken Antler Trail at 125 meters to the northwest.

Site **5MN10983** is a newly recorded prehistoric open camp. The site is located on a ridgetop along an unnamed intermittent drainage on its northwest side, midway between Spring Creek on the west and Tappan Creek on the east. Elevation is 6540 feet and the vegetation consists of a fairly young pinyon and juniper habitat with almost no understory. Ground visibility at the time of survey was very good, with at least 90 percent visible. Soils are classified as Barboncito-Rock outcrop complex, a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipsloes of cuestas and summits of mesas (NRCS Soils website). The underlying bedrock is comprised of sedimentary rocks from the Dakota Sandstone and Burro Canyon Formation (sandstone, shale, and conglomerate) of Jurassic age.

Within a small open area measuring approximately 14 meters in diameter amid the pinyon/juniper forest, lithic artifacts, ground stone and a single thermal feature were recorded. The significant artifacts are tools and include a knife, a perforator, and a spokeshave, along with four expedient flake tools, amid a light scattering of debitage. The knife is a “backed” flake type of purple/brown quartzite. The perforator was created from a disto-lateral flake and is also of a purple/brown quartzite. The spokeshave/shaft smoother is a small uniface, that has a retouched lunate notch in one edge and is of sandstone that appears burnt.

The single thermal feature consists of fire-cracked rock and ash with burnt bone visible. It measures roughly 50cm in diameter and appears to have good potential for depth of cultural fill. It appears undisturbed. Four expedient flake tools were located 2.5 meters southwest of the feature. These tools appear to have been expediently flaked for the purpose of butchering. Along with the cluster of butchering tools a small, roughly a third fragment of a sandstone mano was recorded. The mano is heavily ground and deteriorated, almost friable.

From the artifacts and cultural manifestations present, prehistoric site activities included expedient tool manufacture, butchering and hide scraping, cutting, graving, shaft smoothing, ground stone utilization for hide processing, and possibly short-term habitation/occupation using the thermal feature for heat or possible subsistence processing.

Overall, the site appears mostly undisturbed and may yield subsurface depth of cultural fill within the thermal feature. The lack of diagnostic projectile points may indicate unauthorized collecting in the area, especially due to its proximity to the Dave Wood Road (within a quarter mile) and Montrose in general (< six miles).

Due to the potential for depth of cultural fill within the thermal feature, and after approval by BLM, a carbon sample was collected and sent to International Chemical Analysis, Inc (ICA). The sample returned calibrated dates of AD 660 - 730 (64.4%) and AD 740 - 770 (31.0%), (Conventional Age - 1300±30 BP).

Evaluation and Management Recommendations

The site is field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The site lies 20 meters northeast of the BLM Rusty Buckets Trail. Due to the proximity of the site to a recreation trail, periodic monitoring to assess impacts to the site is recommended.

Site **5MN10984**, a newly recorded prehistoric open camp, is located on the slope northwest of a small knoll between two Spring Creek seasonal drainages an elevation of 6480 feet. Vegetation consists primarily of juniper forest with sparse understory. At least 85 percent of the ground is visible. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age. The nearest water source is an unnamed, ephemeral drainage of Spring Creek located 90 meters to the northeast.

The site consists of a low density of cultural material within an area 40 (NE-SW) by 20 (NW-SE) meters on a gentle, southwest-facing slope. Artifacts include both chipped and ground stone as well as three concentrations of ash-stained soil and one larger area of ash and fire-cracked rock. The artifacts are not evenly distributed across the site, but cluster predominantly at either the northeast (Locus 1) or southwest (Locus 2) end of the site.

Locus 1 contains one projectile point and one graver of chipped stone along with a comal, two flakes and three concentrations of ashy soil, Features 1-3. The projectile point is a complete specimen of a Cottonwood Triangular style of reddish-brown chert (Plate 8.10). This point style dates to ca. AD 1300 to 1750. Notably, a similar style point was found at 5MN576, where a feature recorded nearby produced surface carbon that yielded an AMS date of 220 ±30 BP (Cal 1640 - 1690 AD, 37.7%; Cal 1730 - 1810 AD, 44.7%; Cal 1930 - ?AD, 14.0%; [ICA ID #19C/0601]). Cottonwood Triangular points are commonly found on Numic sites in the Great Basin and Intermountain West. This point is also assigned to Phase I: Late Pre-Contact (Canalla Phase, ca. AD 1500 -1540) using Steve Baker's multiphase model of Ute culture history for the Eastern Ute bands of western Colorado (Baker et al. 2007:38-41).

Plate 8.10. View of Cottonwood Triangle projectile point, site 5MN10984.

The graver is of gray quartzite and was formed from a large utilized flake. Patterned edge damage or use-wear appears to be present in the form of a cluster of tiny flakes removed from the proximal working edge. Polish from use is not visible; however, most expedient tools utilized for short periods do not have time to develop distinctive wear patterns or polishes indicative of residue build-up.

The comal at Locus 1 is of a thin (1.2cm) slab of tan sandstone, and exhibits five straight edges in a nearly rectangular shape. The two flakes at this locus are small, interior specimens of white chert. Of the three ash stained soil concentrations, which were all similar in size (roughly 40cm diameter), Feature 1 appeared to have potential for radiocarbon dating due to the presence of charcoal bits. The other features were poor in this regard.

Due to the potential for depth of cultural fill at Feature 1, and after approval by BLM, the feature was tested in the fall of 2017. A 1m x 1m test grid was laid out over the feature and testing ensued by removing the top surface soils and collecting carbon for ^{14}C dating. The carbon sample was sent to International Chemical Analysis, Inc (ICA) and returned a calibrated date of AD 380-540 (Conventional Age - 1620±30 BP).

Locus 2, at the southwest portion of the site, is primarily defined by the presence of ground stone in the form of two metates and a large concentration of ash and fire-cracked rock, designated Feature 4. Both of the metates are unifacial fragments, one of a slab type and the other of a basin style. The specimens are relatively the same thickness, 7-10cm. Grinding is evident, but neither displayed pecking.

Thermal Feature 4 measures approximately 2 meters in diameter. Containing fire-reddened sandstone slabs that are partially buried, Feature 4 has the appearance of an Archaic hearth. The feature appears to have good potential for radiocarbon dating and may yield additional data regarding subsistence, cultural temporal affiliation, and paleo-environmental data. Due to the potential for depth of cultural fill at Feature 4, a carbon sample was collected of the surface exposed charcoal. This sample was also sent to ICA and returned calibrated dates of 20 -10 BC (1.2%) and 10 -130 AD (94.8%), (Conventional Age - 1940±30 BP).

A modern fenceline runs roughly east-west at the north boundary of the site and the site may have sustained unauthorized collection. The condition of the site however, appears to be relatively undisturbed, aside from natural weathering and erosional processes.

Evaluation and Management Recommendations

Based on the presence of a culturally diagnostic artifact and carbon samples collected from two areas of the site, it was occupied on three separate occasions during the past 2000 years. Accordingly, the site is field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The site lies 180 meters northwest of the BLM Spring Canyon Traverse Loop Trail.

Site **5MN10985,** a newly recorded prehistoric open camp, is located on a level bench approximately 90 meters east of Spring Creek at an elevation of 6480 feet. The site lies at the ecotone boundary between the juniper forest and an open sagebrush flat. A sparse understory of prickly pear cactus and grasses allows for roughly 85 percent ground visibility. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

The site consists of a low density of cultural material within a nearly circular area measuring 40 by 30 meters. Artifacts include a limited amount of chipped stone (two tools and two flakes), along with several items of ground stone. One thermal feature is present.

The tools consist of a graver of gray quartzite, that was likely used as a wood-working tool and a tan, shale, leaf- shaped spall with a knife-like edge that can be classified as a butchering tool. The two flakes are both very large, interior flakes of gray quartzite, both of which have been utilized as evidenced by small, use wear flakes. The tools and flakes lie within the northeast portion of the site.

About 4 meters south of the lithic artifacts lies a comal. It is a thin, tabular piece of sandstone of a rectangular shape and roughly 2cm thick. The single thermal feature on the site, designated Feature 1 lies 9.3 meters southwest of the comal. The feature consists of numerous, thin, fire-reddened sandstone slabs with lichen and has a diameter of approximately 50cm. Charcoal is present and some was noted to lie under the fire-reddened slabs. There is good radiocarbon dating potential.

South and west of the feature lie two metates about 14 meters apart. Both are slab styles, one of an irregular shape and of sandstone and the other a fragment of a stream cobble. At the northwest perimeter of the site, roughly 20-30 meters from the metates, a large (19cm in length x 9cm in thickness), two-handed mano was observed. The metates appear to have been recovered from a stream bed deposit. As well, the mano is a large cobble of sandstone and displays a small amount of pecking. Lichen is also present on the specimen.

The site appears undisturbed and may yield subsurface depth of cultural fill. Important to note are the large, old juniper trees within the site's boundary and the soils which are phytogenic in nature. The shadows and sheets of phytogenic soils have accumulated by virtue of vegetal cover with sagebrush the most important species. Sage increases surface roughness and causes turbulent air flow; turbulent air flow cannot maintain sediment in suspension. The result is broad scale, laminar deposition.

Evaluation and Management Recommendations

The site is field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The site lies within five meters of the BLM Broken Arrow Trail. Due to the proximity of the site to a recreation trail, periodic monitoring to assess impacts to the site is recommended.

Site **5MN10986** is a newly recorded prehistoric open camp. The site is located 175 meters southeast of Spring Creek on a bench at an elevation of 6520 feet. Spring Creek is the nearest water source. Vegetation consists of a mature pinyon and juniper habitat with a sparse understory of bunch grasses. Ground visibility at the time of survey was very good, with at least 90 percent ground visibility. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

The site consists of a ground stone artifact and lithic debris and tools scattered in an area measuring 20 meters (N-S) by 15 meters (E-W). The ground stone artifact is a comal fragment. It is fashioned from a fine-grained mudstone and exhibits characteristics of fire-reddening. Clustered near the comal fragment in the southwestern periphery of the site are three expedient lithic tools. A biface, butchering tool, and scraper are present. The biface is a fragment, broken along a transverse fracture along the midsection, leaving the tip and partial midsection intact. It is of a pink quartzite material. The scraper is a chisel-end type and is also of quartzite. A spall of maroon claystone was fashioned into an expedient butchering tool.

Lithic debris is sparsely scattered throughout the site. Chert (3 flakes) and quartzite (24 flakes) are present. Cortex was not visible on any of the flakes, suggesting the latter stages of tool manufacture.

The site is in good to fair condition. A bicycle trail is located to the northwest of the site and a small drainage parallels the eastern site boundary. These occurrences appear to have had minimal impact to the preservation of the site; however, the presence of the bicycle trail does suggest that illicit artifact collection may contribute to the lack of diagnostic artifacts.

Evaluation and Management Recommendations

Based on the lack of thermal features and diagnostic artifacts, and the low potential for subsurface cultural manifestations and depth of cultural fill, the site is unlikely to yield additional information important to the prehistory of the area. It is for these reasons that the site is field evaluated as not eligible for listing on the NRHP. No further work is recommended. The site lies within three meters of the BLM Spring Canyon Traverse Loop Trail.

Site **5MN10987,** is a newly recorded prehistoric open camp located approximately 140 meters east of the confluence of two Spring Creek drainages at an elevation of 6500 feet. The site lies within an open juniper forest with extremely sparse understory. Ground visibility is excellent at 95 percent. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

Overall, the site measures approximately 35 by 7 meters and lies in a north-south alignment. The widely dispersed observed artifacts and features include one mano, a core, two metates and one thermal feature. The mano is unusual in that it is a “ball” type, nearly an equal sphere of sandstone, roughly 6-7cm in diameter. As noted by ground stone researcher, Jenny L. Adams, manos of this type can indicate use by “a reciprocal stroke in a basin metate” (Adams 2002:103). A reciprocal stroke is a back and forth stroke and creates visible wear facets on all edges of the mano. “...surface striations will be either or both linear and multidirectional depending on the most recently used stroke. The resulting grinding surfaces are convex, with some basin manos resembling balls” (ibid).

The core is of quartzite and can be described as multi-directional. The metates are similar, both unifacial and of sandstone. One is a small slab type with distinct pecking while the other is a large, shallow basin specimen.

The single thermal feature measures approximately 50cm in diameter and contains fire-cracked rock and ash. There was no charcoal visible and the potential for radiocarbon dating appears low. The feature is located near the base of an old juniper tree which appears to have burned.

The site condition is good and appears to be undisturbed. The fairly level topography seems to have kept heavy erosion at bay.

Evaluation and Management Recommendations

Due to the low potential for the thermal feature to yield additional information important to the prehistory of the area and the lack of diagnostic artifacts, the site is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended. The site lies within two meters of the BLM Spring Canyon Traverse Loop Trail.

Site **5MN10988,** is a newly recorded prehistoric isolated hearth feature with an associated metate. The site is located near the confluence of two rills on a bench 425 meters southeast of Spring Creek at an elevation of 6560 feet. The site lies within pinyon/juniper forest with a sparse understory of sagebrush, prickly pear cactus and bunch grasses. Ground visibility is approximately 80 percent. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

The isolated thermal hearth feature is a slab-lined manifestation roughly 50cm in diameter with several vertical slabs in a quasi-circular arrangement exposed on the side of a small drainage. The slabs are of sandstone and all display fire reddening and lichen. The feature was found deflated and most of the slabs had collapsed but an attempt to recover carbon was undertaken. A few small pieces were recovered from the base of the largest standing slab on the south side of the feature. The small sample was sent to International Chemical Analysis, Inc (ICA), which yielded calibrated dates of 4650 - 4640 BC (0.6%) and 4620 - 4460 BC (94.8%), (Conventional Age - 5700±30 BP). The feature did not contain any additional cultural manifestations, and soils within the site area are deflated and suffer from seasonal erosion.

Located 4.3 meters nearly due east of the feature, and across the confluence of the two rills, lies a large slab metate. The ground stone artifact is a complete, unifacial specimen of red sandstone. The metate appears to have been intentionally shaped into a circular form and it contains lichen on its surface. Approximately three meters west-southwest of the feature lies a small, tabular, sandstone comal with lichen on one surface.

The site is at risk from erosional damage due to the nearness of the rills, which are fairly deep and may flood occasionally. Additionally, there is a new social trail (bicycle) located 10.5 meters southeast of the feature.

Evaluation and Management Recommendations

The site is field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The BLM Lower Spring Creek Trail traverses the southeast side of the site. Due to the recreation trail within the site's bounds, periodic monitoring to assess impacts to the site is recommended.

Site **5MN10989,** is a newly recorded prehistoric open camp. The site is located on a ridge 385 meters southeast of Spring Creek at an elevation of 6560 feet. The site lies within pinyon/juniper forest with a sparse understory of sagebrush, prickly pear cactus and bunch grasses. Ground visibility is approximately 80 percent. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

The site consists of a metate and two flakes, located within 1.4 meters of one another. The metate is a unifacial, thin, slab style of light tan sandstone. The flakes are both of quartzite. One is medium sized and gray, and the other is large and white; both have evidence of utilization. Although the site contains few artifacts, a large, old juniper tree is nearby and may have served as shelter or a possible support tree for a wickiup. Including the tree, the site dimension is roughly seven meters in diameter.

The site is in good condition and appears undisturbed. However, with no thermal features evident and no diagnostics present, it is doubtful that additional information important to the prehistory of the region is present.

<u>Evaluation and Management Recommendations</u>

Due to the lack of thermal features, the lack of diagnostic artifacts and the low potential for subsurface depth of cultural fill, the site is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended. The site lies 40 meters northwest of the BLM Lower Spring Creek Trail.

Site **5MN10990** is a newly recorded prehistoric open camp located on a small bench at an elevation of 6480 feet. The nearest water source is an intermittent tributary of Spring Creek located 30 meters southeast. Vegetation consists of mature juniper with occasional small pinyon and an understory of sagebrush and bunch grasses. Ground visibility at the time of survey was approximately 75-80 percent. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of Morrison

Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

Lithics and ground stone artifacts are scattered throughout an area measuring 30 meters (NW-SE) by 12 meters (NE-SW). The ground stone assemblage consists of four manos fashioned from sandstone cobbles. Three of the ground stone artifacts are irregular and/or disc shaped; however, one mano is distinctively square shaped. Three are unifacially ground and one exhibits bifacial grinding. The square shaped mano, a style known as "cube or rhomboid-shaped" is diagnostic of Late Archaic-age sites ca. 1000-800 BC. Importantly, two pithouse sites in the Battlement Mesa area east of Parachute, Colorado, produced radiocarbon dates between 2600 and 2800 years old that contained rhomboid types of manos (Conner et al. 2014:7.8-7.20).

The lithic assemblage consists of one formal tool – a projectile point fragment, one expedient tool, and a scatter of 23 flakes. The projectile point fragment is of gray chert and has an oblique fracture above the base and an impact fracture below the tip, leaving only the midsection and a partial corner-notched barb intact. Collateral flaking is evident on at least one of the surfaces. The expedient tool is fashioned from a spall of light green claystone and appears to have been utilized as a butchering tool. Debitage is sparsely scattered throughout the center of the site and consists of chert (15 flakes) and quartzite (8 flakes). Cortex was not observed on any of the flakes, indicating the latter stages of tool manufacture.

A recreational trail traverses through the center of the site. A rock alignment borders the northern edge of a bend in the trail near the southeastern periphery of the site. The alignment measures roughly 3.75 meters in length by 50 to 80cm wide, the width of one or two rocks placed rocks. The alignment is only one course high and parallels a bend in the trail. Its function is unclear. The trail does not appear to have experienced use in recent years; however, it may have contributed to the lack of formal tools due to illicit artifact collection. No other disturbances or potential disturbances were observed and the site is in fair condition.

Evaluation and Management Recommendations

Soils are shallow and the site does not exhibit evidence of subsurface cultural manifestations. The lack of thermal features precludes the site from yielding radiocarbon data and the site is unlikely to yield additional information important to the prehistory of the area. It is for these reasons that the site is field evaluated as not eligible for listing on the NRHP and no further work is recommended. The site lies midway between two BLM trails, the Spring Canyon Traverse Loop Trail at 25 meters to the southeast and an unnamed connector trail at 20 meters to the west.

Site **5MN10991** is a newly recorded prehistoric open camp. The site traverses a small ridge formed by two intermittent tributaries of Spring Creek at elevations of 6540 to 6560 feet. Vegetation consists mostly of a juniper habitat with young pinyon and an understory of small sagebrush, cactus, and bunch grasses interspersed throughout. Ground visibility at the time of survey was approximately 75-80 percent. Soils are classified as Lazear, extremely flaggy-Blancot-Rock outcrop complex, a well-drained soil found on dip slopes and cuestas and formed by slope alluvium derived from sandstone and shale. It is found on 3 to 15 percent slopes with depths of 5 to 8 inches to paralithic bedrock (NRCS Soils Website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

A thermal feature and two lithic artifacts are located along an apparent local path that may have been created by the prehistoric occupants of the site, but may be a game or livestock route. Routes of movement – paths, trails – are omnipresent in an aboriginal archaeological landscape (Earle 2009:254-257). 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.

The thermal feature is a large, faint ash stain located along the northwest side of the trail. Fire-cracked rock and charcoal were not observed in relation to the feature, and it appears that it has deflated to its entirety. The lithic artifacts consist of a projectile point of gray quartzite and a single flake of black chert. The point is a small, corner-notched arrow point with an oblique fracture along the tip and partial midsection. It has evidence of retouch along both edges (Plate 8.11). The point compares well with those of the Late Prehistoric period, specifically those identified as Uncompahgre Complex Type 1, ca. 500 BC -1000 AD (Berry 2019).

Plate 8.11. 5MN10991, small corner-notched projectile point

The site is in fair condition. A path (local phenomenon) is present with a feature and artifacts located along it. The path has been used by livestock and apparently for recreation in more recent years.

Evaluation and Management Recommendations

Although the site retains association with Late Prehistoric period it appears that the scientific potential of the site has been exhausted due to the unlikelihood of the thermal feature to yield a radiocarbon date and the lack of evidence for subsurface cultural manifestations. It is unlikely that the site will yield any additional information important to the prehistory of the area. It is for these reasons the site is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended. The site lies 70 meters east of the BLM Spring Creek Traverse Loop Trail.

Site **5MN10992** is a newly recorded prehistoric open camp located on a bench overlooking an ephemeral tributary of Spring Creek located 125 meters to the west down in the canyon bottom. The site is at an elevation of 6560 feet. Vegetation consists of a mature juniper habitat with an understory of small pinyon, sagebrush, and bunch grasses. Ground visibility at the time of survey was approximately 80 percent. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

The site consists of a thermal feature and a sparse distribution of ground stone and lithic artifacts in an area measuring 55 meters (E-W) by 20 meters (N-S). The thermal feature is the deflated remains of a hearth that defines the southwestern periphery of the site. It presents as a roughly circular arrangement of ash, fire-cracked rock and four flakes within the concentration. Charcoal is not apparent. A "turtle back" style scraper of gray quartzite is present near the feature, a type which is often associated with Paleoindian occupations (Plate 8.12, center).

The northeast portion of the site is defined by two ground stone artifacts and an expedient tool. The ground stone artifacts are a metate and a mano fragment. The metate is a unifacially ground sandstone slab on a stream rock. The mano is a shaped, bifacially ground granitic cobble with evidence of thermal alteration. Pecking was not apparent on either ground surface.

Two expedient tools were recorded – one located along the base of a large boulder (Plate 8.12, left), and the other near the central portion (Plate 8.12, right). Both are fashioned from a spall of maroon claystone. One appears to have been utilized as a blade (for cross-cutting ligaments, etc.) The other exhibits disto-lateral use and likely utilized for muscle stripping. A similar artifact assemblage was found in association with a Pryor Stemmed projectile point at site 5ME22099/5MN10943 on the northeastern Uncompahgre Plateau (Conner and Davenport 2017:15).

The site is in fair condition. A recreational trail, the BLM Lower Spring Creek Trail, runs through the center of the site and suggests the possibility of illicit artifact collection. Natural erosional processes have also led to the deflation of the thermal feature and are further evidenced by two small drainages that intersect the site.

<u>Evaluation and Management Recommendations</u>

Due to the potential association of the artifact assemblage, the site is field evaluated as eligible for listing on the NRHP. Preservation and protection are recommended. Based on the presence of a new recreation trail through the site, it is further recommended that the site be further evaluated through test excavation and the artifacts collected for their preservation.

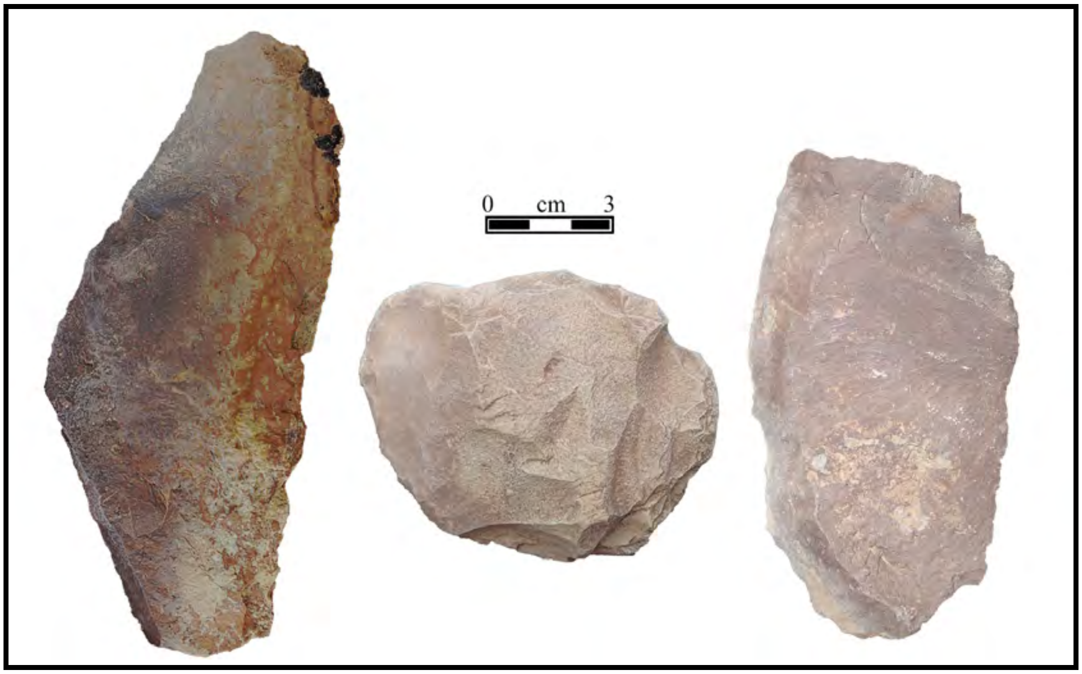


Plate 8.12. 5MN10992, large, Paleolithic type butchering tools recorded at the site.

Site **5MN10993** is a prehistoric open camp located on a bench within Spring Creek Canyon at an elevation of 6640 feet. The nearest water source is an intermittent tributary of Spring Creek located 180 meters northwest. Vegetation is a pinyon and juniper habitat with a very sparse understory of small sagebrush and cactus. Soils are classified as Lazear, extremely flaggy-Blancot-Rock outcrop complex, a well-drained soil found on dip slopes and cuestas and formed by slope alluvium derived from sandstone and shale. It is found on 3 to 15 percent slopes with depths of 5 to 8 inches to paralithic bedrock (NRCS Soils Website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

Lithic debitage and a thermal feature are located within an area measuring 30 meters (N-S) by 25 meters (E-W). The thermal feature is located along the base of the southeast facing edge of a large boulder. It presents as a concentration of small pieces of fire-cracked rock with ashy soil and small bits of charcoal. Some large rocks are also present around the perimeter of the concentration. In an attempt to further define the subsurface nature of the feature and obtain radiocarbon data, the feature was tested.

A carbon sample was collected from the feature and sent to International Chemical Analysis, Inc (ICA). The sample returned a calibrated date of AD 90 - 240, (Conventional Age 1840 ± 30 BP). The feature did not yield any further cultural manifestations. Additionally, the soils within the site area are deflated and suffer from seasonal erosion.

Debitage (32 flakes) is sparsely scattered around the boulders that define the center of the site. Chert and quartzite materials are present. Cortex was not observed on any of the flakes, suggesting the latter stages of tool manufacture.

The site is in fair condition. A recreational trail is less than 10 meters northwest of the site and suggests the possibility of illicit artifact collection which may explain the lack of diagnostic artifacts or formal tools. Natural erosional processes have also impacted the thermal feature as it was determined to be almost completely deflated.

Evaluation and Management Recommendations

The testing of the thermal feature yielded a radiocarbon date, however it is believed that the site's potential to yield additional significant information has been exhausted. The site is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended. The BLM Spring Creek Traverse Loop Trail lies eight meters northwest of the site.

Site **5MN10994** is a newly recorded prehistoric open camp. The site is located on a ridge 390 meters west of Spring Creek at an elevation of 6740 feet. Vegetation consists of a fairly young pinyon and juniper habitat with an understory of sagebrush, Mormon tea and prickly pear cactus. Ground visibility at the time of survey was very good, with at least 80 percent visible. The soil is Lazear, extremely flaggy-Blancot-Rock outcrop complex located on 3 to 25 percent slopes. Lazear series consists of shallow, well drained soils that formed in colluvium, slope alluvium, and residuum derived from interbedded shale, loamstone, limestone, and sandstone. Blancot series soils are very deep and composed of slope alluvium and fan alluvium from sandstone and shale. These soils are on valley sides and ridges (NRCS Soils website). The underlying bedrock is comprised of sedimentary rocks from the Dakota Sandstone and Burro Canyon Formation (sandstone, shale, and conglomerate) of Jurassic age.

In a site boundary area measuring approximately 55 by 20 meters, the prominent topographic feature of the site is a large boulder located in the center north portion in an open area. On the southeast side of the boulder lies a thermal feature. Both north and south of this feature are two concentrations of flakes which define the north and south ends of the site boundary. The thermal feature measures approximately 60-70cm in diameter and consists of fire-cracked rock with a small upright slab. Microflakes are also present within the feature. Potential for radiocarbon dating is undetermined as no charcoal was visible on the surface; however, due to the buried slab, depth of cultural fill may be present.

Roughly 15 meters north-northeast of the thermal feature a cluster of 10+ flakes was recorded in another open area. Materials present are cherts and quartzites. Most of the flakes are interior. Twenty-five meters southwest of the feature another similar cluster of flakes was recorded. Again, materials present include cherts and quartzites. None of the flakes were remarkable.

Evaluation and Management Recommendations

The site is field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill within the thermal feature. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The BLM Spring Creek Traverse Loop Trail lies 70 meters northwest of the site.

Site **5MN10995** is a newly recorded prehistoric open lithic. The site is located on a ridge 230 meters northwest of Spring Creek at an elevation of 6760 feet. Vegetation consists of a fairly young pinyon and juniper habitat with an understory of sagebrush and prickly pear cactus. Ground visibility at the time of survey was very good, with at least 80 percent visible. The soil is Lazear, extremely flaggy-Blancot-Rock outcrop complex located on 3 to 25 percent slopes. Lazear series consists of shallow, well drained soils that formed in colluvium, slope alluvium, and residuum derived from interbedded shale, loamstone, limestone, and sandstone. Blancot series soils are very deep and composed of slope alluvium and fan alluvium from sandstone and shale. These soils are on valley sides and ridges (NRCS Soils website). The underlying bedrock is comprised of sedimentary rocks from the Dakota Sandstone and Burro Canyon Formation (sandstone, shale, and conglomerate) of Jurassic age.

The site consists of a lithic scatter located at the base of a large boulder on its east-southeast facing side. The debitage is distributed within a 7-8 meter diameter area. There were no diagnostic artifacts or features present.

Evaluation and Management Recommendations

The site is field evaluated as not eligible for inclusion on the NRHP due to the low potential for subsurface depth of cultural fill. No further work is recommended. The BLM Spring Creek Traverse Loop Trail lies 50 meters west of the site.

Site **5MN10996** is a newly recorded prehistoric open camp. The site is located on a bench within Spring Creek canyon. The creek lies 300 meters to the southeast. Elevation is 7070 feet. Vegetation consists of a mature pinyon and juniper forest with an understory of scattered sagebrush and bunch grasses. Ground visibility at the time of survey was very good, with at least 75 to 80 percent visible. The soil is Walknolls-Rock outcrop complex, a well-drained soil comprised of Walknolls (50%), Rock outcrop (45%) and Scholle (5%). The Walknolls and Rock outcrop soils are shallow, well-drained sandy loams formed in residuum. The Scholle series consists of very deep, well drained, moderately permeable soils formed from mixed sources (NRCS Soils website). The underlying bedrock is comprised of sedimentary rocks from the Dakota Sandstone and Burro Canyon Formation (sandstone, shale, and conglomerate) of Jurassic age.

The open camp is defined by a lithic scatter measuring approximately 15 meters in diameter. In the southwest quadrant of the scatter lies a thermal feature which is exposed in the center of a two-track road that bisects the site from the northeast to the southwest. The feature measures 1.5m by 80cm in diameter and contains only fire-cracked rock and ash-stained soil.

No charcoal was readily evident. The feature was completely deflated due to impact from use of the road.

The flakes within the lithic scatter totaled 20 with eight of quartzite and 12 of chert. The flakes were all tertiary and medium to small in size thus indicating tool refining and manufacture as opposed to initial stages of reduction. None were remarkable.

The site has been affected by the two-track road, the BLM Spring Creek Traverse Loop Trail, which has disturbed the surface and which may have contributed to the possibility of illicit artifact collection. This may explain the lack of diagnostic artifacts or formal tools. The site is not likely to produce additional information important to the regional prehistory record due to the shallow, deflated soils. No subsurface potential remains.

Evaluation and Management Recommendations

Due to the deflation of the site, it is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended.

Site **5MN10997** is a newly recorded prehistoric open camp located on a small bench within the canyon, overlooking Spring Creek at an elevation of 7120 feet. Spring Creek is the nearest water source, located 140 meters southeast. Vegetation consists of ponderosa, gambel oak, and pinyon trees with a very sparse understory of occasional bunch grasses. Ground visibility at the time of survey was at least 90 percent. Soils are classified as Arabrab-Evpark-Parkelei complex, a moderately deep (7 to 19 inches to bedrock), well drained soil found on dip slopes of 3 to 20 percent. These soils generally consist of slightly decomposed plant material in the upper profile and fine sand and sandy clay loams derived from slope alluvium over residuum weathered from sandstone and shale (NRCS Soils Website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

Cultural resources are located within an area encompassing a 25 meter diameter. A thermal feature and lithic and ground stone artifacts are present. The thermal feature is completely deflated, and presents as a small (50cm diameter) concentration of fire-cracked rock surrounded by a two meter diameter scatter of lithic debitage (15 small flakes). Ash and charcoal were not observed and the feature does not contain depth of cultural fill. A single ground stone artifact is located north of the feature. It is a unifacially ground metate fragment fashioned from a sandstone slab.

The site is in fair condition. Natural erosional processes have completely deflated the thermal feature and artifacts are sparse. An unnamed BLM connector trail crosses the site boundary on the northwest side. No other disturbances or potential disturbances are apparent.

Evaluation and Management Recommendations

The site does not have potential to yield additional information to the prehistory of the area. The thermal feature is restricted to a surface exposure without the possibility to yield a radiocarbon date and diagnostic artifacts are not present. Additionally, there is no evidence to suggest potential for subsurface cultural manifestations. It is for these reasons the site is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended.

Site **5MN10998** is a newly recorded prehistoric open lithic on a gently sloping bench within the canyon above Spring Creek and at an elevation of 7280 feet. An intermittent tributary of Spring Creek is the nearest water source located 65 meters southwest. Vegetation is a pinyon and juniper forest with clusters of hedgehog cactus. Ground visibility at the time of survey was at least 90 percent. Soils are classified as Arabrab-Evpark-Parkelei complex, a moderately deep (7 to 19 inches to bedrock), well drained soil found on dip slopes of 3 to 20 percent. These soils generally consist of slightly decomposed plant material in the upper profile and fine sand and sandy clay loams derived from slope alluvium over residuum weathered from sandstone and shale (NRCS Soils Website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

Lithic debitage is disbursed throughout an area measuring 14 meters (NE-SW) by 5 meters (NW-SE). A concentration of 15 chert flakes defines the southwest periphery of the site. Three additional quartzite flakes are present. Two small, interior quartzite flakes are located at the northeast corner of the site, and a medium quartzite flake is found east of the chert concentration. The medium quartzite flake has some cortex (less than 50%) and exhibits signs of utilization along one edge.

The site is in good condition. It apparently most likely represents a butchering site where tools were sharpened for use in the activity. Natural erosional processes appear to be the only disturbance.

<u>Evaluation and Management Recommendations</u>

Due to the lack of thermal features, the lack of diagnostic artifacts and the low potential for subsurface depth of cultural fill the site is unlikely to yield information important to the prehistory of the region. It is for these reasons the site is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended. An unnamed BLM connector trail lies 40 meters southwest of the site.

Site **5MN11009** is a newly recorded prehistoric open camp on the east slope of a ridge. The site is located on a small ridge between two drainages at an elevation of 6460 feet, 900 meters east of Spring Creek. An unnamed ephemeral drainage, the nearest water source, is located 55 meters east of the site. Vegetation consists of pinyon and juniper trees with sagebrush and sparse, short grasses. Ground visibility at the time of the survey was at least 80 percent. Soils are classified as Barboncito-Rock outcrop complex, a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipslopes of cuestas and summits of mesas (NRCS Soils website).

Features and artifacts are located within an area measuring approximately 40m in diameter. Tools consist of two manos, a scraper, two butchering tools, and eleven flakes. Both manos are cobbles. One is weathered sandstone with bifacial grinding and the other is irregularly shaped from basalt with unifacial grinding. The two butchering tools are both formed from claystone and are mottled gray in color.

Two features with carbon present were recorded and samples were collected for radiocarbon dating purposes. Feature 1 measures a meter in diameter and is associated with one of the manos. Feature 2 measures 2.5 meters by 1.3 meters in size. Both features were at least 10cm deep. Surface carbon was collected from the features and sent to International Chemical Analysis, Inc (ICA) for dating. The carbon sample from Feature 1 returned a calibrated date 510 - 360 BC (Conventional Age 2340±30 BP). The sample from Feature 2 yielded a date of 100 BC - 70 AD (Conventional Age 2010±30 BP).

Evaluation and Management Recommendations

The site is field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill within the thermal features. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. Although the site lies in the vicinity of the BLM Spring Creek Trail System and the site is surrounded by trails, all are over 200 meters away from the site boundary.

Site **5MN11010** is a newly recorded prehistoric open camp located on a broad ridge. Elevation is 6460 feet with Spring Creek situated 910 meters to the west. The nearest water source is an unnamed intermittent drainage located 130 meters west of the site. Vegetation is pinyon and juniper trees with small sagebrush and short bunch grasses. Soils are classified as Barboncito-Rock outcrop complex, a well-drained soil comprised of Barboncito (70%), Rock outcrop (25%) and Gapmesa (5%). The Barboncito series consists of very shallow and shallow, well drained, moderately and moderately slowly permeable soils that developed in sandy eolian and slope alluvium from sandstone and shale deposited over sandstone. Barboncito soils occur on hills, ridges, dipslopes of cuestas and summits of mesas (NRCS Soils website).

Features and artifacts are located in an area measuring 62 by 26m. Artifacts present were concentrated near the thermal features and consisted of large flakes of quartzite, siltstone and claystone. Four concentrations of flakes were mapped containing quantities of 6, 7, 9 and 10. The larger concentration with 10 flakes includes 6 large siltstone flakes that appear to have been utilized as expedient butchering tools. Mapped tools include a gray, siltstone perforator (graver), a maroon quartzite scraper, a gray-brown quartzite spokeshave and a butchering tool fashioned from a quartzite flake which displayed a chisel end with cutting edges. A basalt core was present as well as a small fragment of a unifacial, cobble sandstone mano.

Five thermal features were located (Features 1 - 5). These thermal features exhibit ashy soil, with fire-cracked rock (FCR) and bits of charcoal. Two of these contained sufficient carbon for radiocarbon testing (Features 1 and 2). Two other feature remnants were recorded, one containing FCR and a few flakes and the other containing a concentration of FCR only. Surface carbon collected from Features 1 and 2 was sent to International Chemical Analysis, Inc (ICA) for dating. The carbon sample from Feature 1 returned a calibrated date 1510 - 1290 BC (Conventional Age 3100±40 BP). The sample from Feature 2 yielded a date of 1260 - 1310 AD (77.5%) / 1360 - 1390 AD (17.9%) (Conventional Age 700±30 BP).

Evaluation and Management Recommendations

The site is field evaluated as eligible for inclusion on the NRHP due to the potential for subsurface depth of cultural fill within the thermal features. The site may yield additional information important to the prehistory of the area. Protection and preservation are recommended. The site lies 65 meters north of the BLM Broken Antler Trail.

Site **5MN11306** is a newly recorded prehistoric open camp located in a drainage bottom. Elevation at the site is 6440 feet, with Spring Creek situated 1030 meters to the west. The nearest water source is an unnamed intermittent drainage within 10m of the site. Vegetation is primarily sagebrush with occasional short, bunch grasses. Soils are composed of Barx-Lazear, very flaggy-Rock outcrop complex located on 3 to 35 percent slopes and are generally well-drained. Barx series consists of loam, clay loam, and sandy clay loam that forms in slope alluvium derived from sandstone. There is more than 80 inches to a restrictive feature. Lazear, very flaggy series is composed of sandy loam and is generally shallow, with only 8 to 16 inches to lithic bedrock. It is formed from colluvium over residuum weathered from sandstone.

Artifacts and features are located in an area measuring approximately 12m in diameter. One thermal feature is present consisting of a small scatter of FCR. The feature has completely deflated and all charcoal/ash has washed or blown away. A rhomboid style mano is the only tool present, and a single claystone flake was also recorded.

The mano is a river cobble of a dense, heavy quartzitic sandstone that was apparently selected for its natural rhomboid-like features. A mano with the same characteristics (a loaf mano shaped like a rectangular block with convex sides) was found on Glade Park over a 100 miles away (personal communication Dakota Kramer). These manos are diagnostic of the Battlement Mesa Complex, a Late Archaic phenomenon dating ca. 2700 BP with two defining sites containing pithouses -- 5GF126 and 5ME16786 (Conner et al. 2014:7.10-7.25). The pit-structures excavated at the two sites exhibit similar morphology and are also associated with similar distinctive, diagnostic artifacts – loaf-shaped manos; large, portable, slab and shallow basin metates; and, corner-notched dart points.

Evaluation and Management Recommendations

Due to the low potential for the thermal feature to yield additional information important to the prehistory of the area, the site is field evaluated as not eligible for inclusion on the NRHP. No further work is recommended. The site lies 95 meters northwest of the BLM Broken Antler Trail.

Site **5OR2173** is a newly recorded prehistoric open camp on a ridge. The site is located on a bench at an elevation of 7800 feet, 335 meters east of the East Fork of Spring Creek, the nearest water source. Vegetation consists of a ponderosa pine habitat with an understory of Gambel oak, elk sedge, and mountain mahogany. A good deal of forest duff is present, however the ground visibility is 70% regardless. The soil is Moento like-Beje, extremely stony-Rock outcrop complex, found on 5 to 35 percent slopes. It is comprised of Moento Like (45%), Beje (35%), Rock outcrop (15%) and Ohwiler (5%). It is a well drained soil with bedrock at 23cm (NRCS Soils website). The underlying bedrock is comprised of Morrison Formation, Summerville Formation (shale and siltstone), and Entrada Sandstone of Jurassic age.

The site consists of a two scrapers (butchering tools), a metate and an old trail segment. The tools are both of a white banded with red/brown quartzite and are disto-lateral in design. Both contain knife-like edges and one of them was created from a spall as it displays 50% cortex. The spall scraper was located within the old trail segment on the west side of the site. The metate remains is a concentration of five fragments of a unifacial, slab metate, apparently all from the one specimen. The material is sandstone. These three artifacts are widely distributed within a 25 meter area.

The trail segment is part of 5MN10999/5OR2174, which in this area appears to be an old route through the forest and was likely used by aboriginals in the area as evidenced by the association of prehistoric artifacts. Presently the trail is part of the BLM Lower Spring Creek Trail.

Evaluation and Management Recommendations

The site is field evaluated as not eligible for inclusion on the NRHP due to the low potential for subsurface depth of cultural fill. No further work is recommended.

Site **5MN10999/5OR2174** is a prehistoric and historic trail located along Spring Creek Canyon in Montrose and Ouray Counties. Elevation ranges from 6120 to 7800 feet. Vegetation is variable, consisting of pinyon and juniper trees with sagebrush, and sparse, short grasses at lower elevations in the north and ponderosa pine habitat with an understory of Gambel oak, elk sedge, and mountain mahogany at higher elevations to the south. The nearest source of water consists of ephemeral drainages and Spring Creek, which is crossed by the trail in two areas. Ground visibility is variable. Due to the length of the site area, the soils are generalized. Within the project area itself, there are 21 different soil types present; however, the bulk of the soils, about 76.5 %, are of four types. These include Barboncito-Rock outcrop complex, 3 to 20 percent slopes (15.2%); Arabrab-Evpark-Parklelei complex, 3 to 20 percent slopes (22.7%); Wellsbasin, extremely stony-Signalhill, very stony complex, 3 to 65% slopes (21.0%) and Walknolls-Rock outcrop complex, 20 to 60 percent slopes (17.6%) (NRCS Web Soil Survey, accessed 3/15/2018).

The trail system lies on both sides of Spring Creek and is estimated to be 19 miles long. The full extent to the south is uncertain. The main trail begins at the mouth of Shavano Valley and heads southwest into the project area, first on the east side of Spring Creek and then crossing over to the west. Approximately three miles from the point of beginning, Spring Creek Canyon flattens out sufficiently to allow crossing from the northwest side of the canyon to the southeast side. Continuing south, after approximately three more miles, there is a second canyon crossing. At this point, the trails diverge, with the northwest branch heading up West Fork of Spring Creek and the southeast branch heading up East Fork of Spring Creek and out of the project area.

Travel throughout the Uncompahgre Plateau was initially made by Native Americans, who likely utilized both routes in search of seasonal resources. The trail passes through sites 5MN10988, 5MN10992, 5MN10996 and 5MN10997 and comes to within 10m of sites 5MN10985, 5MN10986, 5MN10987, 5MN10993, and 5OR2173. Taken as a whole, this accounts for nine of the 23 newly recorded sites.

The earliest representation of the trail is illustrated as a road on the USGS 15-minute quadrangle map of Montrose, Colorado. The area was surveyed between 1901 and 1902 and the map was published in 1909. Only portions of the map with either clear indications of a route on historic maps or actual portions of the trail that were ground-truthed within the project area were mapped. Portions of nearby trails are shown on more recent maps of the survey area and would make logical extensions of the recorded routes. These include a trail that picks up southeast of the project area indicating that this route continued as a pack trail; however, this trail is not indicated on any historic maps. It is identified as the Spring Creek Pack Trail on the Government Springs and Pryor Creek USGS 7.5-minute series quadrangle maps. The destination is the South Divide Road, which provided good access to the east and west across the entire plateau. Many smaller spur trails take off from the trail toward spring locations.

As settlers moved into the area it is probable that many of the early travel routes utilized on the Uncompahgre Plateau originated as Native American trails. General Land Office survey maps were consulted, along with other historic maps depicting the area; however, they do not describe the trail and show few cultural features. GLO land patent records indicate that the project area was settled from the late 1880s through the late 1920s. Land was also acquired through sales and land exchanges in the 1950s and 60s. The Montrose West 7.5-minute quadrangle map published in 1962 illustrates an access road spur with an abandoned building symbol inTownship 48N, Range 10W., Section 26, NWNW quarter. A Homestead Entry patent was filed in this area by Alexander Harsh in 1914. His obituary was published in 1922:

> Montrose Man Dead at Age of Ninety-two. At the venerable age of ninety-two years, Alexander Harsh was called by death Friday afternoon about five o'clock at this home in Spring Creek canyon. He has been living here with his son, L.V. Harsh. At the time of his death, a daughter, Mrs. Anna Severn, of Illinois, was with him, having been called here on account of his illness.
> Mr. Harsh had been sick for several months, following a fall in which he fractured his hip. He was born April 4, 1830, in Ohio, coming to Colorado about fourteen years ago. His wife died several years ago (Daily Journal 1922:4).

Currently, the site is used for recreation purposes. Two recreational trails utilize this route, the Spring Creek Traverse Loop and Lower Spring Creek Trail.

Evaluation and Management Recommendation

The trail is not associated with events that have made a significant contribution to the broad patterns of history; it is not associated with the lives of persons significant in our past; and does not embody the distinctive characteristics of a type, period, or method of construction, nor does it represent the work of a master, or possess high artistic value (Criteria A-C). It has yielded information and may be likely to yield additional information through its use as a prehistoric trail system and its association with prehistoric sites. Accordingly, it is field evaluated as eligible for listing on the NRHP under Criterion D. Protection and preservation are recommended.

8.3 Recorded Isolated Finds

Table 8.1. Recorded isolated finds.

Number	Type	Evaluation
5MN11000	Cluster of five artifacts within 1m diameter: Metate; 3 fragments of a unifacial, thick, sandstone slab style metate. Mano; dorsal fragment of a unifacial, sandstone cobble mano, Flake; 1 tan/brown claystone, extra-large, utilized, primary blade flake with over 50% cortex.	Not eligible
5MN11001	Chopper; green siltstone, unifacial, on cobble	Not eligible
5MN11002	Mano: maroon siltstone, ½ cobble	Not eligible
5MN11003	Metate: Bifacial, sandstone slab, fragment	Not eligible
5MN11004	Projectile point fragment: mid-section of a corner-notched type	Not eligible

Number	Type	Evaluation
5MN11005	Mano: elongated (two-hand), bifacial sandstone cobble mano, 15.5 x 6 x 4.2cm. indicative of the Formative period, AD 300-1200.	Not eligible
5MN11006	Core reduction location: concentration of 12 quartzite flakes and one core in a 4m x 2m area.	Not eligible
5MN11007	Flake: white chert, large, interior	Not eligible
5MN11008	Hafted axe on spall	Not eligible

8.4 RESULTS OF RADIOCARBON SAMPLING

Thirteen sites were selected from the east slope of the Uncompahgre Plateau for sampling based on the presence of surface exposed carbon or ashstained soil. Few features within the newly recorded sites had such and several sites in the general area were selected for their feature type or the presence of an associated temporally diagnostic artifact.

The ^{14}C results for surface identifiable features spanned the past 6000 years 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 found on the east slope of the Uncompahgre, which is attributed to collection by archaeologists during authorized inventories and by modern period artifact collectors. Despite the lack of diagnostic artifacts, these investigations did result in a substantial account of surface exposed sites, adding significantly new information to the known cultural sequence. Table 8.2 lists the seventeen dates recovered during this project. All were from charcoal 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, many of the dates cluster, suggesting that these problems are not significantly skewing the actual temporal placements. More is discussed on the subject of old wood.

As noted, the dates are not spread evenly across the ages. Three distinct clusters occur – during the early Formative (or Late Archaic) ca. 200 BC to AD 300, during the Middle Formative, ca. AD 600-1000, and during the Early Numic period, ca. AD 1250-1640. A few of the dates are scattered back into the Middle and Early Archaic, and one from the Historic Numic. The AMS samples were from distinct thermal features: the Middle and Early Archaic dates came from slab-lined features; the Late-Archaic/Early Formative and Middle Formative were from rock-filled features; and, the Early and Late Numic from shallow, surface features.

The date clusters, and dates in general, were compared with those of the Eagle Rock Shelter (Gardner and Hadden 2017), a deeply stratified site with twenty separate levels identified, dating from 11,000 BC to AD 750. Using Bayesian statistics, Michael Berry in a recent project (Berry 2019) narrowed the 52 dates recovered from the shelter into cumulative probability clusters (Figure 8.1). He also created a KDE model [kernel density estimation, a powerful non-parametric density estimation technique] that depicts five distinct probability peaks at 11,000 BC, 9000 BC, 6250 BC, 2000 BC, and AD 250 (ibid.:55). The results of his analyses show that the shelter was not used continuously and that breaks in the sequence are

Table 8.2 Radiocarbon Results

Site Number/Fea.	Feature type	Conventional Age	Calibrated Age AD/BC
5MN576.LB.F1	Shallow surface	220 +/- 30 BP	Cal 1640 - 1690 AD (36.7%) Cal 1730 - 1810 AD (44.7%) Cal 1930 - …… AD (14.0%)
5MN576.LA.F1	Shallow surface	550 +/- 30 BP	Cal 1310 - 1360 AD (40.5%) Cal 1380 - 1440 AD (54.9%)
5MN11110.F1	Shallow surface	350 +/- 30 BP	Cal 1450 - 1640 AD
5MN11010.F2	Shallow surface	700 +/- 30 BP	Cal 1260 - 1310 AD (77.5%) Cal 1360 - 1390 AD (17.9%)
5MN11115.F1	Rock filled	1140 +/- 30 BP	Cal 770 - 990 AD
5MN10983.F1	Rock filled	1300 +/- 30 BP	Cal 660 - 730 AD (64.4%) Cal 740 - 770 AD (31.0%)
5MN11105.F2	Rock filled	1360 +/- 30 BP	Cal 610 - 700 AD (92.2%) Cal 740 - 770 AD (3.2%)
5MN10984.F1	Rock filled	1620 +/- 30 BP	Cal 380 - 540 AD
5MN10993.F1	Rock filled	1840 +/- 30 BP	Cal 90 - 240 AD
5MN11122.F1	Rock filled	1870 +/- 30 BP	Cal 70 - 230 AD
5MN10984.F2	Rock filled	1940 +/- 30 BP	Cal 20 - 10 BC (1.2%) Cal 10 - 130 AD (94.2%)
5MN11009.F2	Rock filled	2010 +/- 30 BP	Cal 100 BC - 70 AD
5MN10937.F1*	Rock filled	2120 +/- 30 BP	Cal 350 - 320 BC (4.2%) Cal 210 - 50 BC (91.2%)
5MN11009.F1	Rock filled	2340 +/- 30 BP	Cal 510 - 360 BC
5MN11010.F1	Rock filled	3140 +/- 40 BP	Cal 1510 - 1290 BC
5ME22096.F1*	Slab-lined	3390 +/- 30 BP	Cal 1750 - 1620 BC
5MN10988.F1	Slab-lined	5700 +/- 30 BP	Cal 4650 - 4640 BC (0.6%) Cal 4620 - 4460 BC (94.8%)

most likely related to environmental changes. It is also notable that the clustered dates recovered for the Spring Creek Project fall within the distributions of Eagle Rock with the exception of the Early Numic dates. Apparently, the Shelter was not used during that time by that cultural group.

Another comparable set of radiocarbon dates are found in the Collbran Pipeline project (Conner et al. 2014). All of that ^{14}C data came from open camps and open architectural sites. The temporal distribution of the Collbran dates is shown in Figure 8.2, a probability density histogram. The histogram was 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 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 clusters between 2800 and 3500 BC also represents pithouse and surface house constructions along the upper Colorado River Basin.

The time period of 1350-1550 AD (representing the Early Numic) is not represented in the data from the Eagle Rock Shelter, which has potential implications of these people not using rock shelters for their homes. A good example of a site from this period is 5ME16097, an important site excavated as part of the Collbran Pipeline Project. It contained evidence of an apparent surface structure. Mapping of the site showed a basalt rock cleared area of about 4m in diameter, estimated to be the floor of a possible tipi-like structure. Within the cleared area (floor of the structure) was an internal hearth feature and a cluster of boiling stones. Cultural affiliation and age were derived from radiometric analysis of a sample from the internal thermal feature (Feature 4) and a comparative analysis of the recovered diagnostic artifacts. A radiometric date of 370±40 BP (Cal BP 470 and Cal AD 1480; Beta-248418) was produced by that feature. Ceramic sherds and two projectile point fragments – a Cottonwood Triangular and a Desert Side-notched – corroborate the interpretation of what appears to have been a single component occupation dating to the Early Numic occupation of western Colorado.

Although the ^{14}C date and collected diagnostics apparently provide a likely and reliable estimate of the time of occupation of 5ME16097, the date could have been questioned based on the potential for an "old wood problem," which has important ramifications for dating Numic sites and in estimating their arrival in western Colorado. To that end, an additional dating method was tapped for comparison. A thermoluminescence sample composed of an Uncompahgre Brown Ware sherd and its associated soil were collected and sent to the Luminescence Dating Laboratory (University of Washington, Seattle). It produced an uncorrected TL-OSL date of AD 1460±60 – comparative to that of the ^{14}C date, and one that essentially negates the "old wood problem" from the determination of the period of occupation of the site.

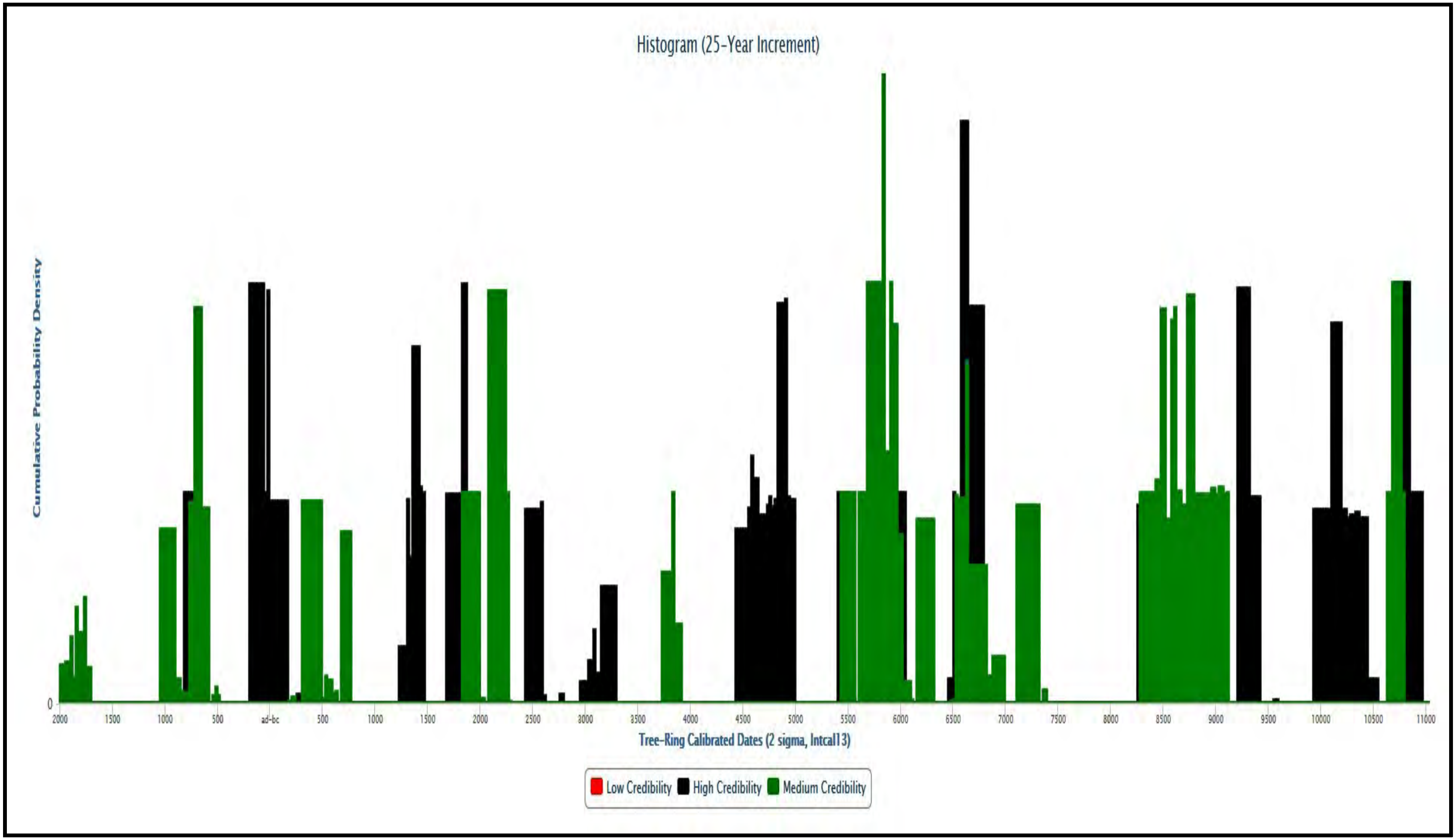


Figure 8.1. Histogram of the ^{14}C dates from Eagle Rock Shelter (25yr increment), AD/BC format.

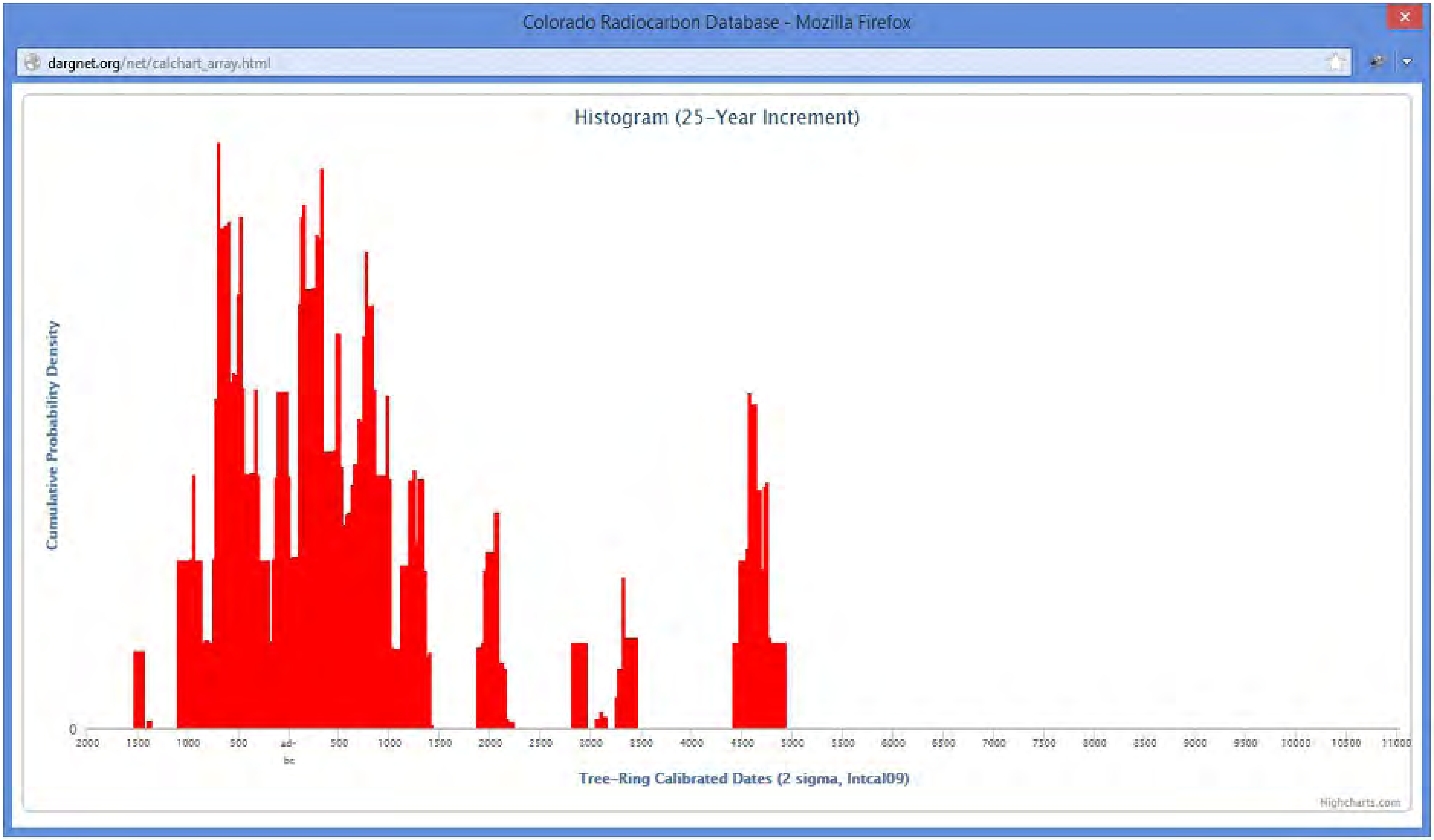


Figure 8.2. Probability density histogram of the Collbran Pipeline Project ^{14}C dates (Generated via the Colorado Radiocarbon Database Website).

9.0 DISCUSSION AND INTERPRETATIONS

Archaeological investigations of the Spring Creek area were guided by a framework of research questions that were drawn from the known cultural background (as presented in Chapter 5) and applied to specific sites and to the inter-relationship of sites within this geographically defined area. Questions posed for this study focused on site integrity and temporal juxtaposition. If mitigation of adverse affects to the sites is considered then the further development of a cultural chronology and the reconstruction of paleoenvironmental conditions can be more throughly addressed.

9.1 RECORDED SITES

Five sites were revisited and twenty-three sites were newly recorded during the study. The expected prehistoric site type in the canyon was “base” camp; however, the types recorded are more indicative of camps occupied for short-terms as resource procurement and processing localities. The larger base camps were likely positioned at lower elevations during winter and at higher elevations near springs in the summer. Twelve of the sites had metates in their artifact assemblage, which would imply seed/plant processing or preparation. Others included manos that could have been tasked to either grinding or butchering/hide-processing activities. Butchering tools – large utilized flakes of local materials – were common, and suggestive of hunting and animal processing. Few exhibited tool refurbishing – those that did were temporally assigned to the Numic and Foothill Mountain Paleoindian periods, and may be indicative of a pattern of high residential mobility.

Spring Creek Canyon is notable for its flowing water, which is attractive to most anyone traveling the area. However, the Canyon presents topographic difficulties in that access into it along the sides occurs sporadically and access near the head is steep and heavily vegetated. Consequently, in spite of the presence of a running stream, the Canyon trails are best characterized as poor for transiting between the upper and lower elevations. There are known historic trails along the mesa tops on either side of the Canyon that would have provided much faster travel – including the Old Paradox Trail to the north and the Dave Wood Road on the south. In fact, trails along the mesas are relatively common on the east slope of the Uncompahgre Plateau. As discussed in Section 7.2, the Dominguez and Escalante Expedition route apparently followed a Ute trail that connected the Johnson Spring on top of the Plateau to the Government Spring Road and then to the Uncompahgre River Valley.

9.2 ENVIRONMENTAL VARIABLES IN SITE PATTERNING ON THE UNCOMPAHGRE PLATEAU

The known site distribution along the east slopes of the Uncompahgre Plateau appears to be the function of three environmental variables which affect the overall settlement pattern in the area through time. These three environmental variables are drainage pattern, surface geology, and mule deer winter range.

The drainage pattern on the eastern flank of the Uncompahgre Plateau consists of a trellis pattern of parallel flowing tributary streams. These streams have deeply dissected the uplifted surface of the Plateau to create deep canyons with steep slopes and rugged topography. These canyons are a natural impediment to travel along the flanks of the northwest-southeast axis of the Plateau, especially the middle to lower elevations. However, the tributary streams, flowing parallel to each other, have formed long, broad interfluvial ridges and flats whose northeast-southwest alignment and relatively gentle slopes provide easy access from the lowlands along the Uncompahgre River to the highlands at the crest of the Plateau (Huscher 1939). Thus, the sites tend to be strung out along the drainages in a linear fashion and partially reflect an upland/ lowland seasonal transhumance (O'Neil 1993:340).

The presence of readily available tool stone in the area made it attractive to prehistoric inhabitants. In general, on the Plateau, quarries and initial stage workshops tend to be located on the side slopes of the canyons where the geologic outcrops occur, though they may also appear in the drainage bottoms where outcrops or cobble deposits are present. The secondary and tertiary stages of lithic reduction tend to occur in sites or isolated localities located on mesas and ridge tops, especially along the canyon rims, as noted during the current project. These sites may range from isolated chipping stations, to open lithic scatters, to special activity areas within the open camps. Large biface and uniface blank production appears to be the primary activity, allowing for easy transport during the seasonal, upland/lowland transhumance. Large and small flake tools and formal finished tools were produced as needed. These characteristics are reflected in the isolated find record where isolated tools are generally indicative of hunting activities, and isolated chipping stations and manuported cobbles exhibit use of the area as a source of raw tool stone.

The location of the small camps within the winter range of the mule deer is probably the most important variable affecting site density and distribution. For nearly five months out of the year, between November and April (which is also the most likely time of food stress for prehistoric human populations), the mule deer are generally found between 6,000 and 9,000 feet in elevation, depending upon the severity of the winter (BLM 1978: Map 2-8). However, it is the *behavior* of the mule deer, not just their presence, which has the most profound impact on prehistoric human behavior in terms of site type, distribution, and location.

Specific deer populations utilize the same winter range season after season, for generations. The movement between winter and summer ranges is generally slow and casual with the actual migration routes spread out and poorly defined in gentle and open terrain. However, where the terrain is rugged, the migration routes tend to be well defined and able to support high concentrations of deer, which may congregate in groups of 40 to 50 during the fall rut. South-facing slopes with pinyon-juniper, sage and some mountain shrub are preferred. Juniper berries are a favorite autumn food. Behavioral patterns are often pronounced and vary between the sexes. The females tend to move about during the day, grazing or browsing in the open and in the valley bottoms, while the males use the cover high on the sides of the ridges. Females will cross a clearing first, followed by a wary male. Where males prefer to rest near the ridge tops, the females tend to rest in the open or in the grass or brush of creek bottoms. In either case, the bedding zone is generally about 50 yards wide and is located near the edge of the cover in a classic use of the "fringe effect" (Grady 1980:67-86). Thus, the topography, vegetation and elevation come together in the project area to provide an ideal fall/winter habitat for the mule deer.

On a micro-environmental scale, another striking site/artifact distribution pattern exists: it is the relative lack of artifactual materials found within the open sage flat ecotone compared to the pinyon/juniper habitat. It has been assumed that the boundaries between these two environmental zones have not altered radically over the past several centuries, or millenniums, and that this dichotomy of artifact distribution exists as an accurate indicator of prehistoric settlement patterns, as opposed to simply being a factor of differential post-occupational soil erosion or deposition. The benefits and attractiveness of forested areas for workshops and campsites over open ones are many; predominantly shelter from the elements, readily accessible firewood supply, and concealment from game animals as well as potential human foes.

Although those environmental attributes appear to be the controlling factors for the observable site distributions, it may also be that the loess deposits that are more than a meter in depth, younger than 3000 BP and vegetated with big sagebrush, may be covering important prehistoric sites. It seems possible that sedentary or semi-sedentary Middle to Late Archaic cultures may have utilized the lower elevation deeper soils of the valley bottoms and higher elevation sage flats for building pithouses and for manipulating the production of wild plants such as *chenopodia* and ricegrass.

Diverse biotopes occur along the east slopes of the Uncompahgre between the top of the Plateau and the valley bottomlands – a catchment area of approximately 10 miles. That catchment includes marshes and springs in the valleys, riparian along the rivers and streams, sagebrush grasslands in the valleys and along small drainages of the benchlands, pinyon-juniper forests, springs along the small drainages, dense berry-producing shrubland, and marshes and springs along the ridgetops. Positioning hamlets or small villages of sedentary or semi-sedentary Archaic or Formative occupants of the region in the most productive of the environmental zones would have been optimal. The necessity for hunting or gathering forays outside the catchment area would have been minimal for a small group. The limited attributes of the resource procurement camps recorded on the mesa slopes and canyon bottoms suggest they were used for short excursions for resource procurement.

The environmental choices for the non-sedentary hunter-gatherers would have been similarly available. However, camp positioning near the springs and marshes may have varied due to hunting preferences and is a question for future research. Based on present research, the visible surface materials of archaeological sites on the eastern Uncompahgre Plateau indicate a favorable combination of topography, geology, and elevated deer populations for hunter-gatherer subsistence (O'Neil 1993:327-341). The mixed pinyon-juniper forest/sagebrush parkland vegetation community provides shelter, fuel and edible flora (grasses and forbs). For most of the recorded sites of the east slopes of the Uncompahgre, the elevation range and topographic situation places them in the thermal belt above that valley's inversions and below the colder upslope elevations (Evans 1988:2-3). The open camps probably represent fall hunting and wintering localities, while sheltered camps possibly reflect winter encampments, or a site selection decision based upon colder temperatures.

9.3 ARTIFACT ASSEMBLAGES

Many of the sites contained expedient butchering/meat processing tools made from local materials the sizes of which suggest the size of animals being butchered. There was evidence of the creation and sharpening of the expedient tools (generally characterized as large utilized flakes and often ignored in the site records). Few tools of a more formal nature were encountered, probably due to the short-time stays at the resource procurement camps, and the likely retention and transport of the better executed tools (not to mention surface collection vandalism). Most of the sites did not exhibit refurbishment of the more formal tools, which again, is likely reflective of the periods of occupation.

Exceptions to this are the sites that were occupied by Historic Ute and Paleoindian groups, which are indicative of their lifeway. Their camps are not strictly reflective of resource procurement, but of a strategy of high residential mobility using serially occupied residential camps. At Historic Ute sites, thermal features usually exhibit small (or micro-) flakes of a variety of high quality, non-local lithic materials, and often a scatter of tools (including projectile points or their fragments). An example of a Paleoindian camp is the James Allen (Late Paleoindian) occupation of 5MN7419, which contains broken projectile points of non-local materials.

Paleoindian Diagnostic Tools

The Foothill-Mountain Paleoindian projectile points found at 5MN7419 were separately distributed in its west portion of the site (Plate 9.1). Along with them was a distinct butchering or hide processing tool that is colloquially referred to as a “turtle-backed” scraper (Plate 9.2). The characteristics of the scraper are that it is roughly round, flat-bottomed, and has a distinct “head” or protrusion on the distal end. Utilization is disto-lateral. The protrusion is not always a constant nor is it restricted to the “turtle-back” scraper, but when found on a large butchering tool appears to be diagnostic of the James Allen/Frederick/Lusk, Late Paleoindian occupation.

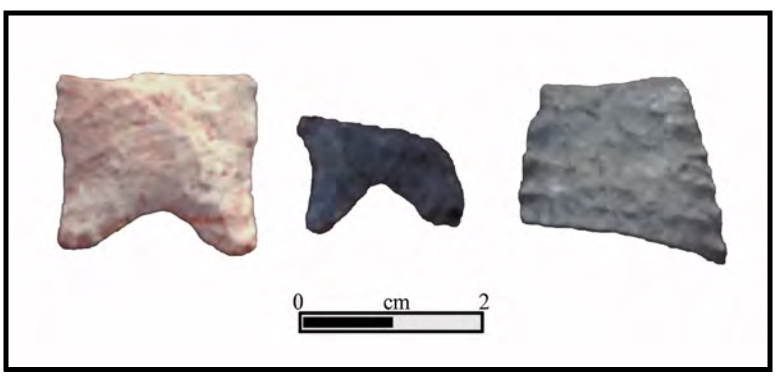


Plate 9.1. James Allan, Late Paleoindian, points recovered from 5MN7419, Cluster 2 (Walker-Buchanan and Dello-Russo 2003).

The term "turtleback" is a colloquial archaeological term for scrapers that have been formed to have a convex back and are generally round in configuration and about 8-12cm in diameter. As described by Hopkins (2008), the term has also been applied to large tool categories labeled "chisel end-scraper" or "nosed end-scraper" that are associated with Paleoindian collections. It is a term that has been found in literature as old as the 1960's (Cambron and Hulse 1960).

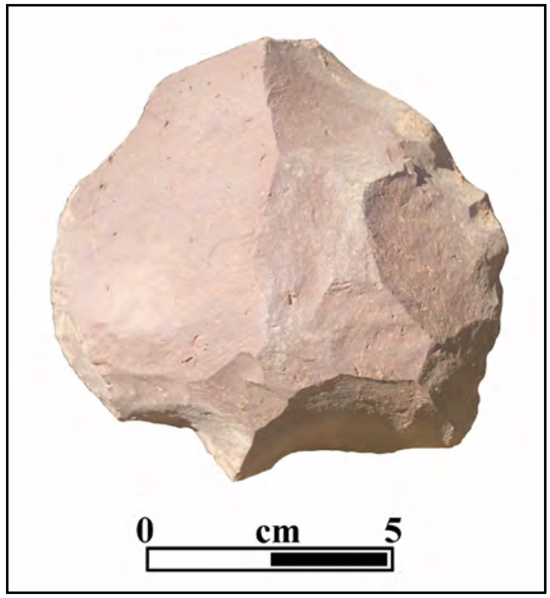


Plate 9.2. "Turtleback" scraper associated with 5MN7419 Cluster 2, containing the Late Paleoindian point fragments.

Large flake tools seem to be an attribute of Paleoindian sites in general and are representative of the butchering of large animals. They are commonly fashioned of local materials. Two such tools – spalls of a local, reddish-brown claystone material – were recently found in association with a Pryor Stemmed point on the northeast portion of the Uncompahgre (Plate 9.3). The point was made of brecciated black and gray chert, a material that outcrops on the northern Uncompahgre Plateau. (In particular, one quarry has been identified near Cactus Park.) This point mid-section is concavo-convex in cross-section created by a distinctive longitudinal flake on the dorsal side (Plate 9.4). Lichen is present on the ventral side, which suggests some age to the point. The point's construction favorably compares to a Pryor Stemmed Complex fluted type notable in collections from the Bighorn Mountains (Frison 1991:72, Figure 2.35d). Frison indicates that Pryor Stemmed points are rather tightly dated from about 8300 to 7800 years ago [ca. cal 7450 - 6600 BC], and also notes that there seems to be a wider distribution than that of the Bighorn Mountains (ibid.:71).

Plate 9.3. Two large butchering tools recorded near a Pryor Stemmed (Late Paleoindian) point at site 5ME22099/5MN10943 on the northeastern Uncompahgre Plateau. Similar Paleolithic butchering tools were recorded at 5MN10992.

Plate 9.4. Pryor Stemmed projectile point mid-section (ventral, dorsal and cross-section views on right) illustrate a distinctive longitudinal flake on the dorsal side. Recorded at site 5ME22099/5MN10943 on the northeastern Uncompahgre Plateau (Conner and Davenport 2017:15). Shown with a comparable point type illustration from Frison 1991:72, Figure 2.35(d).

Plate 9.5. Uinta SN point previously collected from 5MN6839.

Another distinctive diagnostic is the Uinta Side-notched point recovered from 5MN6839 in an earlier inventory (Plate 9.5). The site was originally recorded as an isolated find, but the revisit for this project documented other artifacts including a fragment of a loaf mano and a slab metate, which were used to reclassify the isolate as an open camp. A similar site was recorded as part of a serially occupied camping area located along Battlement Creek (5GF133), within the present Battlement Mesa Community (Conner and Langdon 1987). This point type is associated with the Uinta Fremont, is widely distributed over the northeastern part of Utah and has a temporal span of AD 800-1200 (Holmer and Weder 1980:60). At 5GF133, the point was recovered with three ceramic sherds, one black-on-white and two corrugated. They were analyzed by University of Colorado Museum personnel and were declared to be Tusayan types, culturally associated with the Kayenta Anasazi (Northern Arizona). The Tusayan Black-on-White ceramic was made in the Tsegi area of northern Arizona ca. AD 1225-1300. Notably, similar sherds have been found in the region and have been considered trade items utilized by the Fremont (Creasman 1979). It seems the Uinta Fremont were moving into the general area about the same time as the Puebloan groups were moving southeast from Mesa Verde into the Rio Grande Valley.

Representing the Late Prehistoric period ca. AD 1300-1650 are Cottonwood style points that were found during the present project and recent projects on the Uncompahgre Plateau. These are two unnotched styles (Plate 9.6 provides examples of these two types). One is an expedient type simply made from a small flake and may have been made for a child's bow and arrow set (or used for hunting of small mammals). The other is a type found primarily on the

Uncompahgre Plateau, and is characterized as “backed” in that it has a raised portion on the dorsal side, which appears to be a hafting element. Also it is relatively short and ovate with convex blades.

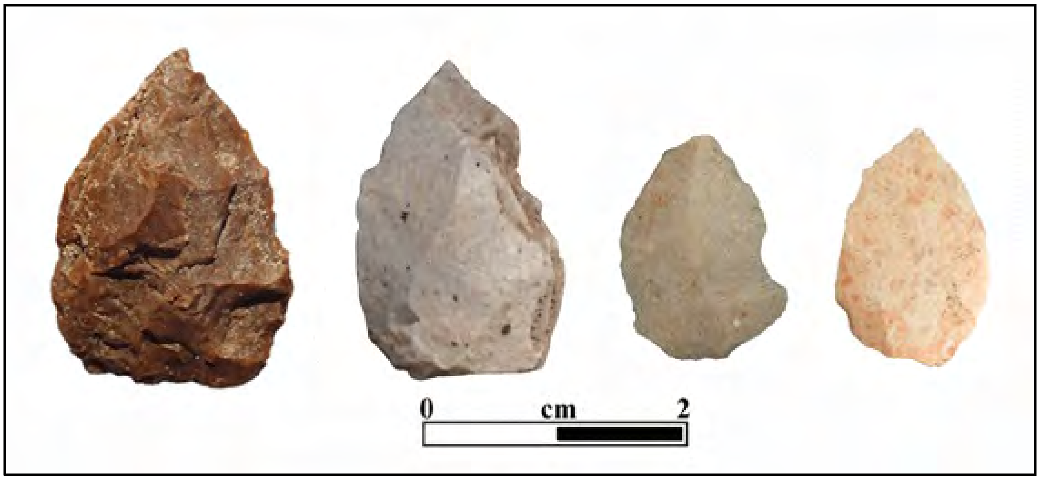
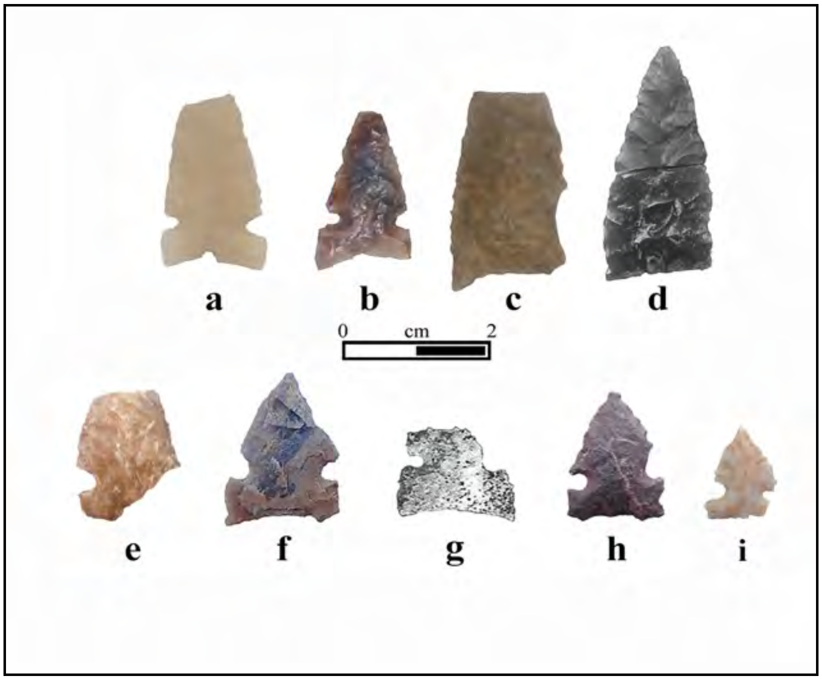


Plate 9.6. Cottonwood Triangular (unnotched) projectile points documented in sites on the Uncompahgre Plateau. Two on the left (on left from 5MN10984) exhibit “backing” that probably represents a haft element; two on the right (5MN576.s1 and 5MN10935.s1) are made from small flakes.

Diagnostic projectile point finds representing the Late Prehistoric period from nearby areas north of the Uncompahgre indicate significant occupations during that time and potential interactions of Early Numic (Shoshone and Ute) and possibly Athabascan populations. Plate 9.7 exhibits both Shoshone and Ute styles of manufacture in point construction. The longer style of the Shoshone points is distinctive especially in the Cottonwood Triangular preforms; and the extreme concave and notched bases of the tri-notched points are also notable. The small side-notched points are not a clear diagnostic indicator in the culture-historical sense, but are a horizon marker with a broad spatial and temporal distribution. Concave and basal notched points on the Plains are referred to as Plains Side-notched and Desert Side-notched, respectively. Buckles (1971:1220) shows both types occurring on the Uncompahgre Plateau, and these smaller points are herein being ascribed to the early Ute occupation of the region. However, the small side-notched points (without the basal notch) can also be attributed to Dismal River occupations in Southeastern Wyoming, Northeastern Colorado and the Rocky Mountians east of the Continental Divide (Gunnerson 1960; Gilmore and Larmore 2005). Sites that date between AD 1400 and 1650 have been found in high altitude sites in the Rocky Mountains east of the Continental Divide, and linked to the Athapaskan migrations into the southwest (Gilmore 1999). The Apache, specifically the Paloma, Quartelejo, and Jicarilla, are thought to be derived from the Dismal River culture of the western Plains. Importantly, the first Athapaskan migrations are estimated to have passed through western Colorado and inter-mountain parks west of the Continental Divide from southwestern Wyoming ca. AD 1350 (Huscher and Huscher 1942; Opler 1983; Gilmore and Larmore 2008).

Plate 9.7. Late Prehistoric (Early Numic) projectile points from sites located north of the Uncompahgre near De Beque: a-b) Tri-notched points (Sheepeater Shoshone style); c-d) unnotched triangular preforms (Cottonwood Triangular, Sheepeater Shoshone style); e-i) side-notched, concave base (Desert Side-notched, Uncompahgre Complex Type 2). [a, 5ME21160; b, 5ME19888; c and d, 5ME21160.s2 and .s3; e, 5ME21152.s3, f, 5ME4431.s1; g, 5ME4431.FS#56 (previously recorded); h, 5ME21153.s1; and, i, 5ME21235.IF.]



Temporally Diagnostic Groundstone

Diagnostics other than points were recorded during the inventory. One of the most important is a rhomboid-shaped mano. This particular type has been found in direct association with a pithouse culture first identified at Battlement Mesa community at site5GF126. A second pithouse dating to about the same time was identified at nearby 5ME16786. The radiocarbon dates for occupations in the pithouses range from 2600-2800 BP, which places them in the Late Archaic period (Conner et al. 2014:6.20). Notably, 5MN40 appears to have a cultural component dating to this period and possessing like diagnostic projectile points.

Craft specialization among this Late Archaic culture is represented by probably the most important artifacts found a pithouse floor cache – a mano shaped like a rectangular block with convex sides (Plate 9.8). This artifact type demonstrates a particular skill in pecking. Because this type was found at 5GF126 among others that did not exhibit the same level of technological skill, that particular type may have been acquired from the surplus production of another person within the group, or

Plate 9.8. Manos from pithouse floor cache, 5ME16786.

possibly outside the family group that occupied the pithouse. The existence of other such manos in the region suggests that the occupants of the two pithouse were not isolated but rather were part of a cultural group that inhabited the area. Close examination of several of these and several others of this type found in the region was completed by Brian O'Neil. The following summarizes his findings.

Five complete manos and one fragment were analyzed for his study from four sites: 5GF101 (one complete mano surface collection); 5GF126 - (one complete mano from floor of pithouse); 5GF1184 (one fragment from surface); and 5ME16786 - (three complete manos from cache in pithouse). Notably, the manos are all made from heavy, dense materials: four of the manos are orthoquartzite, and two are fine-grained sandstone. The texture on three of the orthoquartzite manos are medium-grained and one is fine-grained. All of the grinding faces on all of the five complete manos exhibit extensive dimpling from resharpening.

Three of the complete manos are plano-convex in cross-section, and one is biconvex. The size range for the complete manos are: Length ranges: 95.7-113.4mm, average 101mm; Width ranges: 80.4-82.7mm, average 81.4mm; and, Thickness ranges: 56.5-84.2mm, average 66.2mm. His preliminary use-wear analysis indicates that the mano's shape may have been chosen so that a single mano could be used on both a basin metate or a slab metate. The convex proximal side on two of the specimen exhibit wear patterns associated with a circular grinding motion consistent with a basin metate (Adams 2002). However, pecking/shaping of the proximal faces on two of the other manos may have obliterated much of the circular grinding use wear associated with a basin metate. Conversely, the distal side of all five of the complete manos exhibits a plano-convex grinding surface with a heavy use-wear pattern on the leading and trailing edges of the convexity indicating a push-pull grinding motion consistent with a slab metate.

A mano found during this project at 5MN11306 was a cobble apparently selected for its material type – a dense, fine-grained sandstone similar to that found in the pithouses. It had not been shaped, but its overall characteristics were the same, essentially a natural shape of the pithouse manos. Another mano of the same material, but shaped into one of the Battlement Mesa culture types was found on private property on Glade Park (northwest Uncompahgre Plateau), which demonstrates the wide distribution of the material culture associated with this cultural phenomenon. Plate 9.9 shows the two manos. The one in 5MN11306 was associated with a thermal feature, but it was deflated and no charcoal was present.

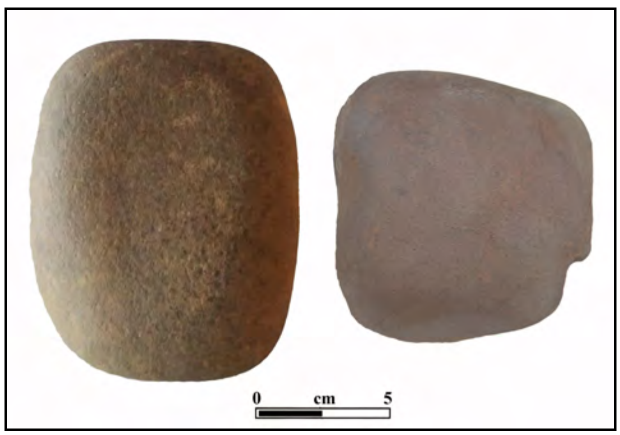


Plate 9.9. Comparison of manos documented on the Uncompahgre Plateau that are made of a dense, heavy, quartzitic sandstone material. On the left, a cobble that has been shaped into a rhomboid type found on private property on Glade Park; on the right, a cobble roughly the shape of the rhomboid type recorded at 5MN11306.

Other groundstone diagnostic of this Late Archaic culture are slab and basin metates that exhibit notching for carrying purposes. Two metates associated with the Battlement Mesa Culture pithouses (found near the hearth features) are both slab types that are relatively large, thin in cross-section, and exhibit side-notching. A large basin metate found exposed in the side of a small wash (at 5GF109) was also associated with that temporal period because of its notching on both sides for transportation with carrying straps.

Another metate type recorded in the region is distinctive and culturally/temporally diagnostic, and, has been recorded at two localities in west central Colorado. One was found as part of a cache at site 5ME19899 (Plate 9.10), a prehistoric sheltered camp, and another as isolated find 5MN11146 – apparently intentionally placed on a rim edge. For both, progressive wear on their proximal surface has resulted in basin-like depressions. Both metates are made of sandstone clasts that were selected because of their natural expressions of an eroded basin and open end. They also have a small secondary grinding platform positioned at the proximal end and above the main grinding basin – a characteristic that makes them identifiable as Utah-type metates.

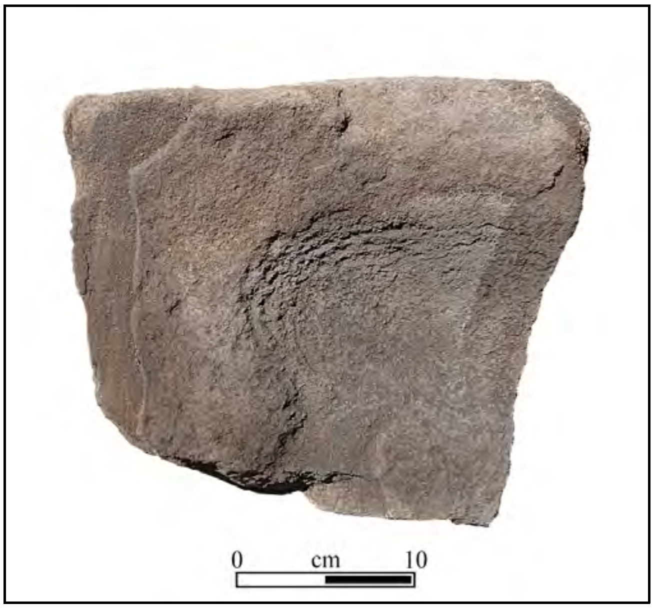


Plate 9.10. Artifact 5ME19899.s4, open-end, shallow basin Utah-type metate.

Notably, the cache of 5ME19899 also contained three other exceptionally well made ground stone artifacts including a two-hand, loaf mano (made of a heavy, dense, quartzitic sandstone), an arrow shaft smoother, and an awl sharpener. A small sherd of gray ware ceramic was found near the cache. It was identified as Emery Gray, 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).

9.4 THERMAL FEATURES

Thermal features were found on nearly all the sites encountered. Types identified during the study include slab-lined, shallow rock-filled, shallow surface, and large surface distributions of ash stained soil and fire-cracked rock.

Site 5MN10988 contained a slab-lined feature situated on the side of a wash and made-up of one large sandstone slab (50 x 35 cm) and several smaller (Plate 9.11). It is estimated to have been about 50cm in diameter, but surrounding soils had deflated, and the slabs were mostly collapsed. A small carbon sample was collected from the base of the large slab and sent to International Chemical Analysis (ICA) of Miami for AMS dating. The sample returned calibrated dates of 4650 - 4640 BC (0.6%) and 4620 - 4460 BC (94.8%), (Conventional Age - 5700±30 BP).

Plate 9.11. Site 5MN10988 Feature 1, large slab-lined feature constructed on the edge of a wash. Comparable to that of 5ME16769 in size and age. Scale is 10cm.

An intact feature of this type was excavated near the north end of Unaweep canyon at site 5ME16769. It was described as "sub-rectangular, slab-lined, subterranean cist approximately 35 cm deep and 60cm by 45cm in diameter. The walls were lined with carefully-placed vertical slabs" (Martin and Batchelder 2010:13). A nearby, second feature was also excavated. It was described as "a small, roughly circular, shallow basin-shaped hearth that had been dug into the clay loam, measuring 35cm in diameter and a maximum of 13cm in depth....[containing] a single upright sandstone slab [on] the northwest edge of the basin (Figure 9.1). A sample of wood charcoal from within Feature 5 was analyzed by Beta Analytic and produced a conventional radiocarbon

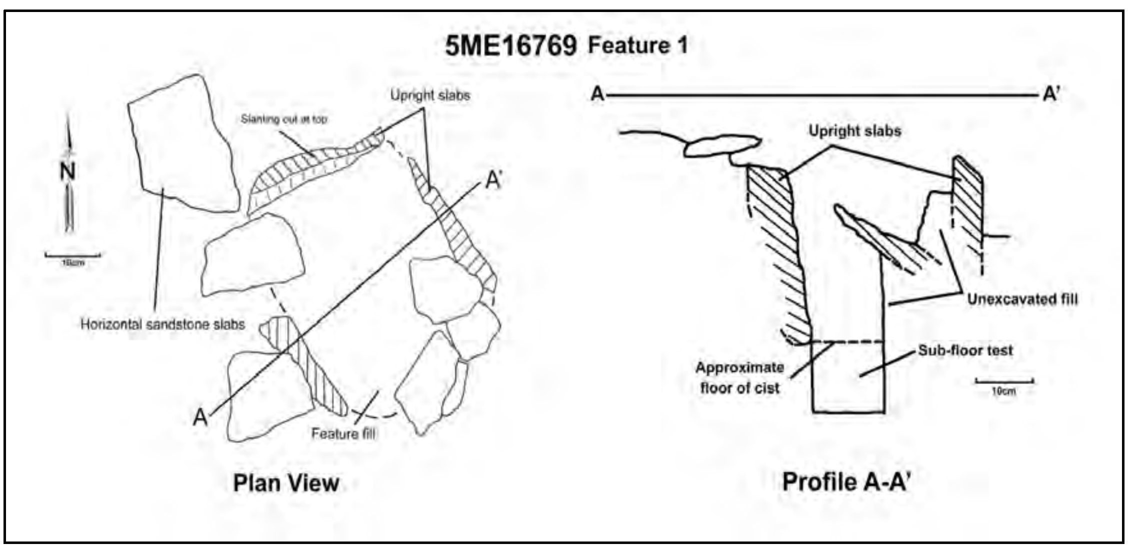


Figure 9.1. Slab-lined feature excavated at 5ME16769 that is of relative size and age of that found in 5MN10988. Scales are 10cm. (Illustrations from Martin and Batchelder 2010:14.)

date of 5580±40 BP or a 2 Sigma calibrated result of 4490 to 4340 BC" (ibid.). It is notable that the two features in close proximity and different construction were apparently tasked with diverse functions.

Another site with a similar sized feature was recorded at 5ME22096 (Feature 1). It has partially standing slabs (Plate 9.12), the remainder having collapsed due to their placement within a dry wash. The feature measures approximately 50cm in diameter and contains five sandstone fire-reddened slabs with caliche (calcium carbonate) on the surfaces. One of the slabs is in a vertical, upright position. There was a very small amount of charcoal left within the feature and a sample was collected. The sample, although quite small, was sent to ICA for radiocarbon processing. A date of 3390±30 BP (Cal 1750-1620 BC) was obtained by that analysis. Also, a second slab-lined but completely deflated and collapsed feature was found in the wash just a few meters away.

Plate 9.12. Site 5ME22096 Feature 1, another large slab-lined feature constructed on the edge of a small wash. Comparable to that of 5ME16769 in size but much more recent in age (3390±30 BP). Grid is set at 1m.

The feature in 5ME16760 was speculated to be utilized for storage because it contained only a small amount of ash and charcoal. The similarly constructed features of 5MN10988 and 5ME22096 also contained only small amounts of carbon. Their construction in the deeper soils of the adjacent washes and lack of a lined bottom suggests they were used for only a short time and likely used like ovens to roast meat – their interior first heated with small fires or by hot rocks. Other slab-lined features have been recorded regionally.

A feature found in the McCLane Rockshelter (Feature 16) was stratigraphically associated with Stratigraphic Unit IV dating between 4200-3800 BP (Berry et al. 2013). Found in the northeast corner of the shelter and dug into the deep soft dirt near the back wall, it was described as having four slabs (relatively *in-situ*) and a scatter of five other slabs and/or fragments (presumably used as a cover). The diameter of the feature was estimated to be 50cm; and, based on the largest slab, the estimated depth was 25cm. It was interpreted to have been used for storage because no charcoal was found inside, but five of the slabs exhibited thermal alteration. Again, this type of feature may have been used as an oven. Three other features in the shelter were clearly storage pits – one of those bell-shaped.

One excavated for the Collbran Pipeline Project (Conner et al. 2014), again showed evidence of use as an oven. The feature measured 70cm long, with a cross axis of 58cm. Its lower fill was composed of a dark charcoal stained/flecked deposit which ranged between four to six centimeters in depth, and below that were 11 angular pieces of fire-cracked sandstone, all of which were charcoal stained and thermally oxidized. The next layer below contained fire-cracked-rock with a dense lens of charcoal/ash about five to ten millimeters thick. All this rested atop a large sandstone slab as its bottom (Figure 9.2). A standard radiocarbon analysis was performed by Beta Analytic Inc. (Beta-303003) and returned a conventional radiocarbon age of 2980 ±50 BP (ibid.:5.8.9).

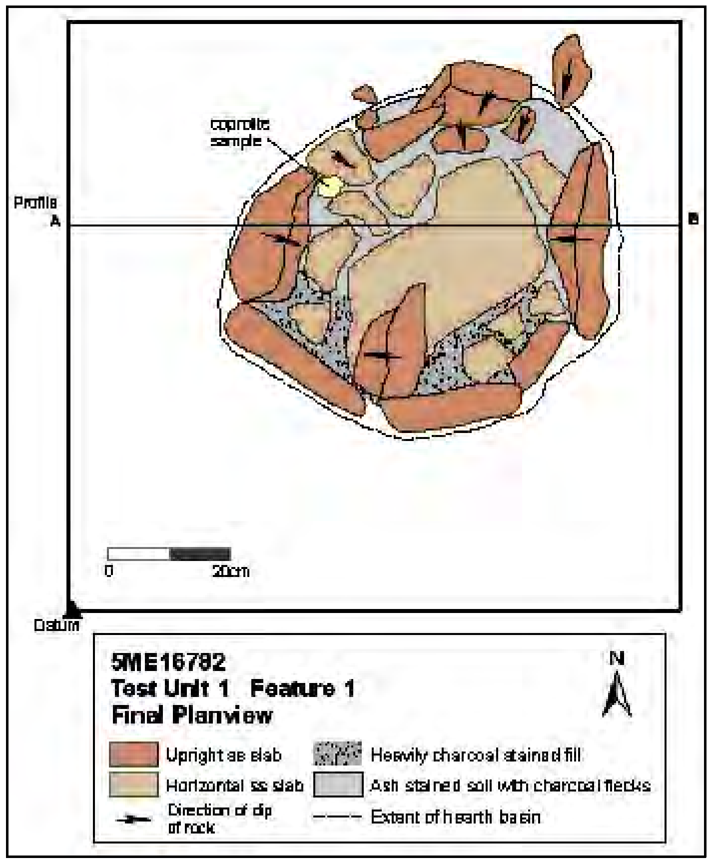


Figure 9.2. Slab-lined feature excavated at 5ME16782 that exhibits use as an oven rather than as utilization for storage (illustration from Conner et al. 2014:5.8.7).

Rock-filled is another type of thermal feature that was common in the recorded sites. The name is somewhat misleading in that the rocks are generally placed on top of the original fire. It has been speculated that the rocks were being heated with the expectation they would retain heat for some extended period and warm a structure for the night. However, these fire features with their collection of rocks were also likely used to cook meat by simply laying the cuts on top of the rocks.

A good example of this feature type was excavated as a isolate at 5MN10937 (Conner and Davenport 2017). It consisted of a rock-filled and ash/charcoal concentration measuring approximately 80cm in diameter. In the initial inspection, the surface rocks were fire-reddened and semi-subterranean; and, there appeared to be good potential for subsurface depth of cultural fill. Lichen was present on the surface rocks, as well. In association with the feature was a mano and one chert flake. The potential for subsurface cultural materials and/or charcoal appeared to be present within the rock-filled feature (Plates 9.13 and 9.14). The 1m grid was laid over the suspected hearth was divided in half for excavation. It was the excavated and exposed a feature with a subrectangular base (Plate 9.15). Ash and small amounts of charcoal were found within a random distribution of FCR. A charcoal sample was collected and sent to ICA for AMS processing, and it yielded a date of 2120±30 BP (Cal 210 - 50 BC at 91.2%). The feature did not contain any additional cultural manifestations.

Plate 9.13. Surface of thermal feature area, 5MN10937. Scale is in 5cm increments.

Plate 9.14. Surface cleared area of thermal feature showing fire-cracked rock (FCR). Grid set at 1m.

Plate 9.15. Profile of thermal feature at 5MN10937showing ashy soil with small amounts of charcoal mixed with fire-cracked rock.

This type of feature – oval shaped, rock-filled, measuring 70 to 80cm in diameter, with a subrectangular, relatively flat-bottom, and average depth of 8cm – is common in the region. Four were excavated at site 5GN810 (Conner et al. 1994:17-19). The carbon samples collected from Features 2 and 4 (Beta-58006, Beta-58007) dated ca. AD 242-430 and AD 427-601, respectively. Feature 3 was undated, but Feature 5 (Figure 9.3) yielded a date of AD 534-653 (Beta-65286). Interestingly, grass seeds were observed in the feature fill of #5, and processing of the pollen sample from this hearth yielded starch granules from grasses, which indicates grass seeds were probably being processed there. As well, the nearest neighbor to #5 was an activity area containing a cluster are four scraping tools, two cutting tools, one scraping/cutting tool, one core and about 30 flakes – representing a game processing area. No other feature types were in proximity to #5, so meat cooking probably occurred with it and may have simply been laid on the rocks.

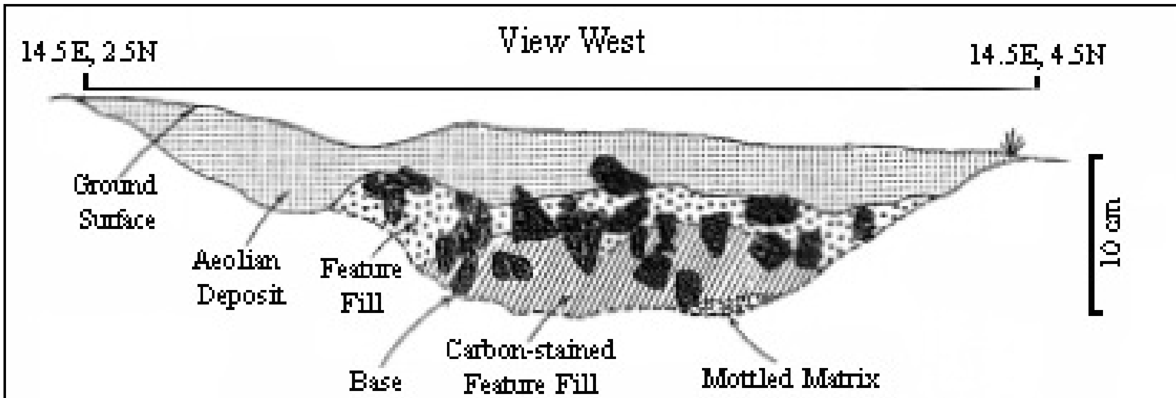


Figure 9.3. Example of rock-filled feature common in the region: Feature 5, 5GN810, oval shaped, 70 to 80cm in diameter with a subrectangular, relatively flat-bottom, and average depth of 8cm.

Also common are small, often irregular, surface ash/charcoal stains that may or may not have small fire-altered rocks in association. These are often difficult to discern on the landscape, but as with most archaeological finds – association is important. In identifying these features, flakes or burnt bone are excellent indicators in classification as a cultural feature. Many exhibit surface flecks or even small chunks of charcoal (which provide excellent AMS results). Such features are most often found with wickiup associations, Numic diagnostics, and often with micro-flakes in the fill or other artifacts nearby. An excellent example of this type of feature was recorded at 5MN576 Locus B (B-1) that exhibited surface charcoal, small burnt bone fragments, and small flakes of mixed colors including red, black, green and orange (Plate 9.16). An AMS date recovered from this feature dated 220 ±30 BP (Cal 1640 - 1690 AD, 36.7%; Cal 1730 - 1810 AD, 44.7%; Cal 1930 - ?AD, 14.0%; [ICA ID #19C/0601]), which places the feature's use during the late Ute occupation ca. AD 1640-1810.

Also often found on Numic sites are large (3-4m diameter) surface ash-stains with small pieces of FCR. The related activity of these features is yet to be determined, but they often occur in conjunction with sites in the higher elevation pinyon/juniper forest and may be related to processing pinyon nuts.

Plate 9.16. Feature B-1, 5MN576, exhibits fire-cracked rock, surface charcoal, small burnt bone fragments, and small flakes of mixed colors. An AMS date from the surface recovered carbon places this feature's use during the late Ute occupation ca. AD 1640-1810.

9.5 Assessment of Previous Inventories

This study was by design conducted as a reconnaissance utilizing the Principal Investigator's experience to examine cultural resources along the eastern Uncompahgre Plateau. The selection of the Spring Creek Canyon and its surrounding mesas was based on known historic trails in that area, in particular because of the Dominguez and Escalante Expedition's route in 1776. As part of any inventory or study, a files search of known resources is reviewed to create a baseline of expected finds and to aid in the interpretation of the new recordings.

The files search indicated that large areas on the mesa tops along the rim of Spring Creek had been previously inventoried and that the bottom of Spring Creek had not. Those on the top were divided into ones that had been completed in the mid-1970s - 1980s to ones conducted in the early 2000's. The earlier inventories proved to be the most problematic, as might be expected because of the general lack of understanding by the archeologists of the types of sites in the region. As the OAHP and BLM have come to understand the early inventories are flawed by the lack of this understanding, and new surveys are required for areas studied prior to twenty years ago. It was evident that the work completed in 2003 by archaeologists experienced in the region was more complete and the site assessments and descriptions displayed an acceptable level of competency.

In fact, the area covered in the early period by what is characterized as Class III inventories with transects spacing of about 30 meters has only a few reported sites. The density of resources in the lower elevations cannot be anticipated using that data, nor can recordings from that time be considered accurate assessments of the types of resources present. Transect inventories of that time were based on a "flat earth" concept where such were walked in selected areas along compass readings without concern for the topography, the result of which can provide only a sampling of an area. Since site discovery is the goal of inventories, their basis should be an understanding of the distribution of sites in the local geographical setting and the focus of the survey design.

Spring Creek canyon bottom presents a different management problem in that there has been considerable recreation trail development, but no sites were previously recorded there. Based on this reconnaissance survey, many sites occur within the canyon and several have been crossed by the new trails. A mitigation plan should be developed to address the impact to those sites, and a Class III inventory of the canyon bottom should be undertaken.

9.6 Summary of Archaeological Findings

As expected, cultural resources were newly recorded. Their recording has added new baseline data in the identification of site types in relation to prehistoric settlement/subsistence patterns of peoples living along the eastern slope of the Uncompahgre Plateau.

The files searches revealed that 41 cultural resources (20 sites, 21 isolates) and 8 previous inventories are located within or overlap the project area. Five previously recorded resources (5MN576, 5MN6651, 5MN6652, 5MN6839 and 5MN7419) were revisited and reevaluated. Twenty-two prehistoric sites (5MN10981 through 5MN10998, 5MN11009, 5MN11010, 5MN11306, and 5OR2173), one trail 5MN10999/5OR2174, and nine prehistoric isolates (5MN11000 through 5MN11008) were newly recorded. Thirteen of the sites of the sites (5MN576, 5MN6652, 5MN7419, 5MN10982-5MN10985, 5MN10988, 5MN10992, 5MN10994, 5MN10999/5OR2174, 5MN11009 and 5MN11010) were field evaluated as eligible for listing on the National Register of Historic Places, and should be protected and preserved. The remainder of sites and all the isolated finds were evaluated as not eligible, and no further work is recommended.

Seventeen radiocarbon samples were secured and dated from thirteen sites within and near the study area. This was done in an effort to further define the temporal distribution of the sites in the region. Sites exhibiting single components (or few components), and preferably containing diagnostic projectile points, were selected. Dates ranged from the Middle Archaic through Historic Numic occupations, with three distinct clusters occur during the early Formative (or Late Archaic) ca. 200 BC to AD 300; the Middle Formative, ca. AD 600-1000; and, the Early Numic period, ca. AD 1250-1640.

This study has presented information that can be used to better identify cultural components of single or multi-component open camp sites. Probably one of the most important understandings derived from this study is that prehistoric camps are not evenly distributed across the landscape and that their distribution is patterned in relation to small drainages. These camps can best be identified through “non-linear” inspections of the terrain, with a focus on topographic orientation.

Interpreting the pattern of settlement/subsistence of a particular group is dependant on the accurate documentation of artifact assemblages and radiocarbon dating. This project has demonstrated that radiocarbon (AMS) samples can be obtained from surface exposures and produce reliable dates from small pieces of carbon. The turn-around times and the costs for dating such samples have been greatly reduced. Considering the limited impact to sites and the considerable research value in obtaining and processing the carbon, the preservation of this data should be paramount in the research designs of future studies. Radiocarbon dating of the camps (and not comparative diagnostic analysis) is the only way to accurately determine the distribution of various cultural groups’ activities and thus glean some idea of their purpose.

Finally, west central Colorado is part of a cold-desert region. In spite of its general arid character, it has a varied range of environmental characteristics that have made it attractive to Native Americans. The diverse topography provides most of those qualities. The Uncompahgre Valley and Plateau, which trend generally north-south, exhibit extreme variation in the climate attributes of rainfall and temperature. These variations occur in an elevation gain that can be relatively easily accessed. Floral, faunal and hydrological resources are obtainable within short distances from base camps either as a day activity or in resource procurement camps. Depending on the chosen mobility level of a particular group – based on stored or easily obtainable resources – the gentle east sloping mesas of the Uncompahgre Plateau were attractive to prehistoric and historic occupants.

Permanent settlements created by the historic pioneers were initially and primarily valley settlements that took advantage of the numerous springs. Archaeological records of prehistoric sites in the region are primarily of small camps (or larger areas occupied as small camps on numerous occasions) that occur on the mesas and at higher elevations. Most of these have low tool counts and represent resource-procurement, limited-activity localities. Some of the rockshelters at lower elevations exhibit multiple occupations that have base camp characteristics, and were likely occupied during the winter months. Those procurement-defined activity camps and base camp rockshelters have been the accepted paradigm for explaining the occupations that took place on the Uncompahgre. With new finds in west central Colorado, there is evidence that semi-sedentary or sedentary groups occupied the region – establishing base camps near springs, manipulating wild plants such a chenopods and ricegrass for part of their food base, storing food for the winter, and exploiting a catchment (resource procurement) area that likely extended to the top of an adjacent mountain. These considerations will produce a paradigm shift in our understandings of the prehistoric occupations of the Uncompahgre Plateau.

10.0 Public Outreach

Knowledge is based on the accumulation of facts. Education is based on the interpretation of that information, and its distribution. The accumulation of factual information and its distribution depends on a particular culture's ability to store, interpret and explain it. This is how advanced cultures have developed over human existence. Limitations are found in a culture's abilities to accumulate facts, accurately interpret information based on limited data sets, and explain interpretations to a broad base of population that has used previous data sets to create restrictive belief systems.

The participants of this project have endeavored to accumulate, interpret and distribute accurate information concerning the past history of human occupation on the Uncompahgre Plateau. They have done so by assembling and using baseline data created by legacy research projects, cultural resource inventories, historic documents, and oral histories. New data was infused by additional inventory work, accumulation of new temporal data from radiocarbon sampling of local prehistoric sites, and synthetic analyses. That information was assembled and discussed in various parts of this report and made useful through creation of electronic database structures. Future research will be based on the assembled data. Present and future public distribution of this information and its implications will be part of established DARG processes and procedures that employ web-based internet sites, speeches to public and educational gatherings, and other types of presentations including museum displays.

Site specific records will be stored by the Office of Archaeology and Historic Preservation and made accessible through the COMPASS website. In addition, a database has been setup from State, BLM and Forest Service records for the Uncompahgre Plateau that can be used to better manage those resources as part of a cultural landscape. Data derived from sampling thirteen sites (17 dates) has added to the understanding of hunter-gather uses of the east side of the Uncompahgre and been added to DARG's on-line radiocarbon database. Documents prepared and accumulated by DARG regarding the prehistory, history, ethnohistory and ethnobotany of the region will be prepared for distribution to schools and museums.

As part of DARG's focus on Native American trails and documentation of ethnohistoric records, a search of General Land Office maps and other historic maps was undertaken for this project to identify and digitize the highly and not so well known trails of the Uncompahgre Plateau. From this mapping effort a GIS database has been compiled for Federal lands east of Unaweep Canyon and the Dolores River, north of the San Miguel, west of the Uncompahgre River, and south of the Gunnison River. This information will be shared with BLM and USFS cultural departments, the Ute Mountain Ute Tribal Historic Preservation Office, and History Colorado for the purpose of their preservation through identification in future management planning and inventory projects.

Use of the digitized trails data for files searches, or by the State and Federal agencies in consultation with Ute Tribal members, may help in their on-ground identification. Potentially, this data will be used in the assignation of *Nuche* place names to localities and bring forth ecological knowledge buried in the Ute language. As time goes by, the generational loss of this knowledge of sacred places tied to landscape ecology increases, and use of the trails data combined with the archaeological site record database for the Uncompahgre may aid in its preservation.

11.0 REFERENCES

Adams, Jenny L.

2002 *Ground Stone Analysis, A Technical Approach*, University of Utah Press, Salt Lake City.

Adams, Karen R.

1994 A Regional Synthesis of Zea mays in the Prehistoric American Southwest. In *Corn and Culture in the Prehistoric World*. Edited by Sissel Johannessen and Christine A. Historf, pp273-302. Westview Press, Boulder.

Adovasio, J. M., J. Donahue and R.Stuckenrath

1990 The Meadowcroft Rockshelter Radiocarbon Chronology 1975-1990. *American Antiquity* 55:348-354.

Agenbroad, Larry D.

1991 Summary and Conclusions. In *Quaternary Studies of Canyonlands National Park and Glen Canyon National Recreation Area*, by Larry D. Agenbroad, pp. 88-92. rev. ed. Department of Geology, Northern Arizona University, Flagstaff. National Park Service, Rocky Mountain Regional Office, Denver.

Agenbroad, Larry D. and Jim I. Mead

1987 Late Pleistocene Alluvium and Megafauna Dung Deposits of the Central Colorado Plateau. In *Geologic Diversity of Arizona and its Margins: Excursions to Choice Areas*, pp. 66-95. Arizona Bureau of Geology and Mineral Technology Special Paper No. 5. Field trip Guidebook, 100th Annual Meeting of the Geological Society of America, Phoenix.

Aikens, C. Melvin and Younger T. Witherspoon

1986 Great Basin Numic Prehistory: Linguistics, Archeology and Environment. In *Anthropology of the Desert West: Essays in Honor of Jesse D. Jennings,* edited by Carol J. Condie and Don D.Fowler, pp. 7-20. University of Utah Anthropological Papers No. 110. Salt Lake City.

Alley, W.M.

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

Altrurian

1898 "Will Be Built: The Paradox Road Proposition Goes Through." Aug 8, page 1. Electronic document. www.coloradohistoricnewspapers.org accessed Feb. 3, 2020.

Annand, Richard E.

1967 A description and analysis of surface collected pottery from the Collbran region, Colorado. *Southwestern Lore* 33(2):47-60.

Ashmore, Wendy and A. Bernard Knapp

1999 *Archaeologies of Landscape.* Blackwell Publishers, Lt.

Athearn, Robert G.
1976 The Coloradans. University. University of New Mexican Press, Albuquerque.

Baker, Steven G.
1990 An archaeological inventory of Chandler and Associates' Southwest Rangely Federal 3-8 Access Road, Rio Blanco County, Colorado. Ms. on file, Bureau of Land Management, White River Area Office, Meeker.

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

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.

Baldi, Maria
1976 US Department of the Interior Bureau of Land Management Antiquities Site Inventory Form. Ms on file at Office of Archaeology and Historic Preservation, Denver.

Barlow, K. Rene
2002 Predicting maize agriculture among the Fremont: An economic comparison of farming and foraging in the American Southwest. *American Antiquity* 67(1):65-88.

Behrensmeyer, Anna K.
1978 Taphonomic and ecologic information from bone weathering. *Paleobiology* 4(2), pp. 150-162

Benson, Larry V. and Michael S. Berry
2009 Climate Change and Cultural Response in the Prehistoric American Southwest. *Kiva* 75(1): 87-118. Alta Mira Press.

Benson, R.E., and Green, A.W.
1987 Colorado’s Timber Resources. Resource Bulletin INT-48. U.S. Department of Agriculture, Forest Service. Ogden, UT.

Benz, B. F. and A. Long
2000 Prehistoric maize development in the Tehuacan Valley. *Current Anthropology* 41(3):459-465.

Berry, Claudia F.
2011 Analysis of the Radiocarbon Record for the RMPPA. In *Class I Cultural Resource Overview for the Grand Junction Field Office of the Bureau of Land Management,* Michael S. Berry ed. Grand River Institute. Ms on file at BLM Grand Junction.

Berry, Claudia F. and Michael S. Berry

1986 Chronological and Conceptual Models of the Southwest Archaic. In *Anthropology of the Desert West: Essays in Honor of Jesse D. Jennings*, edited by Carol J. Condie and Don D. Fowler, pp. 253-327. University of Utah Anthropological Papers, No. 110. Salt Lake City.

Berry, Michael

2019 The Uncompahgre Plateau Project: Projectile Point Typology and Chronometry. State Historical Fund Project #2018-02-035. Ms on file, History Colorado Office of Archaeology and Historic Preservation.

Berry, Michael S.

1982 *Time, Space, and Transition in Anasazi History*. University of Utah Press, Salt Lake.

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.

2010 Tree-Ring Dates and Demographic Change in the Southern Colorado Plateau and Rio Grande Regions. In *Leaving Mesa Verde: Peril and Change in the Thirteenth-Century Southwest,* Timothy A. Kohler, Mark D. Varian and Aaron M. Wright (eds.). Amerind Studies in Archaeology Vol. 5. The University of Arizona Press. Tucson

Berry, Michael, Carl Conner, James Miller, R. Ott, Courtney Groff, C. McIntyre, and M. 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.

Bettinger, Robert L. and Martin A. Baumhoff

1982 The Numic spread: Great Basin Cultures in competition. *American Antiquity* 47(3):485-503

Bevin, 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.

Binford, Lewis R.

1985 In pursuit of the future. Plenary address, 50th annual meeting of the Society of American Archaeology, Denver, 3 May 1985.

1982 The Archaeology of Place. *Journal of Anthropological Archaeology* 1:5-31.

2001 *Constructing Frames of Reference: An Analytical Method for Archaeological Theory Building Using Ethnographic and Environmental Data Sets*. University of California Press, Berkeley.

Black, Kevin D.
1991 Archaic Continuity in the Colorado Rockies: The Mountain Tradition. *Plains Anthropologist* 36(133):1-29.

Borland, Lois
1952 Ho for the reservation; settlement of the Western Slope. *Colorado Magazine* 29(1):56-75.

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.

Bryan, Kirk and Joseph H. Toulouse
1943 The San Jose Non-Ceramic Culture and Its Relation to a Puebloan Culture in New Mexico. American Antiquity 8:269-280.

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

Bureau of Land Management.
1978 *Final Environmental Impact Statement, Proposed Domestic Livestock Grazing Program for the Uncompahgre Basin Resource Area.* Department of the Interior. Ms on file at the Bureau of Land Management, Montrose District, Montrose.

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.

Bury, Susan and John Bury, ed.
1991 This is What I Remember: By and About the People of the White River Country, Vol. III. Meeker: Rio Blanco Historical Society, Inc., Meeker.

Campana, Stefano and Riccardo Francovich
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.

Cassells, E. Steve
2003 *Tracing the Past: Archaeology Along the Rocky Mountain Expansion Loop Pipeline*. Alpine Archaeological Consultants, Inc., Montrose.

Charles, Mona C. and Sally J. Cole
2005 Basketmaker II Chronology and Material Culture Database. http://anthro.fortlewis.edu/archaeology/

2006 Chronology and Cultural Variation in Basketmaker II. *Kiva: The Journal of Southwestern Archaeology and History* 72(2):167 - 216. Arizona Archaeological and Historical Society.

Chavez, Fray Angelico (translator)
1976 *The Dominguez-Escalante Journal*. Ted J. Warner, ed. Second Printing 1977. Brigham Young University, Salt Lake City.

Chen and Associates, Inc.
1975 Subsoil and geologic study for site stability, proposed new community, Battlement Mesa, Garfield County, Colorado. Ms on file, Battlement Mesa, Inc., Battlement Mesa.

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

Cole, Sally J.
1990 *Legacy on Stone, Rock Art of the Colorado Plateau and Four Corners Region*. Johnson Books, Boulder.

Colorado Mining Gazette
1886 "Colorado Waifs." April 17, page 1. Electronic document. www.coloradohistoricnewspapers.org accessed February 3, 2020.

Conner, Carl, Masha Conner, Barbara Davenport, Nicole Inman
2016 Documentation of Selected Ephemeral Wooden Features in Colorado National Monument, Mesa County, Colorado. Completed for National Park Service, Colorado National Monument and the Colorado National Monument Association. Ms on file, Colorado National Monument.

Conner, Carl E. and Barbara Davenport
2000 Report of the Evaluative Test Excavations and Analysis of Flotation Sample at Site 5RB451 Rio Blanco County, Colorado. Grand River Institute. Ms on file, BLM White River Field Office, Meeker.

Conner, Carl E. and Barbara J. Davenport
2017 Class III (Intensive) Cultural Resource Inventory of the Dry Mesa Vegetation Management Project in Mesa and Montrose Counties, Colorado. Ms on file, BLM Uncompahgre Field Office.

Conner, Carl E., Nicole Darnell [Inman], Brian O'Neil, Richard Ott, Curtis Martin, Dakota Kramer, J. C. Miller, B. Davenport, Sally Cole, Jim Keyser, C. F. Berry, and Michael S. Berry

2011 *Class I Cultural Resource Overview for the Grand Junction Field Office of the Bureau of Land Management,* edited by Michael S. Berry. Grand River Institute. Ms on file at BLM Grand Junction Field Office.

Conner, Carl E., Rebecca L. Hutchins and Brian O'Neil

1994 Report on the Evaluative Testing of Sites 5GN810 and 5GN2140. Part of the U.S. Department of Energy's Proposed Remedial Actions at the Gunnison Uranium Mill Tailings Site in Gunnison County, Colorado, for MK-Ferguson Company. Ms on file, BLM Montrose District Office.

Conner, Carl C. and Danni L. Langdon

1987 Battlement Mesa Area Cultural Resources Study. Grand River Institute, Grand Junction. Ms on file, BLM Grand Junction Field Office.

Conner, Carl E., Curtis Martin, Holly Shelton, Courtney Groff and Barbara Davenport

2014b Test Excavations at Archaeological Site 5GF1185: A Multi-component Prehistoric Habitation for WPX Energy Rocky Mountain, LLC. Ms on file, BLM Colorado River Valley Field Office, Silt.

Conner, Carl E., James Miller, Michael S. Berry, Curtis Martin, Brian O'Neil, Barbara Davenport, Dakota Kramer, Michael Piontkowski, Courtney Groff, Hannah Mills, Cheryl Harrison, Nicole Darnell, and Natalie Higginson

2014a Archaeological Monitoring and Data Retrieval for the Collbran Pipeline Project in Garfield and Mesa Counties, Colorado. Grand River Institute for the Bureau of Land Management. Ms on file, BLM Grand Junction Field Office.

Conner, Carl E., Dakota Kramer, Barbara Davenport, Hannah Mills, Natalie Higginson, Nicole Darnell, and Courtney Groff

2013 Class III Cultural Resources Inventory Report for the Piceance Basin Phased Project: Phase I - Ryan Gulch and Central Facility, Phase II - East PRL, Phase III - Pipelines and Reservoirs in Rio Blanco County, Colorado, for Shell Exploration and Production Company.

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.

Copeland, James M. And Richard E. Fike

1988 Fluted Projectile Points in Utah. *Utah Archaeology*, Vol. 1, No. 1, pp 5-28.

Cordell, Linda

1997 *Archaeology of the Southwest. 2nd Edition*. Academic Press.

Crane, Cathy J.

1977 A Comparison of Archaeological Sites on the Uncompahgre Plateau and Adjacent Area. Unpublished MA Thesis, Eastern New Mexico University, Portales.

Creasman, Steven D.
1981a Archaeological Investigations in the Canyon Pintado Historic District. Rio Blanco County, Colorado. MA thesis (anthropology), Colorado State University, Fort Collins.

Creasman, Steven D.
1981b Archaeological Investigations in the Canyon Pintado Historic District, Rio Blanco County, Colorado: Phase I-Inventory and Test Excavations. Reports of the Laboratory of Public Archaeology No. 34. Laboratory of Public Archaeology, Colorado State University, Fort Collins.

Creasman, Steven D., T. Hoefer, III, J.C. Newberry, T. R. Reust. D. Kullen, and H. R. Davidson
1983 *Archaeological Monitor and Salvage Excavations along the Trailblazer Pipeline, Southern Wyoming.* Cultural Resource Management Report No. 10. Archaeological Services of Western Wyoming College, Rock Springs.

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

Crum, Sally and Scott Keene
2009 The Uncompahgre Mesas Forest Restoration and Demonstration Project Cultural Resource Assessment. Report R2009020406065, on file at the USFS Supervisor's Office, Delta, CO.

Daily Journal
1922 "Montrose Man Dead at Age of Ninety-two." July 25. Electronic document. www.coloradohistoricnewspapers.org Accessed August 1, 2019.

Davis, Jonathan O.
1989 Archaeological Paleoenvironments of the Southwestern Division, U.S. Army Corps of Engineers. Arkansas Archaeological Survey Technical Paper No. 8, Fayetteville.

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

Dick, Herbert W.
1965 Bat Cave. *School of American Research, Monograph 27*, Sante Fe.

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

Dohm, Karen
1999 Test excavations in Mill Creek 1997. Report to the Bureau of Land Management, Utah state Office, Salt Lake City.

Doleman, William
1996 Tennessee Archeology Net Bibliography Page. Middle Tennessee State University. Retrieved 2010-03-22.

Duncan, Clifford
2003 The Northern Utes. In *A History of Utah's American Indians*, edited by Forrest S. Cuch, pp. 167-224. Utah State Division of Indian Affairs, Utah State Division of History, Salt Lake City.

Eakin, D. H.
1987 Final Report of Salvage Investigation at the Split Rock Ranch Site (48FR1484). Highway Project SCPF-020-2(19), Fremont County, Wyoming. Prepared for the Wyoming Highway Department. Wyoming Recreation Commission, Laramie.

Earle, Timothy
2009 Routes through the landscape: a comparative approach. In *Landscapes of Movement*, edited by James E. Snead, Clark L. Erickson, and J. Andrew Darling, pp. 254-273. University of Pennsylvania Museum of Archaeology and Anthropology, University of Pennsylvania Press, Philadelphia.

Ebert, James I.
1985 Modeling human systems and predicting the archaeological record: the unavoidable relationship between theory and method. Paper presented at the 50th annual meeting of the Society for American Archaeology, Denver, 3 May 1985.

1992 *Distributional Archaeology*. Reprinted 2001. University of Utah Press, Salt Lake City.

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.

Eckles, E. B.
1997 Minerals of Colorado. Fulcrum Publishing.

Euler, Robert C, George J. Gumerman, Thor N.V. Karlstrom, Jeffery S. Dean, and R.H. Hevly
1979 The Colorado Plateaus: Cultural dynamics and paleoenvironment. *Science* 205(4411):1089-1101.

Euler R. Thomas and Mark A. Stiger
1981 1978 test excavations at five archaeological sites in Curecanti National Recreation Area, Intermountain Colorado. Ms. on file, National Park Service - Midwest Archaeological Center, Lincoln.

Evans, Raymond 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.

Fenneman, Nevin M.

1931 Physiography of the Western United States. New York.

Fike, Rich, and Patty Walker-Buchanan

1994 Site form for 5ME7378. Ms on file, Colorado Historical Society, Office of Archaeology and Historic Preservation, Denver.

Fowler, Catherine S.

2000 Great Basin Affiliations of the Ute Peoples of Colorado. In *Ute Indian Arts and Culture from Prehistory to the New Millennium*, William Wroth, ed., pp. 89-106. Taylor Museum of the Colorado Springs Fine Arts Center, Colorado Springs.

Fowler, Don D. and Catherine S. Fowler, editors

1971 Anthropology of the Numa: John Wesley Powell's Manuscripts on the Numic Peoples of Western North America, 1868-1880. *Smithsonian Contributions to Anthropology, No. 14.* Smithsonian Institution Press, Washington, D.C.

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.

1978 *Prehistoric Hunters of the High Plains* (1st Ed.). Academic Press, San Diego.

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

1992 The Foothills-Mountains and the Open Plains: The Dichotomy in Paleoindian Subsistence Strategies between Two Ecosysterms. In *Ice Age Hunters of the Rockies*, edited by Dennis J. Stanford and Jane S. Day, pp. 323-342. Denver Museum of Natural History and University Press of Colorado, Niwot, Colorado.

Frison, George C. and Bruce A. Bradley

1980 Folsom Tools and Technology at the Hanson Site, Wyoming. University of New Mexico Press, Albuquerque.

Frison, George C., and Dennis J. Stanford

1982 *The Agate Basin Site: A Record of Paleoindian Occupation of the Northwestern High Plains*. Academic, New York.

Gannett, Henry
1906 *A Gazetteer of Colorado.* Department of Interior, United State Geological Survey. Government Printing Office, Washington D.C.

Gardner, Dudley
2017 Excavations at Eagle Rock Shelter. Dudley Gardner, Personal Communication.

Gardner, A. Dudley and Glade Hadden
2011 Appendix I Proprietary Information, Eagle Rock (aka Lawhead Gulch), Site 5DT813, Colorado. Ms on file, BLM Uncompahgre Field Office, Montrose.

Gleichman, Peter J. And Dock M. Teegarden
2005 Cartridges, Caps and Flints: A primer for Archaeologists. *Southwestern Lore* 71(3).

Gilman, P. A.
1987 Architecture as Artifact: Pit Structures and Pueblos in the American Southwest. *American Antiquity* 52(3): 538-564.

Gilmore, Kevin P.
2005 National Register of Historic Places Registration Form for the Franktown Cave Site (5DA272). Ms on file, Office of Archaeology and Historic Preservation, Denver.

Gilmore, Kevin P., and Sean Larmore
2005 Archaeology of the Eureka Ridge Site (5TL3296), Teller County, Colorado. Submitted by RMC Consultants to the USDA Forest Service, Pike National Forest, Pueblo. On file at the Office of Archaeology and Historic Preservation, Denver and USDA Forest Service, Pueblo.

2008 Migration Models and the Athapaskan Diaspora as Viewed from the Colorado High Country, presented in the Symposium "The Earliest Athapaskans in the Southern Southwest," at the Society for American Archaeology 73rd Annual Meeting, Vancouver, British Columbia, Canada.

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.

Gleichman, Peter J. and Dock M. Teegarden
2005 Cartridges, Caps, and Flints: A Primer for Archaeologists. *Southwestern Lore* 71(3): 3-27.

Goodman, Charles
1886? Photograph of the Cantonment on the Uncompahgre. Western History and Genealogy Dept., [Call No. Z-7190]. Denver Public Library, 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.

2003 An Ethnographic Conversation held with Sam Burns, tape-recorded at Fort Lewis College, October 24, 2003, Durango, Colorado. Quoted in *The Ute relationships to the lands of West Central Colorado: An ethnographic overview*, prepared for the U.S. Forest Service by Sam Burns, Office of Community Services, Fort Lewis College, Durango. Electronic document, http://swcenter.fortlewis.edu/inventory/UteLands.htm, accessed January 6, 2009

Grady, James
1980 Environmental factors in archaeological site locations. In: *Bureau of Land Management Cultural Resources Series No. 8.* Colorado State Office, Denver.

Gremillion, K.J.
1996 Diffusion and adoption of crops in evolutionary perspective. *Journal of Anthropological Archaeology* 15:183-204.

Greubel, Rand A., Jaclyn Mullen, Matthew J. Landt, Jonathon C. Horn, and Alan D. Reed
2010 Class I Cultural Resource Overview of the Bureau of Land Management's Uncompahgre Field Office, Western Colorado. Prepared by Alpine Archaeological Consultants, Inc. Montrose, Colorado. Ms on file at the Bureau of Land Management, Uncompahgre Field Office.

Groff, Courtney
2016 Lithic materials of the Taylor Site. In A Reexamination of the Uncompahgre Complex: A Reanalysis of the Taylor Site (5ME97), Mesa County, Colorado, pp. 20-21. Michael Piontkowski, Principal Investigator. State Historical Fund Project #2014-AS-008. Ms on file, Office of Archaeology and Historic Preservation.

Gunnerson, James H.
1969 The Fremont Culture: A Study in Culture Dynamics on the Northern Anasazi Frontier. Papers in the Peabody Museum of American Archaeology and Ethnology, Vol. 52(2). Cambridge.

Harrell, Lynn L. and Scott T. McKern
1986 The Maxon Ranch Site: Archaic and Late Prehistoric Habitation in Southwestern Wyoming. Cultural Resource Management Report No. 18. Western Wyoming College, Rock Springs.

Harsh, Lyman Beecher
1934 "Facts Concerning the Life of Lyman Beecher Harsh, Whose Father, Alexander Harsh, Came Into Colorado in 1859." *Civil Works Administration Pioneer Interviews: Montrose County* 357(98):237-238. Electronic document, www.historycolorado.org/oral-histories, accessed July 31, 2019.

Haskell, Charles W.
1886 *History and Description of Mesa County, Colorado.* Mesa County Democrat, Grand Junction.

Hauck, Richard F.
1993 Archaeological excavations (1988-1992) in the Douglas Creek-Texas Mountain locality of Rio Blanco, CO. AERC, Bountiful, Utah. Ms on file, BLM White River Field Office.

Haury, Emil W.
1957 An Alluvial Site on the San Carlos Indian Reservation, Arizona. *American Antiquity* 23:2-27.

Hayden F.V.
1881a "SW Colorado and Parts of New Mexico, Arizona, and Utah." *US Geological and Geographical Survey of the Territories.* Thematic map, 1:253,440. Hayden in Charge. G. B. Chittenden and A.D. Wilson, Assistants. Surveyed in 1874 & '75. Sheet IX.

1881b "Western Colorado and Part of Utah." *US Geological and Geographical Survey of the Territories.* Thematic map, 1:253,440. Hayden in Charge. G. B. Chittenden and A.D. Wilson, Topographical Assistants. Surveyed in 1874-'75, '76. Sheet VIII.

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 N. 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.

Hillers, John K.
1873 Photograph I.D. BAE GN 01535 06690500 from the National Anthropological Archives, Smithsonian Museum Support Center, Suitland, Maryland. Electronic reproduction, http://sirismm.si.edu/naa/baegn/gn_01535.jpg, accessed August 2009.

Holmer, Richard N.
1978 A Mathematical Typology for Archaic Projectile Points of the Eastern Great Basin. Ph.D. Dissertation, University of Utah. University Microfilms, Ann Arbor.

1986 Common Projectile Points of the Intermountain West. In Anthropology of the Desert West, ed. 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 from the Fremont Area. In Fremont Perspectives, ed. By David B. Madsen, pp.55-68. Utah State Historical Society Antiquities Section, Selected Papers No. 16. Salt Lake City.

Hopkins, Jerry N.
2008 A Reconstruction Attempt of Tulare Lake's Paleoindian Tool Kit. *In Contributions to Tulare Lake Archaeology IV: Ice-age Stone Tools From the San Joaquin Valley*. Jerry N. Hopkins and Alan P. Garfinkel, Editors. The Tulare Lake Archaeological Research Group. San Diego.

Horn, Jonathan C., Alan D. Reed and Stan A. McDonald
1987 Archaeological Investigations at the Indian Creek Site, 5ME1373: A stratified Archaic Site in Mesa County, Colorado. Nickens and Associates. Ms. on file at the Bureau of Land Management, Grand Junction Field Office, Grand Junction.

Hovezak, Timothy D.
2003 Archaeological Testing at Site 42GR2929, Grand County, Utah. Report prepared for the Bureau of Land Management, Salt Lake City.

Hovezak, Timothy D., and Leslie M. Sesler
1999 The Mill Creek Archaeological Project, 1998 Testing Program. Report prepared for the Bureau of Land Management, Salt Lake City.

Howard, Julie, and Joel Janetski
1992 Human Scalps from Eastern Utah. *Utah Archaeology* 5(1):125-132.

Huber, Edgar K.
2005 Early Maize at the Old Corn Site (LA 137258). In *Fence Lake Project: Archaeological Data Recovery in the New Mexico Transportation Corridor and First Five-Year Permit Area, Fence Lake Coal Mine Project, Catron County, New Mexico, Volume 4: Synthetic Studies*, edited by Edgar K. Huber and Carla R. Van West, pp. 36.1-36.14. Prepared for the Salt River Project Agricultural Improvement and Drainage District, Tempe, Arizona. SRI Technical Series 84. Statistical Research, Tucson.

Humboldt, Alexander von
1811 *Carte du Mexique et des Pays Limitropher Situres ou Nort et E'est*. F. Schoell, Paris. Electronic document, University of Texas at Arlington Library, Accession: 00217, http://libraries.uta.edu/ccon/mapSearch.shtm, accessed April 12, 2002.

Hurst, C. T.
1940 Preliminary Work in Tabeguache Cave, 1939. *Southwestern Lore* 6(1):4-8. Colorado Archaeological Society, Denver.

1941 The Second Season in Tabeguache Cave. *Southwestern Lore* 7(1):4-18. Colorado Archaeological Society, Denver.

Hurst, C. T.
1942 Completion of Work in Tabeguache Cave. *Southwestern Lore* 8(1):7-16. Colorado Archaeological Society, Denver.

1946 The 1945 Tabaguache Expedition. *Southwestern Lore* 11 (1):7-12. Colorado Archaeological Society, Denver.

1948 Cottonwood Expedition, A Cave and A Pueblo Site. *Southwestern Lore* 14(1):4-9. Colorado Archaeological Society, Denver.

Huscher, Harold A.
1939 Influence of the Drainage Pattern of the Uncompahgre Plateau on the Movements of Primitive Peoples. *Southwestern Lore* 5 (2). Colorado Archaeological Society.

Huscher, Betty N. and Harold A. Huscher
1939 Field Notes for 1939. Ms. on file at the Department of Anthropology, Colorado Museum of Nature and Science, Denver.

1943 The Hogan Builders of Colorado. *Southwestern Lore* 9 (2):1 - 92. Colorado Archaeological Society.

Husted, W. M.
1969 Bighorn Canyon Archeology. *Publications in Salvage Archeology 12*. River Basin Surveys, Museum of Natural History, Smithsonian Institution. Washington, DC.

Husted, Wilfred M. and Robert Edgar
2002 The Archeology of Mummy Cave, Wyoming: An Introduction to Shoshonean Prehistory. National Park Service Midwest Archeological Center and Southeast Archeological Center Special Report No. 4, Technical Reports Series No. 9.

Irwin-Williams, Cynthia
1973 The Oshara Tradition: Origins of the Anasazi Culture. *Contributions in Anthropology* 5(1). Eastern New Mexico University, Portales.

Jennings, Jesse D.
1978 Prehistory of Utah and the Eastern Great Basin. *University of Anthropological Papers* No. 98. Salt Lake City.

Jett, Steven C.
1991 Split-Twig Figurines, Early Maize, and a Child Burial in East-Central Utah. *Utah Archaeology* 4(1):23-31.

Johnson, David M., Chris Adams, Charles Hawk and Skip Keith Miller
2009 Final Report on the Battle of Cieneguilla: A Jicarilla Apache Victory Over the U.S. Dragoons, March 30, 1854. Southwestern Region Report No. 20. United States Department of Agriculture, Forest Service, Southwest Region.

Jones, Bruce A.
1986 The Curecanti Archaeological Project: 1981 investigations in Curecanti National Recreation Area, Colorado. *Midwest Archaeological Center Occasional Studies in Anthropology* No. 14, Lincoln.

Jorgensen, Joseph G.
1965 The Ethnohistory and Acculturation of the Northern Ute. Ph.D. dissertation, Department of Anthropology, Indiana University. University Microfilms, Inc., Ann Arbor, Michigan.

1994 Synchronic Relations Among Environment, Language and Culture as Clues to the Numic Expansion. In *Across the West: Human Population Movement and the Expansion of the Numa*, edited by David B. Madsen and David Rhode, pp. 84-102. University of Utah Press, Salt Lake City.

Keep, John
1934a "Early Roads of the Uncompahgre Valley." *Civil Works Administration Pioneer Interviews: Montrose County* 357(101):244-245. Electronic document, www.historycolorado.org/oral-histories, accessed July 31, 2019.

1934 "Early Sawmills and Operators in the Uncompahgre National Forest of Western Colorado." *Civil Works Administration Pioneer Interviews: Montrose County* 357(102):246-247. Electronic document, www.historycolorado.org/oral-histories, accessed July 31, 2019.

1934 "Early Spanish Explorations in Western Colorado." *Civil Works Administration Pioneer Interviews: Montrose County* 357(103):248-251. Electronic document, www.historycolorado.org/oral-histories, accessed July 31, 2019.

1934 "Pioneers of the Cattle Industry of Western Colorado." *Civil Works Administration Pioneer Interviews: Montrose County* 357(104):252-256. Electronic document, www.historycolorado.org/oral-histories, accessed July 31, 2019.

Kelly, R. L.
1992 Mobility/Sedentism: Concepts, Archaeological Measure, and Effects. *Annual Review of Anthropology* 21:43-66.

1995 *The Foraging Spectrum: Diversity in Hunter-Gatherer Lifeways*. Smithsonian Institution Press, Washington, D.C.

Kennett, Douglas J., Michael A. Jochim, and C. Michael Barton
2006a Human Behavioral Ecology, Domestic Animals, and Land Use during the Transition to Agriculture in Valencia, Eastern Spain. In *Behavioral Ecology and the Transition to Agriculture*, edited by Douglas J. Kennett and Bruce Winterbalder, pp.197-216. University of California Press, Berkeley and Los Angeles.

Kent, S.
1992 Studying Variability in the Archaeological Record: An Ethnoarchaeological Model for Distinguishing mobility Patterns. *American Antiquity* 57:635-660.

Knight, Terry
2008 – Communication with Rich Ott, Grand Junction.

Kornfeld, Marcel, George C. Frison, and Mary Lou Larson
2010 Prehistoric Hunter-Gatherers of the High Plains and Rockies (3rd ed.). Left Coast, Walnut Creek.

LaPoint, Halcyon; Bryan Aivazian; and Sherry Smith
1981 Cultural resources inventory baseline report Clear Creek Property Garfield County, Colorado. Volume I. Ms. on file, Laboratory of Public Archaeology, Colorado State University, Fort Collins.

Leudtke, Barbara E.
1992 *An Archaeologists Guide to Chert and Flint*. Archaeological Research Institute of Archaeology. University of California, Los Angeles.

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

Lewis, David Rich
1994 *Neither Wolf Nor Dog*: American Indians, Environment and Agrarian Change. Oxford University Press.

Lipe, William D., Mark D. Varien, and Richard H. Wilshusen
1999 *Colorado Prehistory: A Context for the Southern Colorado River Basin*. Colorado Council of Professional Archaeologists, Denver.

Lister, Robert H. and Herbert W. Dick
1952 Archaeology of the Glade Park area: A progress report. *Southwestern Lore* 17(4):69-93.

Loosle, Byron
1988 Montezuma Canyon Projectile Points as Temporal Markers for the Mes Verde Anasazi. Unpublished MA Thesis, Department of Anthropology, Brigham Young University, Provo.

Louthan, Bruce D.
1990 Orchard Pithouse. *Canon Legacy* 7:24-27.

Madsen, David B.
1979 The Fremont and the Sevier: defining prehistoric agriculturalists north of the Anasazi. *American Antiquity* 44(4):711-722.

Madsen, David B.
1989 *Exploring the Fremont*. Utah Museum of Natural History, University of Utah, Salt Lake City.

Madsen, David B. and Dave N. Schmitt
2005 Buzz-cut Dune and Fremont Foraging at the Margin of Horticulture. *University of Utah Anthropological Papers No. 124.* The University of Utah Press, Salt Lake City.

Madsen, David B.,and David Rhode
1994 Across the West: Human Population Movement and the Expansion of the Numa. University of Utah Press, Salt Lake City.

Madsen, Rex E.
1977 Prehistoric Ceramics of the Fremont. Museum of Northern Arizona Ceramic Series 6. Flagstaff.

Markgraf, Vera and Louis Scott
1981 Lower timberline in central Colorado during the past 15,000 years. *Geology* 9:231-234.

Marshall, Muriel
1998 *Uncompahgre.* Western Reflections, Inc., Ouray.

2006 *Uncompahgre: A Guide to the Uncompahgre Plateau*. Fourth Edition. Western Reflections, Inc., Montrose.

Martin, Curtis W., Harley J. Armstrong, C. Conner, D. L. Langdon, L.J. Scott, and L. A. Wheeler
1981 The Archaeological Excavations at Jerry Creek Reservoir No. 2, in Mesa County, Colorado. Grand River Institute. Ms. on file at the Bureau of Land Management, Grand Junction Field Office.

Martin, Curtis W., Harley J. Armstrong, S.M. Crum, B. J. Kutz (Davenport), and L.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 Greg Batchelder
2010 Report of the Archaeological Test Excavations at Site 5ME16769 in Mesa County, Colorado. Dominquez Archaeological Research Group's Field School for Mesa State College. Ms on file, BLM Grand Junction Field Office (BLM CRI #15809-02).

Martin, Curtis W., Carl E. Conner and Nicole Darnell
2005b Cultural Resources Class II Reconnaissance Inventory for the Colorado Wickiup Project in the Gunnison Gulch Area of Mesa County, Colorado. Prepared by Dominquez Archaeological Research Group, Inc. Ms on file, Colorado Historical Society State Historical Fund, Denver.

Martin Curtis W., Michael J. Brown, and John E. Lindstrom
2011 The Colorado Wickiup Project Volume VI: Test Excavation of the Black Canyon Ramada and the Documentation of Four Additional Premier Aboriginal Wooden Feature Sites in Colorado. DARG.

Martin, Curtis, John E. Lindstrom, Holly Shelton, Nicole Darnell and Hannah Mills
2012 The Colorado Wickiup Project Phase VII: Documentation of Selected Ephemeral Wooden Feature Sites in Rocky Mountain National Park, Colorado. Prepared by Dominquez Archaeological Research Group, Inc. Ms on file, Colorado Historical Society State Historical Fund, Denver.

Martin, Curtis W. and Holly Sheldon
2015 An Archaeological Assessment of the Grand Lodge (5MN1519) and 5MN10514 Wickiup Sites in Montrose County, Colorado. State Historical Fund Project No. 2014-AS-005. Ms on file, Grand Mesa, Uncompahgre, and Gunnison National Forest.

Martin, Curtis W. and Holly Sheldon
2015 The Archaeological Assessment of Monitor Mesa Wickiup Site 5MN42 in Montrose County, Colorado. Ms on file, Colorado Historical Society State Historical Fund, Denver.

Martin, Curtis W., Holly Shelton and George Decker
2013 An Archaeological Assessment of Selected Aboriginal Wooden Feature Sites Known to George Decker. Prepared by Dominquez Archaeological Research Group, Inc. Ms on file, Colorado Historical Society State Historical Fund, Denver.

Martin, Curtis W., Holly Shelton, Geoff Peterson and Robbyn Ferris
2018 The Archaeological Assessment of William Buckles' Wickiup Sites 5MN44 and 5MN65 in Montrose County, Colorado. Ms on file, Colorado Historical Society State Historical Fund, Denver.

Martin, Curtis W., Richard Ott and Nicole Darnell
2005a The Colorado Wickiup Project Volume I: Context, Data Assessment and Strategic Planning. Prepared by Dominquez Archaeological Research Group, Inc. Ms on file, Colorado Historical Society State Historical Fund, Denver.

Matson, R.G.
1991 *The Origins of Southwestern Agriculture*. University of Arizona Press, Tucson.

McCracken, R.D.
1971 Lactose deficiency: an example of dietary evolution. *Current Anthropology* 12:479-517.

McGuire, David J.
1984 An Early Archaic Pithouse Structure in the Hanna Basin, South-central Wyoming. Ms. on file, Mariah Associates, Laramie.

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

Merrill, William L., Robert J. Hard, Jonathan B. Mabry, Gayle J. Fritz, Karen R. Adams, John R. Roney and A. C. MacWilliams
2009 *The diffusion of maize to the southwestern United States and its impact*. Linda S. Cordell, ed. *PNAS* v.106, No. 50.

Metcalf, Michael D.
1998 Projectile Point Analysis on the Uinta Basin Lateral. In *Archaeology of the Uinta Basin Lateral, Wyoming, Colorado, and Utah,* edited by E. Kae McDonald and Michael D. Metcalf. Ms. on file Craig District, Bureau of Land Management, Craig.

Metcalf, Michael D. and Kevin D. Black
1988 The Yarmony Site, Eagle County, Colorado: A preliminary summary. *Southwestern Lore* 54(1):10-28.

1991 Archaeological Excavations at the Yarmony Pit House Site, Eagle County, Colorado. *Colorado Bureau of Land Management Cultural Resource Series #31*, Lakewood.

Metcalf, Michael D., editor
2011 An Introduction. In *Wyoming Interstate Company (WIC), LLC, Piceance Basin Expansion Project: Final Report of Excavations, Moffat and Rio Blanco Counties, Colorado, and Sweetwater County, Wyoming,* Volume 1. Prepared by Metcalf Archaeological Consultants, Inc., Eagle, Colorado. Prepared for Wyoming Interstate Company, Colorado Springs, Colorado. Ms on file in Eagle, Colorado.

Metcalf, Michael D., and Alan J. Reed, editors
2011 *Synthesis of Archaeological Data Compiled for the Piceance Basin Expansion, Rockies Express Pipeline, and Uinta Basin Lateral Projects*, Volume 2: Moffat and Rio Blanco Counties, Colorado, and Sweetwater County, Wyoming. Prepared for Wyoming Interstate Company, Colorado Springs, Colorado. Ms on file in Eagle, 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.

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

Miller, James C. and Michele Nelson
2010 Late Quaternary Alluvial Deposits and Geoarchaeology of Douglas Creek Within Canyon Pintado National Historic District as Part of Northwest Pipeline's Colorado Hub Connection Project, Rio Blanco County, Colorado for BLM White River Field Office. Dominguez Archaeological Research Group, Grand Junction.

Minnis, Paul E.
1992 Early Plant Cultivation in the Desert Borderlands of the American West. In *The Origins of Agriculture: An International Perspective*. Edited by C. W. Conan and P. J. Watson, pp 121-141. Smithsonian Institution Press, Washington, DC.

Monell, Harry Vorhees
1934 "Facts Concerning the Life of Harry Vorhees Monell, Who Came to Montrose, Colorado, in 1881." *Civil Works Administration Pioneer Interviews: Montrose County* 357(20):40. Electronic document, www.historycolorado.org/oral-histories, accessed July 31, 2019.

Montrose Daily Press
1915 "Riverside." Apr 30, page 3. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 3, 2020.

1917a "Sheriff Gill Coming Back with Man Who Killed Ute Indian." May 14, page 1. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 3, 2020.

1917b "Keski Gets 8 Mo. in Jail and Pays Cost of Trial." Nov 5, page 1. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 3, 2020.

1919 "Foreclosure Suit Filed." Feb 17, page 1. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 4, 2020.

1919 "Langford Sells Land." Mar 21, page 5. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 4, 2020.

1921 "Charles M. Ryan." Aug 8, page 2. Electronic document, www.coloradohistoricnewspapers.org accessed August 1, 2019.

Montrose Enterprise
1896 "Local news." Aug 1, page 3. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 4, 2020.

1898a "Paradox Valley." Jan 1, page 1. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 3, 2020.

Montrose Enterprise

1898b "Paradox Road." Feb 26, page 5. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 3, 2020.

Montrose Enterprise

1899 "Un-Official Election Returns, Montrose County." Nov 11, pg 8. Electronic document, www.coloradohistoricnewspapers.org accessed August 1, 2019.

1902 "The Republican Nominees." Sept 11, page 1. Electronic document, www.coloradohistoricnewspapers.org accessed August 1, 2019.

Montrose Press

1898 "Town Topics." Mar 17, page 3. Electronic document, www.coloradohistoricnewspapers.org accessed Feb 3, 2020.

1906 "Un-Official Election Returns for Montrose County, 1906." Nov 9, page 1. Electronic document, www.coloradohistoricnewspapers.org accessed Aug. 1, 2019.

Montrose Press

1918 "Summons." April 12. Electronic document, www.coloradohistoricnewspapers.org accessed August 1, 2019.

Moore, Roger A. Jr.

1981 An Analitical and Stylistic Approach to Typology: The Projectile Point Sequence at Salmon Ruin, New Mexico. UnpublishedMA Thesis, Department of Anthropology, Eastern New Mexico University, Portales.

Moores, Jean

2000 *Gateway / Unaweep Canyon At Some Point in Time*. Anundsen Publishing, Decorah, Iowa.

Musser, Eda Baker

1986 *Trails and Trials.* Kelso Musser, Montrose.

Nankivell, Maj. John H.

1934 Fort Crawford, Colorado, 1880-1890. *Colorado Magazine* 11(2):54-64.

Natural Resource Conservation Service

2019 Soils. USDA.gov website.

Nell, Louis

1884 *Nell's Topographical & Township Map of the State of Colorado.* Thematic map, 1:663,600. Stone & Company, Washington D.C.

Newberry, J. C., and C. A. Harrison

1986 *The Sweetwater Creek Site*. Cultural Resource Management Report No. 19. Archaeological Services of Western Wyoming College, Rock Springs.

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

O'Connell, James F.
1975 The Prehistory of Surprise Valley. *Bellena Press Anthropological Papers No. 4*. Romona, California.

O'Neil, Brian
1993 The Archaeology of the Grand Junction Resource Area: Crossroads to the Colorado Plateau and the Southern Rocky Mountains. A Class I Overview. Unpublished manuscript on file at Grand Junction Resource Area Office, Grand Junction, Colorado.

Opler, Marvin K.
1983 The Apachean Culture Pattern and Its Origin. In Southwest, edited by Alfonso Ortiz, 368-92. Handbook of North American Indians, Vol. 10, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

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

Petersen, Kenneth Lee
1981 10,000 Years of Climatic Change Reconstructed from Fossil Pollen, La Plata Mountains, Southwestern Colorado. PhD Dissertation. Department of Anthropology, Washington State University, Pullman.

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.

Pitblado, B. L.
1993 *Paleoindian Occupation of Southwest Colorado*. Unpublished masters thesis, University of Arizona, Tucson.

2003 *Late Paleoindian Occupation of the Southern Rocky Mountains: Early Holocene Projectile Points and Land Use in the High Country*. University Press of Colorado. Boulder.

Price, Alexandra M.
2015 *Toolstone lithologies: Results of the Diagenesis and Silicification in the Lower Cretaceous Dakota and Burro Canyon Formations*. Department of Geology; Colorado Mesa University. Grand Junction, Colorado.

Rait, Mary
1932 History of the Grand Valley. Unpublished M.A. thesis, University of Colorado, Boulder.

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.
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 Rachel Gebauer
2004 A Research Design and Context for Prehistoric Cultural Resources in the Uncompahgre Plateau Archaeological Project's Study Area, Western Colorado. Prepared by Alpine Archaeological Consultants Inc, Montrose Colorado. Ms on file at the Bureau of Land Management, Uncompahgre Field Office.

Reed, Alan D., Rand A. Greubel, Stephen M. Kalasz, Jonathon C. Horn, John D. Cater, and Kimberly Redman
2001 Synthesis of Project Data, Vol. 7, Chapter 41. In *The Trans Colorado Natural Gas Pipeline Archaeological Data Recovery Project, Western Colorado and Northwestern New Mexico*. Alpine Archaeological Consultants, Inc., Montrose.

Reed, Alan D. and Jonathan C. Horn
1992 Cultural Resources Inventory of the Planned Trans-Colorado Natural Gas Pipeline, Western Colorado and Northwestern New Mexico: A Report of the 1991 Field Season. Alpine Archaeological Consultants, Inc. Montrose, CO. Ms on file, BLM Grand Junction Field Office.

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

Reed, Alan D., S. Rheagan Alexander, Jonathon C. Horn, and Summer Moore
2008 Class I Cultural Resource Overview of the Bureau of Land Management's Glenwood Springs Field Office Central Colorado. Prepared for Bureau of Land Management Glenwood Springs Field Office. Alpine Archaeological Consultants, Inc. Ms on file, BLM Colorado River Valley Field Office.

Richens, L. D., and R. K. Talbot
1989 An Aceramic Habitation Site in SE Utah. *Utah Archaeology* 2(1):77-86.

Roebuck, Paul R.
1977 Colorado Cultural Resource Survey site form5MN577. In: A Cultural Survey for the Uncompahgre Environmental Statement [Author: Martin, Curtis W.]. Mesa Verde Research Center for BLM Uncompahgre Field Office.

Rohman, Peter and Jerry Fetterman
2007 Archaeological data recovery at 5RB4748, a Middle Archaic habitation site, Rio Blanco County, Colorado, for Williams Gas Pipelines West. Ms. on file, Bureau of Land Management White River Field Office, Meeker.

Roper, John F.
1934 “How John F. Roper Took the Navajos Out of Western Colorado.” *Civil Works Administration Pioneer Interviews: Montrose County* 357(8): 17-19. Electronic document, www.historycolorado.org/oral-histories, accessed February 18, 2019.

Ross, Lewis Emerson
1934 “Facts Concerning the Life of Lewis Emerson Ross, Who is Still Living on the Ranch He Settled in 1881.” *Civil Works Administration Pioneer Interviews: Montrose County* 357(7):15-16. Electronic document, www.historycolorado.org/oral-histories, accessed July 31, 2019.

Schlebecker, John T.
1975 *Whereby we thrive: A history of American farming, 1607-1972.* University of Iowa Press, Iowa City.

Schroedl, Alan R.
1991 PaleoIndian Occupation in the Eastern Great basin and Northern Colorado Plateau. *Utah Archaeology*, Vol. 4, No. 1, pp. 1-16.

Schroedl, Alan R. And Patrick F. Hogan
1975 Innocents Ridge and San Rafael Fremont. *Antiquities Section Selected Papers*, Vol. 1, No. 2, Utah Division of State History, Salt Lake City.

Shepherd, William and Enoch John Shepherd
1934 “Facts Concerning the Lives of William Shepherd and Enoch John Shepherd, Who First Came into Colorado in 1863.” *Civil Works Administration Pioneer Interviews: Montrose County* 357(29):69-71. Electronic document, www.historycolorado.org/oral-histories, accessed July 31, 2019.

Silbernagel, Robert
2011 *Troubled Trails: The Meeker Affair and the Expulsion of Utes from Colorado.* University of Utah, Provo.

Simmons, Alan H.
1986 New evidence for the early use of cultigens in the American Southwest. *American Antiquity* 51(1):73-89.

Simms, Steven R.
1986 New Evidence for Fremont Adaptive Diversity. *Journal of California and Great Basin Anthropology* 8(2):204-216. Banning, California.

1990 Fremont Transitions. *Utah Archaeology* 3(1):1-18. Salt Lake City.

Smith, Anne M.
1974 Ethnography of the Northern Utes. *Museum of New Mexico Papers in Anthropology No. 17.* Albuquerque.

Smith, H.J.
1937 Early Grazing on the Uncompahgre National Forest, *Rocky Mountain Region Bulletin* Vol 20(5). On file at Ouray R.D., Montrose, Colorado.

Surface Creek Champion
1925 "Another Montrose Man Named Brand Inspector." June 25, page 1. Electronic document, www.coloradohistoricnewspapers.org accessed August 1, 2019.

Solid Muldoon Weekly
1883a "To Irishmen." March 2, page 3. Electronic document, www.coloradohistoricnewspapers.org accessed August 1, 2019.

1883b "Base Ball." July 13, page 3. Electronic document, www.coloradohistoricnewspapers.org accessed August 1, 2019.

1886 "Christmas at Cantonment." Dec 31., page 3. Electronic document, www.coloradohistoricnewspapers.org accessed August

Stanford, Dennis J. and Jane S. Day, Editors
1991 *Ice Age Hunters of the Rockies*. University Press of Colorado, Niwot, and Denver Museum of Natural History, Denver.

Stavish, Patricia, Iraida Rodriguez, Lisa Smith, and Brandon Mauk
2014 Colorado Cultural Resource Survey site form 5ME20779.

Stiger, Mark A.
1981 1979 investigations at seven archaeological sites in Curecanti National Recreation Area. Ms. on file, National Park Service - Midwest Archaeological Center, Lincoln.

1998 Hunter-Gatherer Archaeology of the Colorado High Country. Ms. submitted in partial fulfillment of Colorado State Historical Fund Grant 96-02-153. Ms. on file, Colorado Historical Society, Denver.

2003 The Mountaineer Site: A Large Folsom Camp near Gunnison, Colorado. State Historical Fund Project 2001-02-106. Ms on file, History Colorado, Denver.

Stiger, Mark and Mark Larson
1992 A Radiocarbon Date from the Cottonwood Cave Corn Cache and Problems Interpreting the Origins of Farming in Western Colorado. *Southwestern Lore* 85(2):26-36.

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

Thomas, David Hurst
1983 *The archaeology of Monitor Valley, 1 Epistomology. Anthropological Papers of the American Museum of Natural History, v58,1.* New York.

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.

1996 *The Birch Creek Site: Fifth Millennium B.P. Habitation in Southeast Wyoming.* Cultural Resource Management Report No. 62. Archaeological Services, Western Wyoming College, Rock Springs.

Tipps, Betsy L.

1988 The Tar Sands Project: An inventory and predictive model for Cental and Southern Utah. *Bureau of Land Management Cultural Resources Series No. 22*. BLM Utah State Office, Salt Lake City.

USDA Forest Service

1935 *Uncompahgre National Forest, Colorado.* Thematic map. Regional Office, Denver.

U.S.D.A. Soil Conservation Service, Colorado

1978b Technical Guide IIE: Range Site Descriptions.

U.S.D.A. Soil Conservation Service

1995 Soil Survey of Uncompahgre National Forest Area, Colorado, Parts of Mesa, Montrose, Ouray, and San Miguel Counties.

Vierra, Bradley J. and Richard I. Ford

2005 Early Maize Agriculture in the Northern Rio Grande Valley, New Mexico. In *Histories of Maize: Multidisciplinary Approaches to the Prehistory, Biogeography, Domestication, and Evolution of Maize*, edited by John E. Staller. Elsevier/Academic Press, in preparation 2005.

Walker, Danny N., and George M. Zeimens

1976 *Results of an Archaeological Survey of the Arch Mineral Corporation Seminoe Number One Mine, Hanna, Wyoming.* Report for the Arch Mineral Corporation by the Office of Wyoming State Archaeologist. Report (#76-035)

Watkins, Christopher N.

2006 *Parowan Pottery and Fremont Complexity: Late Formative Ceramic Production and Exchange*. Master's thesis, Department of Anthropology, Brigham Young University, Provo.

Wedel, Waldo R., Wilfred M. Husted, and John H. Moss

1968 Mummy Cave: Prehistoric Record from Rocky Mountains of Wyoming. *Science* 160(3824):84–186.

Weekly Courier

1903 "Roster of the Colorado Legislature." Jan 14, page 7. Electronic document, www.coloradohistoricnewspapers.org accessed August 1, 2019.

Wenger, Gilbert R.
1956 An Archaeological Survey of Southern Blue Mountain and Douglas Creek in Northwestern Colorado. Master's Thesis, Department of Anthropology, University of Denver.

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

Wheeler, G. M.
1878 *Part of Southwestern Colorado.* Thematic Map, 1:253,400. Weyss, Lang & Herman Del. Expeditions of 1873-1877. Under Command of 1st Lieut. Geo. M. Wheeler, Corps of Engineers, US Army.

Willey, G. R., and Phillip Phillips
1958 *Method and Theory in American Archaeology*. Univ. of Chicago Press, Chicago.

Wills, Wirt. H.
1988 *Early Prehistoric Agriculture in the American Southwest*. School of American Research Press. Santa Fe.

1995 Archaic Foraging and the Beginning of Food Production in the American Southwest. In *Last Hunters, First Farmers*, edited by Douglas Price and Anne Birgitte Gebauer, pp 215-242. School of American Research Press, Santa Fe.

Wills, Wirt H., Richard I. Ford, John D. Speth, and Austin Long
1982 Bat Cave Reinvestigated. Paper presented at the 47th Annual meeting of the Society for American Archaeology, Minneapolis.

Woodbury, George and Edna Woodbury
1932 The Archaeological Survey of Paradox Valley and Adjacent Country in Western Montrose County, Colorado, 1931. *Colorado Magazine* 9:2-21.

Wood, Frances Elizabeth and Dorothy Wood
1977 I Hauled These Mountains in Here. Caxton Printers, Ltd, Caldwell, ID.

Woodbury, Richard B. and Ezra B.W. Zubrow
1979 Agricultural Beginnings, 2000 BC – AD 500. In *Southwest*, edited by Alfonso Ortiz, pp. 43-60. Handbook of North American Indians, vol. 9, William G. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

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, Robert G. and Joann W. Young
1977 *Colorado West Land of Geology and Wild Flowers*. Wheelwright Press, Inc. Grand Junction.

Personal Communications:

Armstrong, Harley J., 1992

Coleman, Julie, 1996

Stiger, Mark, 2005

Wignall, Clifton, 1986

APPENDIX A

UTE ETHNOBOTANY PLANT LIST
from
UTE ETHNOBOTANY PROJECT SUMMARY REPORT
of a cooperative project of the Grand Mesa, Uncompahgre,
and Gunnison National Forests and the Grand Junction Field
Office of the Bureau of Land Management
Sally McBeth, Ph.D.
2008

UTE ETHNOBOTANY PLANT LIST

COMPILED BY GINNY BENGSTON

Ute Ethnobotany Project

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Agave, Parry's[3]		unk	*Agave parryi* Engelm.	Used as one of the most important foods.	Castetter 1935:10
American Century Plant		unk	*Agave americana* L.	Used as one of the most important foods.	Castetter 1935:10
Arrowleaf Balsamroot Arrow Root	ku-si'-a-kûmp	N	*Balsamorrhiza sagittata* (Pursh) Nutt.	The young shoots and leaves were formerly eaten, hence the name. The roots also were eaten to some extent.	Chamberlin 1909:32-33
Aspen, Quaking				Sap from quaking aspen trees was considered a great delicacy by all Utes. It was usually collected in June. A bark container to hold the sap was prepared and lined with the wide leaves of a plant called pa?a=pi. A ten-inch-long cut was made in the bark of the tree, the hollow bone from a deer leg was sharpened and stuck into the tree, and the sap ran down into the bark container. Some informants said the sap was collected in a wooden cup. The sap was not boiled but eaten as soon as collected.	Smith 1974:66-67
Aspen, Quaking (cont)		N		*Bark used for arthritis – in tea or water.*	*4/12/07 Ute Elder*[4]

1 N = Northern Ute (Uncompahgre, Uintah, White Rocks), WR = White River
2 Some of the Latin names listed came from documents dated before 1974 and may not be accurate or current.
3 Green highlighted text denotes verification of scientific names as listed in Moerman (1998).
4 Names of Ute elders have been excluded from this list at the request of the Cultural Rights and Protection Office, Uintah-Ouray Tribe.

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Bearberry	*tahmahup* *qwe' augeth't cahn up*	*N*		*Long-growing ground cover plant. Branchy leaves are bright in color. Flowers are white tinged with red. Berries are red. Flowers from June-Sept. Found in dry sterile rocky or sandy soil on mountains slopes, ridges, and mountain hillsides. Also found under aspen, conifer, sagebrush, and other shrubby species. May-June, Tavaputs Plateau, Uinta, Whiterocks rivers. July-Sept.*	*Helen Wash; Ute Elders*[5]
Bear Root; Burr chervil		N	*Anthriscus caucalis* Bieb.		Kessley LaRose[6]
Beard Tongue	mû-tcĕm-bi-a	N	*Pentstemon glaber* Pursh		Chamberlin 1909:35
Bilberry, Dwarf Huckleberry		N	*Vaccinium caespitosum* Michx.	*Shrub with one-inch long dark green and shiny leaves. Berries resemble currants and are dark red, dark blue, or black. Berries occur in bunches of 2 or 3. Flowering season is June – July. Flowers are reddish pink, white, or purple. Plants grow in wet meadow, streamsides, Whiterocks drain, and boggy meadows.*	*Helen Wash; Ute Elders*
Birch	?pa-gwai′-ûv	N	*Betual occidentalis* Hook.		Chamberlin 1909:33

[5] Helen Wash Plant Research Project. At the request of the Cultural Rights and Protection Office, "Ute Elders" was added for entries provided by Ms. Wash.
[6] Plant was on list provided by Kessley LaRose, Cultural Rights and Protection Office, Uintah-Ouray Tribe.

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Biscuitroot, Carrotleaf	to-tûv	N	*Lomatium dissectum* var. *multifidum* (Nutt.) Mathias & Constance	Poultice of root pulp applied to wounds and bruises. (*Ferula multifida* Gray) The root furnishes one of the medicines most highly valued among this and related peoples. It is especially applied externally upon wounds and bruises, being first reduced to a pulp between stones or in a mortar. It is also sued for distemper in horses; for this purpose it is burned in a pan held beneath the horse's nose.	Chamberlin 1909:34
	k^{w}iu			Edible root. Root is yellowish, about 8" long, dug in the spring, baked overnight in earth oven.	Smith 1974:271
Black Berry	puwu=pɨ	WR		Berry. Large, (unidentified) mashed, dried in the sun, stored for winter use.	Smith 1974:269
Blackberry	pakia	WR		Berry.	Smith 1974:269
Blue Berry	punuk^{w}u=pɨ	WR		Berry. Bitter taste, grows on bush like a willow.	Smith 1974:269
Blue Eyed Mary, Smallflower	mi′-pû^{n}-ga-shi″-ĕts	N	*Collinsia parviflora* Lindl.	Plant said to have been used externally as a remedy for sore flesh, like Gilia, q. vid.	Chamberlin 1909:33
Blueberry	*toowump*	N	*Vaccinium caespitosum* Michx.	*Mentioned during field visit. No other info given.*	*6/11-13/06 Field Visit*
	patu=p*i*	WR		Berry.	Smith 1974:269
Blue-Joint	?wai-	N	*Agropyrum repens* Beauv.		Chamberlin 1909:32
Bog Rush	pau-wûv	N	*Juncus balticus* Deth		Chamberlin 1909:35
Box	te-ĕ-kav	N	*Pachystima myrsinites* Raf		Chamberlin 1909:35
Bracken	kai-ban-kĭm-bĭs	N	*Pteris aquilina* L.		Chamberlin 1909:35
Buckwheat, Cushion Silver-Plant	k'sûm-sêd-au-ge-ĕts	N	*Eriogonum ovalifolium* Nutt.	Used as medicine.	Chamberlin 1909:34
Buffalo Bean	ti′-wĭ-pĭtcûm-av [earth or ground-matting plant]	N	*Astragalus iodanthus* Watson		Chamberlin 1909:32
Buffaloberry, Silver Buffaloberry	añ-gût-a-gwĭv	N	*Shepherdia argentea* (Pursh) Nutt.	Berries formerly used as food to some extent.	Chamberlin 1909:36

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Buffaloberry, Silver (cont)	*ahkup*			*Thorny shrub or small tree. Grows 6-7 ft tall. Leaves are silver gray and smooth on top. Lower surfaces of leaves are lighter and doted with copper-colored or brownish stellate, scurfy scales. Berries mature in fall and are red or red orange. Found along ditches, washes, open fields, and fence lines.*	*Helen Wash; Ute Elders*
	agup				*4/12/07 Ute Elder*
	anga-si-un-giv				*Kessley LaRose*
	nɨka̲=pɨ	WR		Berry. Gathered in berry basket, berries placed in water so leaves would rise to top and berries sink to bottom, then dried in the sun and stored in sacks for winter use.	Smith 1974:269
Bullgrass; Wildrye, saline	*o-wiu*	N	*Leymus salinus* (M.E. Jones) A. Löve		*Kessley LaRose*
Bulrush, Softstem	t'su-saip	N	*Scirpus tabernaemontani* K.C. Gmel.	(S. *validus*; *Schoenoplectus tabernaemontani*) Lower, tender portions eaten.	Chamberlin 1909:36
Bursage, Wollyleaf		N	*Ambrosia gray*		Kessley LaRose
Buttercup	pai′-a-pu-ĕts	N	*Ranunculus aquatilis* L. var		Chamberlin 1909:36
Buttercup	pau-ûs-a-nau-ga-ant	N	*Ranunculus cymbalaria* Pursh		Chamberlin 1909:36
Cactus, Prickly Pear	mana=pɨ	unk		Dried leaves sometimes used for temper: the thorns were scraped off, the leaves were cut up in small pieces and mixed thoroughly with the wet clay.	Smith 1974:85

Common Name	**Ute Name/Translation**	**Band**[1]	**Latin Name**[2]	**Use**	**Reference**
Cactus, Prickly Pear (cont)	*manivf*	N		*Prickly pear, hookless cactus. Low growing. Flat leaf. Sprawls along the ground. Red, yellow, white, pink or purplish flowers. Prickly bristles so fine that they may be hard to see. Fruit ripens in late summer through autumn. Found on grave hills and desert.*	*Helen Wash; Ute Elders*
Carrot, Wild	*yepuhch*	N	*Daucus carota*	*Has hairy leaf stalks. Leaves are lacy, branchy and feather-like. Roots are branchy and white, with deep purple center. Grows in open dry places, mountain hillsides, and among mountain valleys. Often found with Springbeauty. Picked in early spring.*	*Helen Wash; Ute Elders*
				Mentioned during field visit. No other info given.	*6/11-13/06 Field Visit*
Cattail		N	*Typha* L.		Kessley LaRose
				Cigar-shaped "flower" at top of stalk. Has long stout stalk with light green, pointed leaves. Cattails that are very tall have thick stems. Male plant is pollen-producing and pollen can be found at top of plant. Cattail shoots are tender and have a white inner core. Sweet mild and pleasant taste. Female plants are seed-bearing. Found near lakes, ponds, swamps, canals, and ditches.	*Helen Wash; Ute Elders*
Cedar	wap	N	*Juniperus californica* var. utahensis	Use of the bark, etc., in making slow-match and for kindling purposes.	Chamberlin 1909:35

Common Name	**Ute Name/Translation**	**Band[1]**	**Latin Name[2]**	**Use**	**Reference**
Cedar (cont)	*wahuhp*			*Medium-sized tree, 8-20 ft tall, with rounded crown. Often has several branches as large as the trunk. Flowers bloom in May. Fruit is dark purple. Fruit ripens in the second year after the flowers and leaves open in whorls of three. Every part of the cedar tree is medicinal. Grows around foothills and canyons.*	*Helen Wash; Ute Elders*
				"Beads" (seeds?) were boiled to prevent blood clots.	*4/12/07 Ute Elder*
Chives, Wild	*phutus*	N	*Allium schoenoprasum*	*Grow 6 inches tall. Leaves are hollow and stems are straight. Flowers are lavender in color. Grows in moist soil, open-dry woodlands.*	*Helen Wash; Ute Elders*
				Mentioned during field visit. No other info given.	*6/11-13/06 Field Visit*
Chokecherry	titatɨna̲=pɨ	WR	*Prunus virginiana melanocarpa*	Berry. Ripen in July. Mashed, dried in the sun and stored for winter use.	Smith 1974:270
	turnup	N		*In spring, has clusters of sweet smelling, five-petaled white flowers. Fruit is round with a smooth surface and a single hard round seed. Cherry vary from red to black. Leaves are long and have pointed tips. Grows along roadsides, hillsides, streams, and clearings.*	*Helen Wash; Ute Elders*
	turnup			*Mentioned during field visit. No other info given.*	*6/11-13/06 Field Visit*
Cliff Rose	pu-i′-tcûm-av	N	*Cowania mexicana* Don.		Chamberlin 1909:33
Clover	mo′-pi-änts mû′-pi-änts	N	*Trifolium*	General term.	Chamberlin 1909:36
Clover, Red	?sa-gwa-ĭn-di-ûp	N	*Trifolium pretense* L.	Introduced.	Chamberlin 1909:36
Cottonwood	sho-av	N	*Populus angustifolia* James		Chamberlin 1909:35
Cress, Rock	qta′-ko-mav	N	*Arabis holboelli* Hornem		Chamberlin 1909:32

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Curlycup Gumweed Gum-Plant	ku-ats-ûm-sĭ-ta-gwĭv [possessive medicine]	N	*Grindelia squarrosa* (Pursh) Dunal.	Said to be used as a cough medicine.	Chamberlin 1909:34
				Grows 1-2 ft tall or taller. Has many upper branches from taproots. Stems stand straight. Roots are fibrous. Leaves are oblong and alternate 1 to 2 inches long. Flowers are bright yellow and 1 inch in diameter. Flowering plant produces a sticky substance and gives off a distinctive odor. Found in dry open sites, plains to foothills. July to Sept.	*Helen Wash; Ute Elders*
				Used root for diarrhea.	*9/15-16/06 Field Visit*
	ku-at-um-si-ta-gwiw				*Kessley LaRose*
Currant, Golden Buffalo Or Missouri Currant	po-gomp′-ĭv	N	*Ribes aureum* Pursh	Berries used as food.	Chamberlin 1909:36
	pergrayp			*In spring, shrub has greenish to yellowish white flower. Berries are smaller than gooseberries and have a smooth skin. Leaves are maple-like. Berries are red, pale yellow, or black. Currants have a natural thickener. Shrubs are found in canyons, hillsides, along river banks and ditches, and where there is moisture.*	*Helen Wash; Ute Elders*
	pergrayp			*Mentioned during field visit. No other info given.*	*6/11-13/06 Field Visit*
	k^{w}a̲tɨna̲=pɨ	WR		Berry. Ripen at end of June or early July. Mashed, formed in small cakes, dried in the sun and stored for winter, when they were boiled with deer fat.	Smith 1974:270
Dandelion, Common	mo-mûn′ ti-ad-qsûp	N	*Taraxicum officinale* G. H. Weber ex Wiggers	Leaves formerly used as food.	Chamberlin 1909:36

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Deathcamas, Nuttall's Poison Sego	ta-bä′-si-gwĭv [sun sego]	N	*Zigadenus nuttallii* (Gray) S. Wats.	The bulbs of this plant are poison, hence the common name as given above.	Chamberlin 1909:37
Disc Mayweed May Apple	ma-mo-a-na-nûmp	N	*Matricaria discoidea* DC.	Used as a medicine.	Chamberlin 1909:35
Dock, Curly		N	*Rumex crispus* L.		Kessley LaRose
Dock, Yellow				*Grows 2-3 ft tall. Leaves are light green and long, narrow, wide, curly and wavy. Leaves have a large vein in the center. Tiny flowers and lots of dark brown seeds. Can be foraged during early spring. Found along ditches and fields.*	*Helen Wash; Ute Elders*
Elder Wood	kunu-ku=pɨ	unk		Probable identification. Used in making pipe stems.	Smith 1974:273
Evening Primrose, Common		N		*Grows long stemmed yellow flower. Flower center has an X-shape. Leaves and roots smell and taste like pepper. Flower is about 1 inch in diameter. When flower dies, seeds are reddish in color. Grows in sandy soil, fields, and prairies during summer and fall.*	*Helen Wash; Ute Elders*
Everlasting	tim′-pĭn-tsau-ûv [rock-matting plant]	N	*Antennaria dimorpha* Torr. and Gray		Chamberlin 1909:32
Everlasting Pea	sa-gwa′-sa-ĭnt	N	*Lathyrus ornatus* Nutt.		Chamberlin 1909:35
Fern	tĭm-pĭm-ûv	N	*Cystopteris fragilis* Bernh.		Chamberlin 1909:33
Five Finger	qte′-äñ-gĭv	N	*Potentilla anserina* L.		Chamberlin 1909:35
Flax	wui̲=pɨ	N		Used for cordage to make nets.	Smith 1974:273
Fleabane	?sa-gûm-sĭ-ta-gwĭv	N	*Erigeron canus* Gray		Chamberlin 1909:34
Foxtail		N	*Hordeum jubatum*		Kessley LaRose
Garlic, Wild Onion, Wild	wisi-sik^{w}u	WR		Root.	Smith 1974:271

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Garlic, Wild	*kwechusagoot* *soovweya*	N		*Round long narrow leaf and small white bulb. Grows in bunches or splits off. Grows 6 inches tall. Has strong smell. Grows on prarie land, sage brush, semi-dry, sandy soil.*	*Helen Wash; Ute Elders*
	rwechusagoot *kwee cha see hooh*			*Mentioned during field visit. No other info given.*	*6/11-13/06 Field Visit*
				Gathered in the spring for food. Not used after plant has flowered.	*4/13/07 Field Visit*
Gilia, Skyrocket		unk	*Ipomopsis aggregata* (Pursh) V. Grant ssp. *aggregata*	(*Gilia aggregata*) Whole plant boiled for glue.	Murphey 1990:56
Gooseberry	*seevergrayp* *wah sou' poo woop*	N	*Ribes inerme*	*Small bush about 2-5 ft tall. Grows on long arching branches. Has maple-like leaves, thorny stems, and bristly fruit. Fruit is greenish or yellowish and ripens in nmid-summer. Found in ravines, hillsides, moist woods, along streams. June-July.*	*Helen Wash; Ute Elders*
				Mentioned during field visit. No other info given.	*6/11-13/06 Field Visit*
	sapatuu=pɨ	WR		Berry. Eaten fresh even though they were sour, or dried for four or five days and stored for winter.	Smith 1974:270
Grass	o′-wiv	N		General term.	Chamberlin 1909:34
Grass, Arrow	pa′-sau-wa-dĭnt	N	*Triglochin maritimum* L.		Chamberlin 1909:36
Grass, Barnyard		N	*Echinochloa crus-galli* (L.) Beauv.		Kessley LaRose
Grass, Pepper	sau′-ga-mi-ants	N	*Lepidium intermedium* Gray		Chamberlin 1909:35
Grass, Pepper	wa′-to-ma-sĭv	N	*Lepidium sativum*		Chamberlin 1909:35
Grass, Rabbitsfoot	shpump	N	*Polypogon monspeliensis* (L.) Desf.		Kessley LaRose
Grass, Slough	a-wat′-o-gwĭv	N	*Beckmannia erucaeformis* Host.		Chamberlin 1909:33

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Grass, Whitlow	kus-pa-sen-di-ät	N	*Draba nemorosa* L.		Chamberlin 1909:33
Greasewood		N		*Small shrub that grows 3 ft tall. Spiny and has many branches with rigid stems. Twigs are green and full of sap. Later in the season, shrubbery turns white and spiny, forming dense thickets. Bark of older stems is dull brown or gray. Found around alkaline soil in lowlands.*	*Helen Wash; Ute Elders*
Gromwell, Western	tsût-kûp	N	*Lithospermum ruderale* Dougl. ex Lehm.	(*L. pilosum*) Roots used as medicine in form of decoction; diuretic in action.	Chamberlin 1909:35
Groundsel	ko-ats-ĕm-sĭ-ta-gwĭv	N	*Senecio* sp.	Used as medicine.	Chamberlin 1909:36
Hawthorne, Black	*weyehs*	N	*Crataegus oxyacantha*		*Kessley LaRose*
				Small tree or shrub that has long straight sharp thorns. Berries resemble tiny apples. Grows wild in thickets, woods, and along streams. Word of caution: try not to eat too many of these berries.	*Helen Wash; Ute Elders*
	gwiev			*Has red berries, two types: one is edible, other is poisonous*	*4/12/07 Ute Elder*
Horsetail	to-tsi-wûts	N	*Equisetum arvense* L.	Sterile stems.	Chamberlin 1909:34
	tu-ko-wûts			Fertile stems.	Chamberlin 1909:34
				Straight stem, cone-like spikes that are jointed. Spikes are first to appear in spring, but die after few weeks and are followed by a clump of stems. Grow in sand and gravel. Spring is best time to forage.	*Helen Wash; Ute Elders*
	to-tsi-wats				Kessley LaRose
Horsetail, Smooth Scouring-Rush	ya-a′-ti-nûmp	N	*Equisetum laevigatum* A. Braun.	Used by children as whistles.	Chamberlin 1909:34
Hyssop, New Mexico Giant		unk	*Agastache pallidiflora* ssp. *neomexicana* var. *neomexicana* (Briq.) R.W. Sanders	Used as one of the most important foods.	Castetter 1935:10

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Indian Paint Brush?	?u̲ka̲-si̲=tɨ	unk	*Castilleja linariaefolia*	"Grows about a foot high, in bunches, with dark green leaves and no thorns. It blooms in late May with a blossom resembling a red shawl." The stems and leaves were cut up and bruised in a little water "until it was foamy." Then it was mixed with the clay.	Smith 1974:85
				Possibly Indian Paint Brush, used as pottery temper.	Smith 1974:273
	uka-si-ti *changon-nuhn-nup*				Kessley LaRose
Indian Paintbrush, Mountain	mo′-ten-aĭt	N	*Castilleja parviflora* Bong.	Root used as a medicine in bowel trouble.	Chamberlin 1909:33
Indian Potatoes	nu̲u̲-pucu̲=ti	WR		Root. Ripen early in July, dug with digging stick. Washed, boiled, dried in the sun, tan ground on metate and stored for winter. Either boiled alone or combined with deer meat.	Smith 1974:271
Juniper	wapu̲=pɨ	WR		Berry. Berries from different trees were sampled to find which tree had the sweetest as they varied in taste. Berries rubbed on metate with a mano to separate the seeds from the pulp. Pulp either eaten fresh or dried and ground on metate.	Smith 1974:270
Juniper, Alligator	*bawahup*	N	*Juniperus deppeana*	*Mentioned during field visit. No other info given.*	*6/11-13/06 Field Visit*
Juniper, Utah	*wahup*	N	*Juniperus osteosperma*	*Mentioned during field visit. No other info given.*	*6/11-13/06 Field Visit*
Kinnikinnick; Cornel	a-va-tu-tûm-bûtc-ûm-av	N	*Cornus stolonifera* Michx.		Chamberlin 1909:33
	kaib′-o-gwĭv		*Eragrostis purshii* Schrad.		Chamberlin 1909:34
Knapweed, Russian		N	*Acroptilon repens*		Kessley LaRose
Larkspur	sa-gwa-rĭnt	N	*Delphinium menziesii* DC. *Delphinium bicolor* Nutt.		Chamberlin 1909:33

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Lettuce, Wild		N		*Grows tall. Leaves are light green and scraggly. They have teeth-like edges. Stems are tall and powdered with a blue-green waxy bloom and small yellow flowers at the top. Found in open fields, thickets, moist woods, ditches, around ponds and lakes, cultivated waste places, and wet lowland meadows. Late July to early October.*	*Helen Wash; Ute Elders*
Lichen		N		*Used for sores or diarrhea. Sometimes it is orange. Would scrape off with a knife, dry, and store.*	*9/15-16/06 Field Visit*
Lichen, Reindeer				*Grows upright 3-5 cm tall. Coral-like shrub. Has many branches that are pale grayish-white. Likes shady are3as, boulders, foothills.*	*Helen Wash; Ute Elders*
Licorice		N	*Glycyrrhiza glabra*		Kessley LaRose
				Grows 3-5 ft tall. Has dark green leaves. Leaves are bunched in groups of 4 to 7 leaves. Leaves are smooth and egg-shaped with rounded ends that are widest toward the base. Flowers are yellowish white, pale blue, or purple spikes. Fruit pods are long, flat, and brown and have 1 or 6 seeds inside. They have a sweet odor. Forage for seeds during June to August. Found along water ways, moist lands, seeps, and ditch banks.	*Helen Wash; Ute Elders*
				Need to pick at a certain time. Shouldn't be too old.	*9/15-16/06 Field Visit*
Loosestrife, Purple		N	*Lythrum salicaria* L.		Kessley LaRose

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Mallow, False	sa-gwûn-na-ga-ats	N	*Malvastrum munroanum* Gray		Chamberlin 1909:35
Maple	pa-wai′-ûv [water oak]	N	*Acer glabrum* Torr.		Chamberlin 1909:32
Marsh Blue Violet	sau-ĕd-ĭn-do-ĕts	N	*Viola cucullata* Ait.	Roots used as medicine.	Chamberlin 1909:37
Milkweed	sa-na′-ko-mav	N	*Asclepidiora decumbens* Gray		Chamberlin 1909:32
				Grows 2-4 ft tall. Has hairy stems. Flowers are white and purplish. Leaves are oblong, 1-2 inches long, large, and branchy. Fruit is in the center. Edible by early summer. Flowers from June to September. Found in dry fields, woods, meadows, ditches, marshy areas, or wet sandy soil.	*Helen Wash; Ute Elders*
	teeyahnuhkov			*Mentioned during field visit. No other info given.*	*6/11-13/06 Field Visit*
Missionbells, Spotted Tiger Lily Brown Lily	kai′-rûm-sĭ-ta-gwĭv	N	*Fritillaria atropurpurea* Nutt.	The bulbs and roots used as medicine in the form of a decoction. It is said to be taken but sparingly because in larger quantities it is regarded as dangerously poisonous.	Chamberlin 1909:34
Missionbells, Yellow Buttercup Yellow Bell	pim′-ĭ-kwi-ĕts	N	*Fritillaria pudica* (Pursh) Spreng.	Formerly the bulbs were used as food.	Chamberlin 1909:34
Mormon Tea	*nukpii*		*Ephedra viridis* Coville		*Kessley LaRose*
Mullein	*teeyahnuhkov*			*Grows 2-3 ft tall. Has hairy wooly stem. Leaves are velvety, gray green. Small yellow petal flowers. Leaves and flowers have an odor. Stout erect flower stalk. Fruit is in pod. Flowers bloom in June to September. Found in dry sandy areas and along roadsides.*	*Helen Wash; Ute Elders*

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
None Given	?akʷa̲susi=pɨ	WR		Medicinal herb. Leaves. Pounded, steeped in water, drunk for sore throat, cough and toothache.	Smith 1974:271
None Given	?a̲suwa- nɨ̲=pɨ	WR		Medicinal herb. Pounded, boiled and drunk for flu.	Smith 1974:271
None Given	?i̲pi̲ta̲ma̲-nɨ=pɨ	WR		Green brush. Used in earth oven.	Smith 1974:273
None Given	?iyi=tɨ maa=pɨ	WR		Cactus.	Smith 1974:273
None Given	?ma-mû′-tĕm-bi-a	N	*Phacelia menziesii* Torr		Chamberlin 1909:35
None Given	añ-′ka-pi-sa-wats	N	*Agoseris* sp.	(*Troximon* sp.) Leaves used as food. Leaves formerly eaten, like the dandelion.	Chamberlin 1909:36
None Given	añ-gai-ya-ga-ti-nûmp	N	*Tellima parviflora* Hook		Chamberlin 1909:36
None Given	äñ-go-i-ĕnts	N	*Valerianella congesta*		Chamberlin 1909:37
None Given	cu?a=pɨ	WR		Medicinal herb. Leaves. Pounded, boiled, infusion drunk for sore throat.	Smith 1974:272
None Given	ka?a̲=tɨ	WR		Greens. Eaten boiled.	Smith 1974:273
None Given	ka?a̲=tɨ	WR		Found in the mountains, growing in low bunches close to the ground.	Smith 1974:65
None Given	kana-musu=tɨkʷi=pɨ	N		Leaves. Tied in little bag, worn as perfume.	Smith 1974:273
None Given	kanu̲sutu̲ki	WR		Weeds. Used for perfume.	Smith 1974:274
None Given	kɨcu̲sukʷi̲=pɨ	WR		Medicinal herb. Leaves. Pounded and applied to sore or scratch.	Smith 1974:272
None Given	kʷawa	WR N		Seeds. Ripened in May. Grows on vine close to ground, vines gathered, put in a container of water, rubbed with hands. Leaves rose to top, seeds, the size of beads, fell to bottom. Seeds dried, parched and ground.	Smith 1974:272
None Given	kʷicu̲maa=pɨ	WR		Medicinal herb. Plants. Bundles of this are taken to the Sun Dancers.	Smith 1974:272
None Given	kʷiu̲=pɨ	N		Edible root. Similar to kʷiu (bisquiteroot?).	Smith 1974:271

Common Name	**Ute Name/Translation**	**Band**[1]	**Latin Name**[2]	**Use**	**Reference**
None Given	k^{w}u=pɨ	unk		Seeds. Ripens in July, whole plant gathered, rubbed between hands until the seeds fall out, seeds dried, ground on metate.	Smith 1974:272
None Given	k^{w}u̲k^{w}a̲i	WR		Edible root. Grows near White River in Colorado, ripe in July. Root was cleaned, boiled and eaten, not stored.	Smith 1974:271
None Given	k^{w}usa=tɨ	WR		Greens. Eaten boiled.	Smith 1974:273
None Given	k^{w}usa=tɨ	WR		More like grass, which is boiled with some kind of fat.	Smith 1974:65
None Given	k^{w}uyu̲	unk		Weeds. Used for perfume.	Smith 1974:274
None Given	mana=pɨ	N		Cactus. Thorns used in tattooing.	Smith 1974:273
None Given	muatu	N		Seeds. Gathered in September, parched, winnowed and ground.	Smith 1974:273
None Given	mû-tcĕm-bi-a	N	*Phacelia menziesii* Torr		Chamberlin 1909:38
None Given	napa̲na-nɨ̲=pɨ	WR		Medicinal herb. Leaves. Pounded, mixed with water, applied to sore finger.	Smith 1974:271
None Given	o-nûn-ga-ats	N	*Streptanthus cordatus* Nutt		Chamberlin 1909:36
None Given	pa?a=pi	WR		Plant. Has large leaves, used to line bark baskets in which aspen sap is collected.	Smith 1974:66, 273
None Given	paka=pɨ	WR		Seeds. Edible, ripens in fall.	Smith 1974:272
None Given	pasu=pɨ	N		Seeds. Ripened in the fall, whole plants gathered, seeds beaten off on to a piece of buckskin.	Smith 1974:272
None Given	pau-waa=pɨ	N		Grass.	Smith 1974:273
None Given	pĭn-′ka-pai-äts	N	*Orogenia linearifolia* Watson		Chamberlin 1909:35
None Given	pi̲pata=ci	WR		Medicinal herb. Leaves. Pounded in water, used for sores.	Smith 1974:271
None Given	sa′-go-a″-sĭnt	N	*Erysimum asperum* DC		Chamberlin 1909:34
None Given	sama̲-cowi=ci	WR		Medicinal herb. Leaves. An infusion made, drunk for stomach ache.	Smith 1974:271

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
None Given	sana=pɨ=ci	N		Medicinal herb. Plant. Made into tea, drunk for stomach ache or any sickness inside, good for gonorrhea.	Smith 1974:272
None Given	sika-nɨ̲=pɨ	N		Tree. Bark used for cordage.	Smith 1974:274
None Given	ta-ma-nûmp	N	*Shepherdia Canadensis* Nutt		Chamberlin 1909:36
None Given	tia-naka̲pa=pɨ	WR		Medicinal herb. Roots. Boiled, drunk for coughs.	Smith 1974:272
None Given	ti̲kacu̲=pɨ	WR		Medicinal herb. Leaves. Rubbed in water, used for soap.	Smith 1974:272
None Given	tɨsa?u=pɨ	N		Plant. Used to make coiled baskets, grows like a willow, has small red berries.	Smith 1974:273
None Given	tu′-ka-rûmp	N	*Amsinckia tesselata*		Chamberlin 1909:32
None Given	tukʷu̲-siwana-nɨ̲=pɨ	N		Medicinal herb. Plant. Made into tea, drunk for colds, stomach ache. Also used to bathe sick people and babies. Good for fever and swollen sprains.	Smith 1974:272
None Given	tuu̲piki	WR		Edible root. Does not grow in Utah, but near White River in Colorado and near the Colorado-Wyoming border. Root boiled or baked in hot ashes.	Smith 1974:271
None Given	wa?i	N		Seeds. Seed used for food, grass used in earth oven.	Smith 1974:272
None Given	wa?i =pɨ	WR		Seeds. Edible, grows in a shell, like wheat. Ripens at the time the constellation Seven Sisters appeared in the sky. Parched, winnowed and ground.	Smith 1974:272
None Given	waka̲=ci	WR		Seeds. Seeds were encased in long thin stem, seedbeater was used to beat out the seeds, then they were ground on metate.	Smith 1974:273
Oak, Rocky Mountain; Oak, Scrub	kwi′-ûv	N	*Quercus undulata* var.		Chamberlin 1909:35
Onion, Tapertip	küñ-ka	N	*Allium acuminatum* Hook.	Bulbs and leaves eaten.	Chamberlin 1909:32

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Onion, Twincrest	küñ-ka	N	*Allium bisceptrum* S. Wats.	Bulbs and leaves eaten.	Chamberlin 1909:32
Onion, Wild	soovweya seevergravp cebolla	N	*Allium* L.	Mentioned during field visit. No other info given.	6/11-13/06 Field Visit
	badasi				4/12/07 Ute Elder
Onion, Wild (cont)				Gathered in the spring for food. Not used after plant has flowered.	4/13/07 Field Visit
Oregon Grape Barberry	ksĭp-o-a-ats	N	*Berberis repens* Lindl.		Chamberlin 1909:33
				Low ground covering shrub. Leathery holly-like leaves divided into spiny-edged leaflets. Leaves are red or purple in winter. Flowers are yellow. Berries are grape-like and purplish blue. Grows on foothills, slopes, and in lower foothills to forested slopes.	Helen Wash; Ute Elders
Pansy, Wild	ka-bam-sĭ-ta-gwĭv [horse medicine]	N	*Viola beckwithii*		Chamberlin 1909:37
Phlox, Slender Gilia	yo-gûm-sĭ-ta-gwĭv [coyote medicine]	unk	*Phlox gracilis* (Hook.) Greene ssp. *gracilis*	(*Gilia gracilis* Hook.) Poultice of plant applied to bruised or sore legs.	Chamberlin 1909:34
Phlox; Sweet William	mo-mu-′kwi-ĕts	N	*Phlox longifolia* Nutt		Chamberlin 1909:35
Peppermint, Wild		N		Grows up to 2½ feet. It has square stems and has an odor. If you can taste the peppermint, it is hot. Leaves are dark green, toothed, hairless. Plant is short stalked and purplish branchy stem. Flowers are pink to violet. Grows wild in wet places along streams, ditches, and wet meadows.	Helen Wash; Ute Elders
Pigweed, Redroot		N	*Amaranthus* L.		Kessley LaRose
Pinyon	noodtoohuuhch	N	*Pinus edulis*	Mentioned during field visit. No other info given.	6/11-13/06 Field Visit

Common Name	**Ute Name/Translation**	**Band**[1]	**Latin Name**[2]	**Use**	**Reference**
Pinyon (cont)	noodtoohvuhch			Trees grow 10 ft tall or more, dependent on the soil type. Dark brown bark. Cones are egg-shaped. Nuts are ¼ to 2 inches long and have a dark brown shell. Pine nuts ripen in summer.	Helen Wash; Ute Elders
	na?a-tɨpa=ci nutu- tɨpa=ci	WR		A long pole was used to beat the tree limbs and dislodge the cones, which fell to the ground and were gathered. The nuts were either shaken or beaten from the cones. They might be stored for the winter without shelling or they might be put in a flat basket with hot coals and shaken until the shells popped off. The nuts were winnowed, then ground on a metate and the meal stored for the winter. The meal was mixed with water and made into small balls or boiled into a mush. Another method of parching the nuts was to heat a stone which had a good-sized hollow into which the nuts were put after the fire had burned out. They were stirred until the shells cracked then winnowed.	Smith 1974:66
				Nuts.	Smith 1974:270
Pine Nuts	ti-va	N	*Pinus monophylla*	Nuts of this tree.	Chamberlin 1909:35
Potato	tsĭñ	N	*Solanum tuberosum*	Cultivated. Transferred from the name of a native plant.	Chamberlin 1909:36
Povertyweed	tam-ĕs′-ta-gwĭv; ta-ma-sĭ-ta-gwĭv	N	*Iva axillaries* Pursh	Occasionally used as medicine.	Chamberlin 1909:35
Rabbit Brush, Lesser Torchweed	shpûmp	N	*Guttierezia euthamiae* Torr. and Gray		Chamberlin 1909:34

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Raspberry		N		Shrub that grows 3-4 ft tall, with spreading branches. Long stems have bristles and thorns. Leaves are oval, coarsely toothed and pointed at the tip and grouped in 3-5 leaflets. Leaves are pale green on top and grayish white underneath. Flowers are small and white. Blooms in May or June. Berries ripen in June to July. Grows along streams or where it is rocky along canals.	Helen Wash; Ute Elders
	naka-watu=pɨ	WR		Berry. Eaten immediately.	Smith 1974:270
Raspberry, Black					Kessley LaRose
Rose, Wild	añ-ga-ko-rǐmp	N	*Caulanthus hastatus* Watson		Chamberlin 1909:33
	gehrump			Mentioned during field visit. No other info given.	9/15-16/06 Field Visit
	cii=pɨ			Term for rose hips. Berry. Found in mountains, seed removed and fruit boiled until soft.	Smith 1974:270
	muwici=pɨ			Term for larger variety of rose hips. Berry. Found in mountains, seed removed and fruit boiled until soft.	Smith 1974:270
Rose, Woods's Rose	añ-ga-si-ûñ-gǐv	N	*Rosa woodsii* Lindl. var. *woodsii*	(*R. fendleri*) Berries sometimes eaten.	Chamberlin 1909:36
Sacred Thornapple		unk	*Datura wrightii* Regel	(*D. meteloides*) Used as a narcotic.	Castetter and Underhill 1935:26
Sage, Sweet	schwouf	N	*Artemisia schoenoprsum*		Kessley LaRose
	sahwovf			Short shrubby and branchy plant. Leaves are gray-green and have a strong odor. Found in stony, dry sandy soil. Leaves best when collected during summer. June to July.	Helen Wash; Ute Elders
	sahwavf			Used as tea for colds.	4/12/07 Ute Elder
Sagebrush, Big	ma-av; ma-ap	N	*Artemisia tridentata* Nutt.	Leaves used in decoction as medicine.	Chamberlin 1909:32

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Sagebrush, Big (cont)	sahwovf			Mentioned during field visit. No other info given.	6/11-13/06 Field Visit
	ma-av; meap			Cook leaves with hot water and use as poultice for sores. As tea, good for colds.	9/15-16/07 Field Visit
				Leaves chewed and the juice swallowed for congestion in throat and lungs.	4/13/07 Field Visit
Saltbush, Four Wing		N	*Atriplex canescens*		Kessley LaRose
Sea-Milkwort	tsûn′-a-na-di-ĕts	N	*Glaux maritima* L.		Chamberlin 1909:34
Sedge	pi′-gwûts pa′-gwûts	N	*Carex jamesii* Torr.		Chamberlin 1909:33
Sego Lily	si′go	N	*Calochortus nuttallii* Torr. & Gray	The bulbs of this plant were formerly much used as food.	Chamberlin 1909:33
				Bulbs used for food in starving times.[7]	Murphey 1990:15
	sik^{w}u			Root dug in July, either eaten immediately or baked in earth oven.	Smith 1974:271
				Petals are white, yellow at the base with a red brown or purple band or spot above the gland, gland circular, fringed. Found in dry soil.	Helen Wash; Ute Elders
	cik^{w}u	WR		Root dug in July, either eaten immediately or baked in earth oven.	Smith 1974:271

[7] This quotation came from Moerman. Actually, Murphey (1990:15) said that the Mormon pioneers/settlers were given sego by the Utes and they (the Mormons) used it for food during the starving times.

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Sego Lily			*Calochortus gunnisons*	Petals are white to purple or yellow, often with a narrow transverse purple band above the gland and a purple spot on the claw below the gland. Numerous golden gland-tipped hairs are near the glands transversely oblong and arched. Found in areas that are dry to moist prairies to open woods, rocky slopes, and mountains.	Helen Wash; Ute Elders
Serviceberry Juneberry	toowump	N	*Avaeiciniun caesitosum*(?)		Kessley LaRose
				Grows 4-8 ft tall. Is branchy and has oval leaves. Five-petaled white flowers bloom early in spring. Berries are round, about 1/3 inch in diameter, blue-black in color. Berry has a crown (five-parted). Grows along streams in thickets, clearings, and mountains.	Helen Wash; Ute Elders
	tuwa̲=pɨ	WR		Berry. Ripen in the fall, gathered, dried in the sun for rive days and then stored in sack for the winter. These were the favorite berries.	Smith 1974:270
Serviceberry, Saskatoon	to-ûmp′	N	*Amelanchier alnifolia* (Nutt.) Nutt. ex M. Roemer	Berries were formerly an important food, being used in season and also preserved by drying for winter.	Chamberlin 1909:32
Shadscale	?sa′-mûv	N	*Grayia polygaloides* Hook and Arn.		Chamberlin 1909:34
Shepherd’s Purse	mo′-tĕn-de-äts	N	*Capsella bursa-pastoris* Moench.	Introduced into the region.	Chamberlin 1909:33
Shepherd’s Purse	mo′-tĕn-de-äts	N	*Capsella divaricata* Walp.	Native	Chamberlin 1909:33
Silky Catseye	yu′-bi-shad-ûmp	unk	*Cryptantha sericea* (Gray) Payson	(*Krynitzkia sericea* Gray) Roots used as a stomach medicine.	Chamberlin 1909:35
Snake Weed Turpentine Bush	gudereria	N			6/11-13/06 Field Visit

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Solomon’s Seal, False	yo-gwo′-ta-ma-nûmp	N	*Smilacina amplexicaulis* Nutt		Chamberlin 1909:36
Spearmint, Wild	damount-up kouerau-nap	N	*Mentha arvensis* L.		Kessley LaRose
				Grows up to 10-20 inches tall. It has a square stem and fragrant smell. Stems are branched, toothed, stalk less. Leaves are hairless and often tinged with purple. Flowers bloom in summer and fall and are pink to pale violet in color. Grows in wet areas, ditches, wet meadows, and along roads from early spring to late fall.	Helen Wash; Ute Elders
Speedwell	pu′-i-ants	N	*Veronica aggerata*		Chamberlin 1909:37
Spike-Rush	pa-o^{n}-ga-da-pĭn-tĭd	N	*Eleocharis palustris* R. Br.		Chamberlin 1909:33
Springbeauty, Carolina	ti-bi-wu-tc	N	*Claytonia caroliniana* Michx.		Chamberlin 1909:33
Springbeauty, Virginia	nooglacachoon	N	*Claytonia virginica* L.		Kessley LaRose
	noogkachoon			Wild potatoes grow up to six inches high or less. Bulbs are down deep in the ground. Leaves are long and lance-shaped. Underground stalks are slender. Flowers are white to pinkish, mostly pink with five petals, two sepals. Stalks arch wide. Can be found in areas of melting snow and where runoff water collects. Found in mountains, foothills, mountain meadows, sage brush planes, or near late snow beds. Found mostly at higher altitudes.	Helen Wash; Ute Elders
	noowhchoon			Mentioned during field visit. No other info given.	6/11-13/06 Field Visit
				Bulbs collected in the spring for food. Only grows at high altitudes.	4/13/07 Field Visit

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Springparsley, Longstalk	o-an-tûv	N	*Cymopterus longipes* S. Wats.	Leaves formerly boiled and eaten as food.	Chamberlin 1909:33
Squawberry Skunkbush Sumac Sumach	eesh	N	*Rhus trilobata*		Kessley LaRose
				Used for baskets (new and bottom branches). Roots used for cradleboard frame. Branches also used for shinny sticks.	6/11-13/06 Field Visit
				Shrub or small tree between 4-8 ft in height. Flowers appear before leaves in spring. Leaves are small, densely clustered at the ends of branches. Petals are yellow-green in color. Branches have three parted leaflets. Berry clusters are small, red, and rounded. The shrub gives off a strong smell when you pick the berries or when a branch is broken off. Berries ripen in early summer. April to June.	Helen Wash; Ute Elders
	mo-tam-bi-äts			(*R. aromatica* var. *trilobata*) The berries are eaten.	Chamberlin 1909:36
	wi̱si	WR		Berry. If they were to be eaten immediately, berries were ground on a metate; most were sun dried and stored for winter use, when they were ground on a metate with a little water. Same term used for yucca baccata.	Smith 1974:270
Squawbush				Preferred material for making baskets. Considered more pliable if gathered in the spring.	Smith 1974:270

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Squirreltail Yarrow		N		Grows 7-8 inches tall. Has long leaves. Flowers are daisy like, white, and have an odor. Flowers from May to October. Found among aspen, sagebrush, meadows, andmountains.	Helen Wash; Ute Elders
				Boiled and placed on sores or eczema patches.	4/13/07 Field Visit
Storks Bill Alfilaria	pa′-bo-i-äts	N	*Erodium cicutarium* L'her.		Chamberlin 1909:34
Strawberry	twes	N	*Fragaria virginiana*	Grows 2-6" tall and has a long leaf stalk. Leaflets appear in early spring. Five-petaled white flowers are ½ to 1 inch wide. After flowering, berries form. Berry is small and only lasts 2 weeks. Grow in open suny places, moist ground meadows, fields, and hillsides.	Helen Wash; Ute Elders
				Mentioned during field visit. No other info given.	6/11-13/06 Field Visit
	tuwi̱si	WR		Berry. Eaten fresh	Smith 1974:270
Sunflower	?ak^{w}u̱=pɨ	N	*Helianthus annuus*	Seeds. Many varieties known and used. Plants growing in the mountains thought to be richer and oilier. Seeds were separated from the flower head by the hands, then parched and winnowed.	Smith 1974:273
	ahkoop	N		Grows 3-8 ft tall. Stem is hairy and stands upward. Leaves are hairy and heat-shaped. Flowers are 3-6 inches wide with brown or purple center. Grows around open fields and meadows.	Helen Wash; Ute Elders
				Mentioned during field visit. No other info given.	6/11-13/06 Field Visit

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Sunflower (cont)	?uk^{w}u=pɨ	WR		Seeds. Many varieties known and used. Plants growing in the mountains thought to be richer and oilier. Seeds were separated from the flower head by the hands, then parched and winnowed.	Smith 1974:273
Sweetvetch, Mackenzie's Vetch	kai-va-ma-mû-tca-kwûv; mo′-tĕm-be-ĭtch	N	*Hedysarum boreale* ssp. *mackenzii* (Richards.) Welsh	(*H. mackenzii*) Roots said to be used as medicine.	Chamberlin 1909:35
Tansymustard, Western Hedge Mustard	po-e′-tcĕm-ĕn		*Descurainia pinnata* (Walt.) Britt. ssp. *pinnata.*	(*Sisymbrium canescens* Nutt) Used as medicine	Chamberlin 1909:36
Timothy, Alpine			*Phleum alpinum* L.		Kessley LaRose
Toadflax, Pale Bastard	sa-gwa-si-û^{n}-gûts	N	*Comandra umbellate* spp. *Pallida* (A. DC.) Piehl	Roots used as a medicine in headache, etc.	Chamberlin 1909:33
Tobacco	sapatu=tɨ	N			Smith 1974:274
				Put in bath water for chicken pox or poison ivy.	9/15-16/06 Field Visit
Ute Ladies Tresses		N		Member of the orchid family. Stems grow 29 inches tall. Has narrow leaves about 1 inch wide and may be up to 28 inches long at the base. Has many white ivory flowers clustered in a spike of three-rank spirals at the top of the stem. Grows in wet meadows, along meandering rivers, wet lands, seeps, alkaline, valley bottoms. August to early September.	Helen Wash; Ute Elders
				Ladies used for stress	9/15-16/06 Field Visit
Verbena, Snowball Sand Sand Puff	sa-gwam-sĭ-ta-gwĭv [stomach medicine]	N	*Abronia fragrans* Nutt. ex Hook.	The roots and flowers said to be used as a remedy in stomach and bowel trouble. The name is probably not specific, and will likely be found to be applied to other plants put to similar medicinal use.	Chamberlin 1909:32

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Vetch	ka-na-te′-änts pu-i-pi-ûm-av	N	*Vicia americana* Muhl	The second name refers tot eh blue or purplish flower and is probably general.	Chamberlin 1909:37
Vetch, Hairy	kai-va-ma-mu-tea		*Vicia villosa*		Kessley LaRose
Violet	sau′-o-ma-änts	N	*Viola canina* L. var. *Viola sylvestris* Regel		Chamberlin 1909:37
Waterleaf	o-at′ĕm-bi-ĕts	N	*Hydrophyllum capitatum*		Chamberlin 1909:35
Waternelon	waah-atah-maneesh				Ute Elders
	shan-ti-kût	N	*Citrulus vulgaris*	Cultivated.	Chamberlin 1909:33
Wildrye, Basin	o-wiv; ku-sia-kump		*Leymus cinereus* (Scribn. & Merr.) A. Löve		Kessley LaRose
Wildrye, Canada Lyme Grass	o-do-rûm-bĭv	N	*Elymus canadensis* L.	Seeds formerly gathered as food.	Chamberlin 1909:34
Willow	qkak-nuhof	N			Ute Elders
Willow	kai′-sĭv	N	*Cornus stolonifera* Michx.		Chamberlin 1909:33
Willow	ta-ma-nûmp-ĭn-av ta-ma-nûmp-in-ka-av	N	*Salix flavescens* Nutt	Used in basketry	Chamberlin 1909:36
Willow, Missouri River	k'sa'nav k'sa-ka-nav	N	*Salix eriocephala* Michx.	(*S. cordata*) Used in basketry	Chamberlin 1909:36
Willow, Pacific	k'sa'nav k'sa-ka-nav	N	*Salix lucida* ssp. *Lasiandra* (Benth.) E. Murr.	(*S. lasiandra*) Used in basketry, etc.	Chamberlin 1909:36
Willow, Peachleaf	k'sa'nav k'sa-ka-nav	N	*Salix amygdaloides* Anderss.	Used in basketry, etc.	Chamberlin 1909:36
Willow, Sandbar	ka-nav′	N	*Salix interior* Rowlee	(*S. longifolia*) Used in basketry	Chamberlin 1909:36
Wintergreen	maku	WR		Berry. Berries eaten fresh.	Smith 1974:270
Wood Fern; Bracken	kai′-ban-kĭm-bĭs	N	*Aspidium filix-mas* Schwartz		Chamberlin 1909:32
Woodbine	te-ĕd-kav	N	*Lonicera utahensis* Watson		Chamberlin 1909:35
Yampa, Wild Carrot	yaa=pɨ	N WR		Roots dug with digging stick, baked in earth oven, then dried, ground on metate and stored in buckskin bags for winter. Roots sometimes boiled in clay pot.	Smith 1974:271
Yampah, Gairdner's			*Perideridia gairdneri* (Hook. & Arn.) Mathias ssp. *gairdneri*	(*Carum gairdneri*) Roots used for food.	Coville 1897:101
Yarrow, Common	i-am′-sĭ-ta-gwĭv [wound medicine]	N	*Achillea millefolium* L.	Applied externally on bruises, etc., and also used as a tea in cases of sickness.	Chamberlin 1909:32

Common Name	Ute Name/Translation	Band[1]	Latin Name[2]	Use	Reference
Yucca	wi̲si	N			Smith 1974:274
Yucca (cont)				Grows up to 3 ft tall, but in other areas the yucca plant grows taller. Long, narrow sword-like green leaves and pointed ends. Flowers are white-petaled egg-shaped clusters. Fruit looks like pickles and have many black seeds. Grow in dry sandy soil on plains and foothills. May to July.	Helen Wash; Ute Elders
				Mentioned during field visit. No other info given.	6/11-13/06 Field Visit
			Yucca harrimaniae	Roots used for shampoo.	4/12/07 Ute Elder
	pɨsa̲-wisi	WR		Root. Soapweed.	Smith 1974:274
Yucca	wi̲si	WR	*Yucca baccata*	Berry. Fruits were eaten fresh, seeds discarded even though edible. Sometimes the pulp was boiled before eating. Same term used for squaw berry	Smith 1974:270

APPENDIX B

UTE ETHNOGRAPHIC BIBLIOGRAPHY

Ute Ethnographic Bibliography

Abert, Lt. James William

1999 *Expedition to the Southwest: An 1845 Reconnaissance of Colorado, New Mexico, Texas, and Oklahoma*. Bison Books Edition, University of Nebraska Press.

Ashmore, Wendy and A. Bernard Knapp (eds.)

1999 *Archaeologies of Landscape: Contemporary Perspectives*. Blackwell Publishers Ltd., Malden, Massachusetts.

Athearn, Federic J.

1992 *A Forgotten Kingdom: The Spanish Frontier in Colorado and New Mexico, 1540-1821*. Bureau of Land Management, Denver, Colorado.

Bailey, Christina

2004 Preston Nutter. Ashley National Forest, USPS. Electronic document, http://www.fs.fed.us/ r4/ashley/heritage/histories/preston-nutter.pdf.

2005a Ute Corrals. Ashley National Forest, USFS. Electronic document, http://www.fs.fed.us/ http://www.fs.fed.us/ r4/ ashley/heritage/ethnography/ute-corrals.pdf

2005b Ute Horse. Ashley National Forest, USPS. Electronic document, http://www.fs.fed.us/r4/ ashley / heritage/ ethnography/ute-horse. pdf.

Baker, Steven G.

1991 The Uncompahgre Valley Historic Ute Project, First Interim Report and Executive Summary. Centuries Research, Inc., Montrose.

1993 Modeling for Historic Eastern Ute Culture Change. Paper presented at the First Biennial Rocky Mountain Anthropology Conference, September 30-October 2, 1993, Jackson, Wyoming.

1995 Archaeological Disenfranchisement of the Colorado Ute. *Southwestern Lore* v 6l(3) 1-9. Colorado Archaeological Society, Denver.

2005a 2002-2003 Old Agency Initiative of the Uncompahgre Valley Ute Project, Vol. II, Late Contact Phase Ute Ethnohistory and Archaeology in Association with the 2nd Los Pinos Indian Agency on the Uncompahgre (50R139). Uncompahgre Valley Ute Project, Report No. 6. Prepared by Centuries Research Inc., Montrose, Colorado. Prepared for the Colorado Historical Society, State Historical Fund, Denver, and the Montrose Youth and Community Foundation, Montrose, Colorado. Copies available from the Colorado Historical Society, Office of Archaeology and Historic Preservation, Denver.

Baker, Steven G.
2005b Dear Bill, Dear Omer: What Should We Do Now? Notes on the Current State of Post Contact Eastern Ute Archaeology. Paper presented a{ the Annual Meeting of the Colorado Council of Professional Archaeologists, Grand Junction.

Baker, Steven G., Jeffery S. Dean, and Ronald H. Towner
2008 Final Report for the Old Wood Calibration Project, Western Colorado. Unpublished manuscript submitted to Montrose Community Foundation and State Historical Fund. On file at Centuries Research Inc., Montrose, Colorado.

Baker, Steven G., Richard F. Carrillo, and Carl D. Spath
2007 Chapter 2: 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, Honathon C. Horn, Carl D. Spath, David R. Guilfoyle, and E. Steve Cassells, Colorado Council of Professional Archaeologists, Boulder.

Basso, Keith H.
1996 Wisdom Sits in Places. In *Senses of Place.* Steven Feld and Keith H. Basso eds. Pp 53-90. School of American Research Press, Santa Fe, New Mexico.

Bates, Craig
2000 An Artistic Style Uniquely Their Own: Basketry, Parfleches and Beaded Clothing of the Ute People. In *Ute Indian Arts and Culture from Prehistory to the New Millennium*, edited by William Wroth, pp.143-178. Taylor Museum of the Colorado Springs Fine Arts Center, Colorado Springs.

Bennett, Julia L.
1999 We Know This Place: Mapping Relationships between Landscape and Language: A Study of Moache and Capote Ute Place Names. SW496 Paper, Dr. Richard Ellis, Fort Lewis College.

Berkhofer, Robert F., Jr.
1978 *The White Man's Indian: Images of the American Indian from Columbus to the Present*. Alfred A. Knopf, New York.

Betty, Gera1d
2002 *Comanche Society Before the Reservation*. Texas A&M University Press.

Blackhawk, Ned
2006 *Violence Over the Land: Indians and Empires in the Early American West*. Harvard University press.

2007a The Displacement of Violence: Ute Diplomacy and the Making of New Mexico's Eighteenth-Century Northern Borderlands. *Ethnohistory*, 54:723-755. American Society for Ethnohistory, Duke University Press.

Blackhawk, Ned

2007b Swiftly Moving Currents: American Indian History and the Changing Complexity of the Lewis and Clark Expedition. *Ethnohistory* 54:4, p. 583. American Society for Ethnohistory.

Bolton, Herbert E.

1950 *Pageant in the Wilderness: The Story of the Escalante Expedition to the Interior Basin, 1776 Including the Diary and Itinerary of Father Escalante.* Translated and Annotated. Utah State Historical Society, Salt Lake City.

Borland, Lois

1951 The First Los Pinos Agency and the Sale of the San Juan. *Colorado Magazine* 28(2):107-127.

Brett, John A.

2003 *Ethnographic Assessment and Documentation of Rocky Mountain National Park*. Department of Anthropology, University of Colorado at Denver

Brunswig, Robert H.

2005 Prehistoric, Protohistoric, and Early Historic Native American Archaeology of Rocky Mountain National Park: Volume 1-Final Report of Systemwide Archaeological Inventory Program Investigations by the University of Northern Colorado (1998-2002). Prepared for the National Park Service; Rocky Mountain National Park.

Buckles, William G.

1971 *The Uncompahgre Complex: Historic Ute Archaeology and Prehistoric Archaeology on the Uncompahgre Plateau in West Central Colorado*. Ph.D. dissertation, Department of Anthropology, University of Colorado. University Microfilms, Ann Arbor.

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.

Callaway, Donald G., Joel Janetski, and Omer C. Stewart

1986 Ute. In *Great Basin*, edited by Warren L. D1Azevedo, pp. 336-367. Handbook of North American Indians, Vol. 11, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Cameron, Catherine M.

1994 Collaborative Approaches to Understanding the Past: 1993. American Anthropological Association Plenary Session. SAA Bulletin, Society for American Archaeology, 12:1:11.

Carter, Edward C.
1999 *Surveying the Record: North American Scientific Exploration to 1930.* American Philosophical Society, Philadelphia.

Cassells , E. Steve
1983 *The Archaeology of Colorado.* Boulder, Colorado.: Johnson Books.

Cassells , E. Steve
2007 Chapter 11: Summary. In *Colorado History: A Context for Historical Archaeology*, Church, Minette C., Steven G. Baker, Bonnie J. Clark, Richard F. Carrillo, Honathon C. Horn, Carl D. Spath, David R. Guilfoyle, and E. Steve Cassells. Colorado Council of Professional Archaeologists, Denver.

Castetter, Edward F.
1935 Uncultivated Native Plants Used as Sources of Food. *Ethnobiological Studies in the American Southwest I*. University of New Mexico Bulletin 4(3): 1-84.

Castetter, Edward F. and Ruth Underhill
1935 The Ethnobiology of the Papago Indians. Ethnobiological Studies in the American Southwest II. *University of New Mexico Bulletin* 4(3): 1-84.

Chamberlain, Ralph V.
1909 Some Plant Names of the Ute Indians. *American Anthropologist* 11 (1): 27-40.

Chapoose, Betsy
2002 Tape-recorded interview; 17 July 2002 in Rocky Mountain National Park. Transcript on file, Rocky Mountain National Park.

2004 In 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 1ewis College. Durango, Colorado.

2007 Tape-recorded interview; 23 July 2007 at Northern Ute Tribal Offices; Ft. Duchesne, UT. Transcript on file, BLM-Grand Junction.

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

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

Cloud, Neil
1990 *Southern Ute Oral Tradition- History.* Southern Ute Tribe, Ignacio, Colorado.

Colorow, Bonnie

2007 Tape-recorded; 15 September 2008, Delta, CO. Transcript on file, Colorado State University Extension.

2007 Native Plant Master Manual Tri River Area Mesa, Delta, Montrose, and Ouray Counties. Tri-River Extension Office, Montrose, Colorado.

Colville, Frederick V.

1897 Notes on the Plants Used by the Klamath Indians of Oregon. *Contributions from the U.S. National Herbarium* 5(2): 87-110.

Condie, Carol J. and Carol Raish

2002 Indigenous and Traditional Use of Fire in Southwestern Grassland, Woodland, and Forest Ecosystems. Manuscript in possession of Sam Burns. To be published in proceedings from symposium, Human Dimensions and National Fire Plan Research, Ninth International Symposium on Society and Resource Management, 2002 2-5 June, Bloomington, Indiana.

Conetah, Fred A.

1982 *A History of the Northern Ute People*. Unitah-Ouray Tribe, Utah.

Conner, Carl and Danni Langdon

1987 Battlement Mesa Area Cultural Resource Study (for Exxon Oil). Sec.8 (3-5).

Cowan, Eliot

1995 *Plant Spirit Medicine.* Newberg (OR): Swan-Raven and Co.

Conetah, Fred A.

1982 *A History of the Northern Ute Peop1e.* Published by the Uintah-Ouray Ute Tr1be. University of Utah Printing Service, Salt Lake City, Utah.

Crum, Sally

1996 *People of the Red Earth: American Indians of Colorado.* Ancient City Press, Santa Fe.

Cuch, Forrest S. (ed.)

2003 *A History of Utah's American Indians*. Utah State Division of Indian Affairs, Utah State Division of History, Salt Lake City.

Curtin, L.S.M.

1947 *Healing Herbs of the Upper Rio Grande*. Revised and edited by Michael Moore. Western Edge Press (1997).

Cuch, Maria

2007 In Native American Oral History and Cultural Interpretation in Rocky Mountain National Park. National Park Service Rocky Mountain National Park Intermountain Region Department of the Interior.

Cutter, Donald C.

1977 *Prelude to a Pageant in the Wilderness*. The Western Historical Quarterly, Vol. 8, No. 1 < Jan., 1977), pp. §-14. Utah State University on behalf of the Western History Association.

Decker, Peter R.

2004 *The Utes Must Go!* Fulcrum Publishing, Golden Colorado.

Dees, Liesl

2003 Ute Ethnohistoric Research (Part II). In *The Utes of West Central Colorado, The Uncompahgre and White River Bands, An Ethnographic Overview*. Prepared for the Grand Mesa, Uncompahgre, and Gunnison National Forests by Sam Burns. Fort Lewis College, Durango, CO.

Delaney, Robert

1974 *The Southern Ute People*. Indian Tribal Series, Phoenix, AZ.

1989 *The Ute Mountain Utes*. University of New Mexico Press, Albuquerque.

Densmore, Frances

1972 *Northern Ute Music*. Reprint of 1992 edition issued as Bulletin 75 of Smithsonian Institution. Bureau of American Ethnology. Da Capo Press, New York.

De Ved, Lawrence and Byron Loosle

2001 Culturally Modified Ponderosa Trees on the Ashley National Forest. *Utah Archaeology* 14 (1): 1-13.

Duncan, Clifford

2002 Traditional Ute Sense of Place. Paper presented at the University of Northern Colorado, Greeley; March 6, 2002 as part of the "Mapping Identity" Conference. (Videotape, permit, transcript on file with RMNP).

2003 The Northern Utes. In A *History of Utah's American Indians*, Forrest S. Cuch ed., pp. 167-224. Utah State Division of Indian Affairs, Utah State Division of History, Salt Lake City.

Dunmire, William W. and Gail D. Tierney

1997 *Wild Plants and Native Peoples of the Four Corners.* Museum of New Mexico Press, Santa Fe, New Mexico.

Ellis, Richard N.

2000 The Ute Indians in Southern Colorado since 1850. In *Ute Indian Arts and Culture from Prehistory to the New Millennium*, edited by William Wroth, pp. 73-87. Taylor Museum of the Colorado Springs Fine Arts Center, Colorado Springs.

Emmitt, Robert
2000 *The Last War Trail: The Utes and the Settlement of Colorado*. University Press of Colorado, Boulder.

Feld, Steven and Keith H. Basso (eds.)
1996 *Senses of Place.* School of Amer1ean Research Press, Santa Pe, New Mexico.

Fitzpatrick, Val
2000 *Red Twilight: The Last Free Days of the Ute Indians.* Yellow Cat Publishing, Moab, Utah.

Foster, Steven and Rebecca L. Johnson
2006 Desk Reference to Nature's Medicine. National Geographic Society.

Fowler, Catherine S.
2001 "Great Basin Affiliations of the Ute Peoples of Colorado." In Ute Indian Arts and Culture from Prehistory to the New Millennium, edited by William Wroth, pp. 89-106. Taylor Museum of the Colorado Springs Fine Arts Center, Colorado Springs.

Fowler, Catherine S., and Don D. Fowler (eds.)
2008 *The Great Basin: People and Place in Ancient Times.* School for Advanced Research. Press, Santa Fe.

Fowler, Don D.
1980 History of Great Basin Anthropological Research, 1776-1979. *Journal of California and Great Basin Anthropology*, Vol. 2, No. 1, pp. 8-36).

Fowler, Don D. and Catherine S. Fowler (eds.)
1971 *Anthropology of the Numa: John Wesley Powell's Manuscripts on the Numic Peoples of Western North America 1868-1880.* Smithsonian Institution Press, Washington D.C.

Francaviglia, Richard V.
2005 *Mapping and Imagination in the Great Basin A Cartographic History*. University of Nevada Press.

Gardener, A. Dudley
1979 *The Ute Indians in Northwestern Colorado After the Meeker Massacre*. Western Wyoming College Contributions to History No. 1. Western Wyoming College, Rock Springs, WY.

Goss, James A.
1972a *Ute Lexical and Phonological Patterns.* Ph.D. Dissertation. The University of Chicago.; Department of Anthropology. Ann Arbor (MI): UMI Dissertation Services.

Goss, James A.
1972b Basin-Plateau Shoshonean Ecological Model. In *Great Basin Cultural Ecology: A Symposium*, Don Fowler, ed., pp. 12-3-12-8. Desert Research Institute Publications in the Social Sciences No. 8. Reno.

1999a The Yamparika- Shoshones, Comanches, or Utes- or Does it Matter? In *Julian Steward and the Great Basin: The Making of an Anthropologist*. University of Utah Press, Salt Lake City.

1999b Rocky Mountain High Culture: Look, The Utes Aren't Marginal Anymore!!! Paper Presented at the 4th Annual Rocky Mountain Anthropological Conference, Glenwood Springs, Colorado.

2000 Traditional Cosmology, Ecology, and Language of the Ute Indians. In *Ute Indian Arts and Culture*. William Wroth, ed. Colorado Springs: Taylor Museum of the Colorado Springs Fine Arts Center. pp. 27-52.

2003b Ute Indian Perspectives on the Old Spanish Trail: Sinawavi Made The Trail. Keynote Address at the Annual Conference of the Old Spanish Trail Association, Durango, Colorado, June 21, 2003.

Green, Nancy (Producer)
2009 The Utes. In *We Shall Remain: A Native History of Utah*. DVD published by KUED, University of Utah, Salt Lake City.

Greubel, Rand A.
2001 Ute Domestic Architecture. Presented at the Colorado Council of Professional Archaeologists Annual Meeting, March 2001.

2002 A Closer Look at Eastern Ute Subsistence. *Southwestern Lore*, 68(3):1-13.

2005 Strategies and Methodologies for Investigating Ute Wickiup Sites. Presented at the Colorado Council of Professional Archaeologists Annual Meeting, March 2005.

Guilliford, Andrew
2000 *Sacred Objects and Sacred Places: Preserving Tribal Traditions*. University Press of Colorado, Boulder.

Hafen, LeRoy R.
1946 Colonel Loring's Expedition across Colorado in 1858. *Colorado Magazine* 23(2):51-72.

Hafen, LeRoy R. and Ann W. Hafen, editors
1959 *The Diaries of William Henry Jackson, Frontier Photographer.* The Arthur H. Clark Company, Glendale, California.

Harrington, John P.
1911 The Phonetic System of the Ute Language. *University of Colorado Studies, Vol. VIII, Number 3*. Pp. 199-222. University of Colorado, Boulder.

Hayden, F. V.
1877 Ninth Annual Report of the United States Geological and Geographical Survey of the Territories, embracing Colorado and Parts of Adjacent Territories: Being a Report of Progress of the Exploration for the Year 1875. Government Printing Office, Wash.

1878 Tenth Annual Report of the United States Geological and Geographical Survey of the Territories, embracing Colorado and Parts of Adjacent Territories: Being a Report of Progress of the Exploration for the Year 1876. Government Printing Office, Washington.

Head, Lafayette
1865 Letter to John Evans, Governor and Ex-officio Superintendent of Indian Affairs, Colorado Territory. U.S. Congress. House Executive Document 1248. 39th Congress. 1st sess.

Heap, Gwinn Harris
1957 Central Route to the Pacific by Gwinn Harris Heap with Related material on Railroad Explorations and Indian affairs by Edward F. Beale, Thomas H. Benton, Kit Caron, and Col. E.A. Hitchcock, and in Other Documents, 1853-54, edited by LeRoy R. Hafen and Ann W. Hafen. Arthur H. Clark Company, Glendale, California.

Hill, Edward E.
1967 Historical Sketches for Jurisdictional and Subject Headings Used for the Letters Received by the Office of Indian Affairs, 1824-1880. National Archives and Records Services, General Services Administration, Washington, D.C. Manuscript used at the National Archives and Records Administration, Rocky Mountain Region.

Hodge, Frederick Webb (ed.)
1910 *Handbook of American Indians North of Mexico, Part 2*. Bulletin 30. Bureau of American Ethnology. Washington, D.C.

Horn, Jonathon C.
1999 Ute Material Culture during the Historic Period as Represented by Sites in the Montrose Area. Paper presented at the Colorado Council of Professional Archaeologists Annual Meeting, 1999.

2001 Shavano Valley Rock Art Site, National Register Nomination. Document on file, BLM Uncompahgre Field Office, Montrose, Colorado.

Husband, Michael B.
1984 *Colorado Plateau Country Historic Context*. Colorado Historical Society, Denver.

Iden, Thomas L.
1929 *A History of the Ute Indian Cessions of Colorado.* Master's Thesis, Western State College of Colorado. Western History Collection, Western State College, Gunnison, Colorado.

Jefferson, Jim
2001 *Nunt'z The Ute People: A Brief History*. Southern Ute Indian Tribe Cultural Series, Ignacio, Colorado.

Jefferson, James, Robert W. Delaney, and Gregory C. Thompson
1972 *The Southern Utes: A Tribal History*. Edited by Floyd A. O'Neil. Southern Ute Tribe, Ignacio, Colorado.

Jorgensen, Joseph Gilbert
1965 *The Ethnohistory and Acculturation of the Northern Ute*. Ph.D. dissertation, Department of Anthropology, Indiana University. University Microfilms, Inc., Ann Arbor, Michigan.

1972 *The Sun Dance Religion*. University of Chicago Press, Chicago and London.

Joseph P. Sanchez
1997 *Explorers, Traders, and Slavers: Forging the Old Spanish Trail, 1678-1850.* University of Utah Press.

Kaelin, Celinda Reynolds
2003 *Ute Culturally Scarred Trees*. http://www.pikespeakhsmuseum.org/Museum/UteCulturalTrees/Ute%20Culturally%2 0Sca.

Kappler, Charles J.
1904 *Indian Affairs: Laws and Treaties*. Vols. 1 and 2. Government Printing Office, Washington, D. C.

Kay, Margarita Artschwager
1996 *Healing with Plants in the American West*. University of Arizona Press, Tucson.

Keyser, James B. and George Poetschat, eds.
2008 *Ute Horse Raiders on the Powder Rim: Rock Art at Powder Wash, Wyoming*. Oregon Archaeological Society Publication #19, Portland.

La Forge, Aline
2006 *Ute Ethnobotany Project*. Unpublished plant identification booklet prepared for Ute visitation to Western Slope. Ms on file, BLM Grand Junction.

Lewis, David Rich
1994 *Neither Wolf nor Dog*. Oxford University Press, New York.

Lewis, David Rich

n.d. *Ute Indians*. Ute History to Go. http://historytogo.utah.gov/utah_chapters/america_indians/uteindians.html.

Lister, Florence (editor)

2011 *In the Shadow of the Rocks: Archaeology of the Chimney Rock District in Southwest Colorado.* Durango Herald Small Press, Durango, Colorado.

Lloyd, John B.

n.d. *The Uncompahgre Utes: A Contribution of data to the History of the Uncompahgre Ute.* Partial Requirement for the Degree of Master of Arts. Western State College of Colorado, Gunnison, Colorado.

Loosie, Byron

2003 *So Delicious They Ate the Bark Off the Trees*. Ashley National Forest Heritage Publication. Electronic document, http://www.fs.fed.us/r4/ ashley /heritage/ ethnography/ so-delicious. pdf.

Madsen, David B. and David Rhode, (eds.)

1994 *Across the West: Human Population Movement and the Expansion of the Numa*. University of Utah Press, Salt Lake City.

Marshall, Muriel

1998 *Uncompahgre*. Western Reflections, Inc., Ouray.

Martin, Curtis and Richard Ott

2007a Sand Wash Wickiup Survey Phase I: A Class III Cultural Resources Inventory in Moffat County, Colorado. Unpublished manuscript on file at the Bureau of Land Management Little Snake Field Office, Craig.

2007b The Little Snake Wickiup Revisits Project, Moffat County, Colorado. A series of unpublished site descriptions, Cultural Resource Reevaluation forms, and Aboriginal Wooden Features Component forms on file at the Bureau of Land Management Little Snake Field Office, Craig.

Martin, Curtis, Carl E. Conner, and Nicole Darnell

2005 The Colorado Wkiciup Project Volume II: Cultural Resources Class II Inventory for the Gunnison Gulch Area of Mesa County, Colorado. Unpublished manuscript on file at the Office of Archaeology and Historic Preservation, Denver, and the Bureau of Land Management Colorado State Office, Lakewood, Colorado.

Martin, Curtis, Richard Ott, and Nicole Darnell

2005 The Colorado Wickiup Project, Volume I: Context, Data Assessment -and Strategic Planning. Unpublished manuscript on file at the Office of Archaeology and Historic Preservation, Denver, and the Bureau of Land Management Colorado State Office, Lakewood, Colorado.

Martin, Curtis, Richard Ott, and Nicole Darnell

2006 The Colorado Wickiup Project Volume III: Recordation and Re-evaluation of Twelve Aboriginal Wooden Structure Sites in Eagle, Garfield, Mesa, and Rio Bianco Counties, Colorado. Unpublished manuscript on file at the Office of Archaeology and Historic Preservation, Denver, and the Bureau of Land Management Colorado State Office, Denver, Colorado.

Martorano, Marilyn

1981 *Scarred Trees Ponderosa Pine Trees Reflecting Cultural Utilization of Bark*. M.A. Thesis, Colorado State University, Fort Collins, Colorado.

1988 Culturally Peeled Trees and Ute Indians in Colorado. *Archaeology of the Eastern Ute: A Symposium,* Paul R. Nickens, ed., pp. 5-21. Colorado Council of Professional Archaeologists Occasional Papers No. 1

McBeth, Sally

2007 Native American Oral History and Cultural Interpretation in Rocky Mountain National Park. Prepared for the: National Park Service Rocky Mountain National Park Intermountain Region Department of the Interior.

2008 Ute Ethnobotany Project Summary Report of a cooperative project of the Grand Mesa, Uncompahgre, and Gunnison National Forests and the Grand Junction Field Office of the Bureau of Land Management. Ms on file, BLM Grand Junction.

2010 Ethnographic Overview Draft #2, Colorado National Monument. [Written in consultation with the Northern Ute]. Ms on file, Colorado National Monument.

McGinnis, Anthony

1990 *Counting Coup and Cutting Horses: Intertribal Warefare on the Northern Plains 1738-1889.* Cordillera Press, Evergreen Colorado.

Mehls, Steven F.

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

Miller, Mark E.

1997 *Hollow Victory: The White River Expedition of 1879 and the Battle of Milk Creek.* University Press of Colorado, Boulder.

Moerman, Daniel E.

1998 *Native American Ethnobotany.* Portland (OR): Timber Press.

Moore, Michael

1979 *Medicinal Plants of the Mountain West.* Santa Fe: Museum of New Mexico Press.

Murcray, Dirk, Kevin W. Thompson, Steven D. Creasman, Jana V. Pastor, and Barbara Amidon
1993 Archaeological Investigations at the Sand Wash Wickiup Site, Moffat County, Colorado. Unpublished manuscript on file at the Bureau of Land Management Little Snake Field Office, Craig.

Murphey, Edith Van Allen
1959 *Indian Uses of Native Plants*. Mendocino County Historical Society, Fort Bragg. Republished 1990.

Naranjo, Alden and Monica Lujan
2000 The Ute Creation Story. In Ute Indian Arts and Culture. W. Wroth, ed. pp. 7-8. : Taylor Museum of the Colorado Springs Fine Arts Center, Colorado Springs.

Nickens, Paul R. (ed.)
1984 An Overview of Ethnographical and Archaeological Data for Ute Burial Practices. In A Nineteenth Century Ute Burial from Northeast Utah, Fike and Phillips. *BLM Cultural Resource Series, No 16*, Salt Lake City, Utah.

1988 Archaeology of the Eastern Ute: A Symposium. *CCPA Occasional Papers, No. l*. Colorado Council of Professional Archaeologists, Boulder.

Nicolay, John G.
1863 Letter to William P. Dole, Commissioner of Indian Affairs, 14 Aug 1863. U.S. Congress. House Executive Document 1182. 38th Congress. 1st sess., 1863-1864. Vol. 3.

O'Neil, Brian
1993 The Archaeology of the Grand Junction Resource Area. A Class I Overview. Prepared for the Department of the Interior, Bureau of Land Management Grand Junction Resource District; Document on file, BLM Grand Junction Field Office.

O'Neil, Brian, Carl E. Conner, Barbara J. Davenport, and Richard Ott
2004 Archaeological Assessment of the Rifle Wickiup Village- 5GF308 in Garfield County, Colorado. Dominquez Archaeological Research Group, Grand Junction, Colorado. Manuscript on file at the Silt BLM District Office.

O'Neil, Floyd A.
1968 The Anguished Odyssey: The Flight of the Utes 1906-1908. *Utah Historical Quarterly*, Vol. 36, No. 4, pp. 315-327.

Opler, Marvin K.
1943 The Origins of Comanche and Ute. In *American Anthropologist, New Series, Vol. 45*, No. 1 Jan. - Mar., 1943, pp. 155-158. Blackwell Publishing 01'1 behalf of the American Anthropological Association.

Opler, Marvin K.
1963 The Southern Ute of Colorado. In *Acculturation in Seven American Indian Tribes*. Ralph Litton. Pp. 119-206. Peter Smith, Gloucester, Massachusetts.

1971 The Ute and Paiute Indians of the Great Basin Southern Rim. In *North American Indians in Historical Perspective*. Elenor Burke Leacock and Nancy Oestreich Lurie eds. Pp. 257-288. Waveland Press, Prospect Height, Illinois.

O'Rourke, Paul M.
1980 Frontier in Transition: A History of Southwestern Colorado. *Bureau of L-and Management Colorado, Cultural Resources Series Number Ten*.

Osburn, Katherine M. B.
1998 *Southern Ute Women: Autonomy -and Assimilation on the Reservation,1887-1934.* University of New Mexico Press, Albuquerque.

1998b I Am Going to Write to You: Nurturing Fathers and the Office of Indian Affairs on the Southern Ute Reservation, 1895-1934. In *A Shared Experience: Men, Women, and the History of Gender*. Laura McCall and Donald Yacovone, eds. New York University Press, l-9-98, pp. 245-273.

Ott, Richard
2009 *Perspectives on Ute Ethnohistory in West Central Colorado:* Prepared for tte Tribe of the Unitah and Ouray Reservation; Ute Mountain Ute Indian Tribe; Southern Ute Indian Tribe; and the Bureau of Land Management State Office; Grand Junction Field Office; Glenwood Springs, Grand Junction and Uncompahgre Field Offices. Manuscript on file at Bureau of Land Management, Grand Junction Field Office.

Pasquale, Cynthia
2005 Trees that Tell Stories. Denver Post. August 8, 2005. pp. 1F, 5F.

Pekka Hamalainen
2008 *The Comanche Empire*. Yale University Press.

Peterson, Kenneth Lee
1977 Tabehuache and Elk Mountain Utes: A Historical Test of an Ecological Model. *Southwestern Lore*, 43(4):5-21.

Petit, Jan
1990 *Utes: The Mountain People*. Rev. ed. Johnson Books, Boulder.

Pfertsh, Jack
1996 The Los Pinos Ute Agency Project. Manuscript made available by Alpine Archaeological Consultants, Inc., Montrose.

Powell, John Wesley
1873 Ute and Paiute Legends, 46 stories. *Bureau of American Ethnology Manuscript no. 794a*, located in the Southern Ute Cultural Museum, Ignacio.

Quintana, Frances Leon
1974 *Pobladores: Hispanic Americans of the Ute Frontier*. University of Notre Dame Press, Notre Dame.

Reed, Alan D. and Michael D. Metcalf
1984 *West Central Colorado Prehistoric Context*. Colorado Historical Society, Denver.

1999 *Colorado Prehistory: A Context for the Northern Colorado River Basin*. Colorado Historical Society, Denver.

Reed, Alan D. and Rachel Gebauer
2004 A Research Design and Context for Prehistoric Cultural Resources in the Uncompahgre Plateau Archaeological Project's Study Area, Western Colorado. Unpublished manuscript on file at Uncompahgre Plateau Study Project, Montrose, Colorado.

Reed, Verner A.
1991 (1893) *The Southern Ute Indians of Early Colorado*. Vistabooks, Dillon, Colorado.

Reyher, Ken
2007 *Antoine Robidoux and Fort Uncompahgre*. Western Reflections Publishing, Lake City, Colorado.

Richards, Harry
1967 Tape recorded interview with Harry Richards, Ignacio, Colorado. Interview by Floyd A. O'Neil and Gregory Thompson, August, 1967. Doris Duke Number 176 Ms, Special Collections, Marriott Library, University of Utah.

Rockwell, Wilson
2006 *The Utes, a Forgotten People*. Originally published 1956. Western Reflections Publishing Company, Montrose, Colorado.

Sanfilippo, Joanne
1998 *Ute Wickiups or Navajo Forked-Stick Hogans, Determining Ethnicity Through Architecture in the Archaeological Record*. Unpublished Master's thesis, Department of Anthropology, Northern Arizona University, Flagstaff. Manuscript on file at Bureau of Land Management, GSFO

Schroeder, Albert
1965 A Brief History of the Southern Utes. *Southwestern Lore*, Vol. 30, No. 4: 53-78.

Scott, Douglas

1988 Conical Timbered Lodges in Colorado or Wickiups in the Woods. *Colorado Council of Professional Archaeologists Occasional Papers No. 1*. Archaeology of the Eastern Ute: A Symposium. Paul Nickens, ed.

Simmons, Virginia McConnell

2000 *The Ute lndians of Utah, Colorado, and New Mexico*. University Press of Colorado, Boulder.

Simms, Steve, Buck Benson, Landon Profaizer

2006 Excavations at Two Wickiup Sites: Dugway Proving Ground and West Tavaputs Plateau: Why We Should Look for Structures at Lithic Scatters and Some Tips for Doing So. Paper presented at the Colorado Council of Professional Archaeologists, Mard1 2006.

2008 *Ancient Peoples of the Great Basin and the Colorado Plateau*. Left Coast Press, Walnut Creek, California.

Smith, Anne M. (Cooke)

1938 In: Tribal Distribution the Great Basin Authors Willard Z. Park, Edgar E. Siskin, Anne M. Cooke, William T. Mulloy, Marvin K. Opler, Isabel T. Kelly. *American Anthropologist, New Series*, Vol. 40, No. 4, Part 1 (Oct. - Dec., 1938), pp. 622 -638

1974 Ethnography of the Northern Utes. *Papers in Anthropology No. 17.* Museum of New Mexico, Albuquerque.

Smith, Ann M. assisted by Alden Hayes

1992 *Ute Tales.* University of Utah Press, Salt Lake City.

Southern Ute Tribe

2009 Introduction to the Ute Tribal History. Electronic document, http://www.southemute.nsn.us/historyintro.html.

Sprague, Marshall

1980 *Massacre: The Tragedy at White River*. Reprint. University of Nebraska Press, Lincoln.

Stamm, Henry E., IV

1999 *People of the Wind River: The Eastern Shoshones 1825-1900.* University of Oklahoma Press, Norman.

Stephenson Keith

n.d. *Bark, It's What 's For Dinner*. Ashley National Forest Publication. Electronic document, http://www.fs.fed.us/r4/ ashley /heritage/ ethnography/bark-its-whats-for-dinner. pdf.

Steward, Julian H.
1938 Basin-Plateau Aboriginal Sociopolitical Groups. *Bureau of American Ethnology, Bulletin No. 120.* Washington, D.C.

1941 The Southern Ute Peyote Cult. *American Anthropologist* 43(1941):303-308.

1942 Culture Element Distributions: XVIII; Ute-Southern Paiute. Anthropological Records Volume 6: 4. Berkeley: University of California Press.

Stewart, Omer C.
1962 Ute Bands: Early Historical References. *Southwestern Lore* 28:2, p.31. Colorado Archaeological Society.

1966 Ute Indians: Before and After White Contact. *Utah Historical Quarterly* 34:38-61.

1971 Ethnohistorical Bibliography of the Ute Indians of Colorado. *University of Colorado Studies, Series in Anthropology, no. 18.* Univ. of Colorado Press, Boulder.

Steinbrecher, Barry Price and Maren P. Hopkins
2019 Ethnographic Overview of Canyons of the Ancients National Monument. Document on file, Canyon of the Ancients National Monument, Tres Rios Field Office, Bureau of Land Management, Dolores, Colorado.

Stiger, Mark
1998 Distinguishing Ute and Navajo Archaeological Remains. *Southwestern Lore* 64(2): 1-20. Colorado Archaeological Society, Denver, Colorado.

Stocking, George W. Jr. (ed.)
1976 *American Anthropology* 1921-1945. University of Nebraska Press, Lincoln, Nebraska.

Sturgis, Thomas
1879 *The Ute War of 1879.* Why the Indian Bureau should be transferred from the Department of the Interior to the Department of War. Facsimile reprint by Kessinger Publishing, www.kessinger.net.

Sutton, Mark Q.
1986 Warfare and Expansion: An Ethnohistoric Perspective on the Numic Spread. *Journal of California and Great Basin Anthropology*, Vol. 8, No. l, pp. 65-82.

Swanton, John R.
1952 The Indian Tribes of North America. *Smithsonian Institution Bureau of American Ethnology Bulletin 145*. Washington, D.C. U.S. Government Printing Office. Reprinted 1968, Random House.

Taveapont, Venita

2004 Tape-recorded interview; 10 August 2004 in Rocky Mountain National Park (CO). Transcript on file, Rocky Mountain National Park.

2007 Tape recorded interview with Venita Taveapont, Director, [Northern] Ute Language Program; Uncompahgre Plateau Ethnobotany Site (CO). 14-15 September 2007. Transcript on file, BLM Grand Junction.

Thompson, Gregory Coyne

1972 Southern Ute Lands, 1848-1899; The Creation of a Reservation. *Occasional Papers of the Center of Southwest Studies*, Fort Lewis College Robert Delany Editor Paper No, 1, Durango.

Tyler, Samuel Lyman

1964 *The Ute people: A Bibliographic Checklist, Samuel Lyman*. Tyler- A publication of the Institute of American Indian Studies, Brigham Young University.

United States Department of Agriculture (USDA)

n.d. Plant Database. http://www.plants//usda.gov.

University of Michigan

n.d. Ethnobotany Project. http://herb.umd.umich.edu/

U.S. Congress

1880 House Committee on Indian Affairs. Testimony in Relation to the Ute Indian Outbreak. 46th Congress, 2nd sess. Mis. Doc. No. 38.

Ute Indian Tribe of the Uintah and Ouray Reservation

1937 Constitution and By-laws of the Ute Indian Tribe of the Uintah and Ouray Reservation. Electronic document,http://www.narf.org/nill/Constitutions/uteconst/uteconsttoc.htrn,

Ute Mountain Ute Tribe

2009 The Story of the Ute Tribe. Electronic document, http://www.utemountainute.com/ story.htm.

Warner, Ted, editor

1995 *The Dominguez-Escalante Journal: Their Expedition through Colorado, Utah, Arizona, and New Mexico in 1776.* Translated by Fray Angelico Chavez. University of Utah Press, Salt Lake City.

Wash, Helen

2007a Tape recorded interview, 25 July 2007; Uncompahgre Plateau. Interview conducted at Ute Senior Center, Ft. Duchesne, UT. Transcript on file, BLM Grand Junction.

2007b Tape-recorded interview, 14-15 September 2007; Uncompahgre Plateau. Transcript on file, BLM Grand Junction.

West, Elliott

1998 *The Contested Plains: Indians, Gold Seekers, and the Rush to Colorado*. University Press of Kansas, Lawrence, Kansas.

White, David RM.

2006 A Review of Historical and Ethnographic Literature Pertaining to Wickiups: Conical Timber Lodges within Bridger-Teton National Forest, Grand Teton National Park, Shoshone National Forest, and Yellowstone National Park. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming.

William A. and Ronald C. Wittmann

2001 *Colorado Flora, Western Slope*. Third edition. University Press of Colorado, Boulder.

Williams, Jack R.

2001 *Ute Culture Trees: Living History*. Pike Peak Research Station, Colorado Outdoor Education Center, Florissant, Colorado.

Witherspoon, Y.T.

1993 *Conversations with Connor Chapoose, a Leader of the Ute Tribe of the Uintah and Ouray Reservation. Recorded in 1960.* University of Oregon Anthropological Papers #47. University of Oregon, Eugene.

Wroth, William, ed.

2000 *Ute Indian Arts & Culture: from Prehistory to the New Millennium*. Taylor Colorado Springs Fine Arts Center, Colorado Springs.

Young, Robert G. and Joanna W. Young

1968 *Geology and Wildflowers of Grand Mesa Colorado*. Wheelwright Press, Grand Junction.

APPENDIX C

RADIOCARBON DATA

International Chemical Analysis Inc.
10585 NW 53rd ST.
Sunrise, FL 33351

Sample Report

Submitter Name: Carl Conner
Company Name: Dominguez Archaeological Research Group, Inc
Address: P.O Box 3543, Grand Junction, CO 81502
Date Received: June 03, 2019
Date Reported: June 25, 2019

ICA ID	Submitter ID	Material Type	Pretreatment	Conventional Age	Calibrated Age
19C/0601	5MN576.LB.F1	Charcoal	AAA	220 +/- 30 BP	Cal 1640 - 1690 AD (36.7%) Cal 1730 - 1810 AD (44.7%) Cal 1930 - …… AD (14.0%)
19C/0602	5MN576.LA.F1	Charcoal	AAA	550 +/- 30 BP	Cal 1310 - 1360 AD (40.5%) Cal 1380 - 1440 AD (54.9%)
19C/0603	5MN11009.F1	Charcoal	AAA	2340 +/- 30 BP	Cal 510 - 360 BC
19C/0604	5MN11009.F2	Charcoal	AAA	2010 +/- 30 BP	100 BC - 70 AD
19C/0605	5MN11010.F1	Charcoal	AAA	3140 +/- 40 BP	Cal 1510 - 1290 BC
19C/0606	5MN11010.F2	Charcoal	AAA	700 +/- 30 BP	Cal 1260 - 1310 AD (77.5%) Cal 1360 - 1390 AD (17.9%)

International Chemical Analysis Inc.
1951 NW 7th Ave
STE 300
Miami, FL U.S.A 33136

Summary of Ages

Submitter Name: Carl Conner
Company Name: Dominguez Archaeological Research Group, Inc
Address: P.O Box 3543, Grand Junction, CO 81502

ICA ID	Submitter ID	Material Type	Pretreatment	Conventional Age	Calibrated Age
17C/1101	5MN10984 Feat 1	Charcoal	AAA	1620 +/- 30 BP	Cal 380 - 540 BC
17C/1102	5MN10984 Feat 2	Charcoal	AAA	1940 +/- 30 BP	Cal 20 - 10 BC (1.2%) Cal 10 - 130 AD (94.2%)
17C/1103	5MN10988 Feat 1	Charcoal	AAA	5700 +/- 30 BP	Cal 4650 - 4640 BC (0.6%) Cal 4620 - 4460 BC (94.8%)
17C/1104	5MN10993 Feat 1	Charcoal	AAA	1840 +/- 30 BP	Cal 90 - 240 AD
17C/1105	5MN10983 Feat 1	Charcoal	AAA	1300 +/- 30 BP	Cal 660 - 730 AD (64.4%) Cal 740 - 770 AD (31.0%)

- Calibrated ages are attained using INTCAL13: **IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0–50,000 Years cal BP.** *Paula J Reimer, Edouard Bard, Alex Bayliss, J Warren Beck, Paul G Blackwell, Christopher Bronk Ramsey, Caitlin E Buck, Hai Cheng, R Lawrence Edwards, Michael Friedrich, Pieter M Grootes, Thomas P Guilderson, Haflidi Haflidason, Irka Hajdas, Christine Hatté, Timothy J Heaton, Dirk L Hoffmann, Alan G Hogg, Konrad A Hughen, K Felix Kaiser, Bernd Kromer, Sturt W Manning, Mu Niu, Ron W Reimer, David A Richards, E Marian Scott, John R Southon, Richard A Staff, Christian S M Turney, Johannes van der Plicht*. **Radiocarbon 55(4), Pages 1869-1887**.
- Unless otherwise stated, 2 sigma calibration (95% probability) is used.
- Conventional ages are given in BP (BP=Before Present, 1950 AD), and have been corrected for fractionation using the delta C13.

International Chemical Analysis Inc.
1951 NW 7th Ave
STE 300
Miami, FL U.S.A 33136

Summary of Ages

Submitter Name: Carl Conner
Company Name: Dominguez Archaeological Research Group, Inc
Address: P.O Box 3543, Grand Junction, CO 81502

ICA ID	Submitter ID	Material Type	Pretreatment	Conventional Age	Calibrated Age
17C/0912	5MN10937.F1	Charcoal	AAA	2120 +/- 30 BP	Cal 350 - 320 BC (4.2%) Cal 210 - 50 BC (91.2%)
17C/0913	5ME22096.F1	Charcoal	AAA	3390 +/- 30 BP	Cal 1750 - 1620 BC

- Calibrated ages are attained using INTCAL13: **IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0–50,000 Years cal BP.** *Paula J Reimer, Edouard Bard, Alex Bayliss, J Warren Beck, Paul G Blackwell, Christopher Bronk Ramsey, Caitlin E Buck, Hai Cheng, R Lawrence Edwards, Michael Friedrich, Pieter M Grootes, Thomas P Guilderson, Haflidi Haflidason, Irka Hajdas, Christine Hatté, Timothy J Heaton, Dirk L Hoffmann, Alan G Hogg, Konrad A Hughen, K Felix Kaiser, Bernd Kromer, Sturt W Manning, Mu Niu, Ron W Reimer, David A Richards, E Marian Scott, John R Southon, Richard A Staff, Christian S M Turney, Johannes van der Plich*t. **Radiocarbon 55(4), Pages 1869-1887**.
- Unless otherwise stated, 2 sigma calibration (95% probability) is used.
- Conventional ages are given in BP (BP=Before Present, 1950 AD), and have been corrected for fractionation using the delta C13.

International Chemical Analysis Inc.
10585 NW 53rd ST.
Sunrise, FL 33351

Summary of Ages

Submitter Name: Carl Conner
Company Name: Dominguez Archaeological Research Group, Inc
Address: P.O Box 3543, Grand Junction, CO 81502
Date Received: May 06, 2019
Date Reported: May 24, 2019

ICA ID	Submitter ID	Material Type	Pretreatment	Conventional Age	Calibrated Age
19C/0502	5MN11105.F2	Charcoal	AAA	1360 +/- 30 BP	Cal 610 - 700 AD (92.2%) Cal 740 - 770 AD (3.2%)
19C/0503	5MN11110.F1	Charcoal	AAA	350 +/- 30 BP	Cal 1450 - 1640 AD
19C/0504	5MN11115.F1	Charcoal	AAA	1140 +/- 30 BP	Cal 770 - 990 AD
19C/0505	5MN11122.F1	Charcoal	AAA	1870 +/- 30 BP	Cal 70 - 230 AD

- Calibrated ages are attained using INTCAL13: **IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0–50,000 Years cal BP.** *Paula J Reimer, Edouard Bard, Alex Bayliss, J Warren Beck, Paul G Blackwell, Christopher Bronk Ramsey, Caitlin E Buck, Hai Cheng, R Lawrence Edwards, Michael Friedrich, Pieter M Grootes, Thomas P Guilderson, Haflidi Haflidason, Irka Hajdas, Christine Hatté, Timothy J Heaton, Dirk L Hoffmann, Alan G Hogg, Konrad A Hughen, K Felix Kaiser, Bernd Kromer, Sturt W Manning, Mu Niu, Ron W Reimer, David A Richards, E Marian Scott, John R Southon, Richard A Staff, Christian S M Turney, Johannes van der Plicht*. **Radiocarbon 55(4), Pages 1869-1887**.
- Unless otherwise stated, 2 sigma calibration (95% probability) is used.
- Conventional ages are given in BP (BP=Before Present, 1950 AD), and have been corrected for fractionation using the delta C13.

APPENDIX D

CULTURAL RESOURCES LOCATION INFORMATION and OAHP FORMS (BLM and OAHP copies only)