INTRODUCTION

The planning area is situated in the heart of an area with a long and rich prehistoric and historic record. Native American occupation of the area dates back approximately 10,000 years. The archaeological record contains some of the earliest agricultural societies in the region. The historic period brought Spanish and Euro-American explorers, trappers, miners, and settlers into the region. This long record of human occupation has left one of the highest densities of prehistoric and historic heritage and cultural resources to be found in the United States. These sites have national, international, and Native American tribal significance.

Heritage and cultural resources are non-renewable resources that include historic and prehistoric artifacts, structures, sites, districts, and archival materials important for their scientific, educational, economic, and social values. Throughout the region advanced archaeological and historical research is an on-going endeavor. There is a great public interest in visitation to heritage and cultural resources. This visitation is an integral part of the region's economy. Twenty-five Native American Tribes and Pueblos claim cultural affiliation with heritage and cultural resources located within the planning area.

The SJPLC is responsible for identifying, evaluating, and protecting heritage and cultural resources on the public lands they manage. SJPLC managers have established an active heritage and cultural resource program that has focused on identifying, preserving, and interpreting heritage and cultural resources; as well as on providing research opportunities for the most significant resources.

LEGAL AND ADMINISTRATIVE FRAMEWORK

LAWS

- ***The Antiquities Act of 1906***: This act authorizes the President to declare Federal lands as national monuments for the purpose of protecting sites and objects of antiquity.
- ***The Historic Sites Act of 1935***: This act provided the earliest, and most basic, legislation for protecting cultural resources on Federal lands. It provides misdemeanor-level criminal penalties to control unauthorized uses. Appropriate scientific uses may be authorized through permits, and materials removed under a permit must be permanently preserved in a public museum. The 1906 Act is broader in scope than the 1979 Archaeological Resources Protection Act, which partially supersedes it.
- ***The National Historic Preservation Act of 1966, as amended***: This act created the National Register of Historic Places (NRHP), the list of National Historic Landmarks, and the posts of State Historic Preservation Offices (SHPOs), with the intent of preserving historical and archaeological sites. The act requires Federal agencies to evaluate the impacts of all government-funded construction projects through a process known as "Section 106 Review." Under the act, agencies maintain their own preservation program enjoined by advisory councils on historic preservation.
- ***The National Environmental Policy Act of 1969***: This act promotes efforts that would prevent or eliminate damage to the environment and biosphere, and enrich the understanding of the ecological systems and natural resources important to the nation.

- ***The Federal Land Policy and Management Act of 1976***: This act declares that "…the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values." It also states that "Terms and conditions must minimize damage to scenic and aesthetic values and fish and wildlife habitat and otherwise protect the environment."
- ***The American Indian Religious Freedom Act of 1978***: This act established national policy designed to protect and preserve, for Native Americans, their inherent right of freedom to believe, express, and exercise their traditional religions (including the rights of access to religious sites, use and possession of sacred objects), and freedom to worship through traditional ceremonies and rites.
- ***The Archaeological Resources Protection Act of 1979***: This act provides for the protection of archaeological resources and sites that are on public lands, and Native American tribal lands, in order to foster increased cooperation and the exchange of information between governmental authorities, the professional archaeological community, and private individuals.
- ***The Native American Graves Protection and Repatriation Act of 1990***: This act provides a process for museums and Federal agencies to return certain Native American cultural items (including human remains, funerary objects, sacred objects, and objects of cultural patrimony) to lineal descendants, culturally affiliated Indian tribes, and Native Hawaiian organizations.

EXECUTIVE ORDERS

- ***Executive Order 11593***: This EO provides for the protection and enhancement of the cultural environment.
- ***Executive Order 13007***: This EO provides policy with regard to Indian Sacred Sites.
- ***Executive Order 13084***: This EO provides policy with regard to consultation and coordination with Native American tribal governments.
- ***Executive Order 13195***: This EO provides policy with regard to "Trails for America in the 21st Century."
- ***Executive Order 13287***: This EO establishes Federal policy designed to provide leadership in preserving America's heritage by actively advancing the protection, enhancement, and contemporary use of the historic properties owned by the Federal government.

REGULATIONS AND POLICIES

- ***Title 43 CFR Part 3***: This provides policy with regard to the preservation of American antiquities, and implementing regulations for the Antiquities Act.
- ***Title 36 CFR Part 7***: This provides policy for the protection of archaeological resources.
- ***Title 43 CFR Part 10***: The provides policy in line with the Native American Graves Protection and Repatriation Act Regulations; Final Rule.
- ***Title 36 CFR 79***: This provides for the curation of federally owned and administered archaeological collections.
- ***Title 36 CFR Part 60***: This provides policy in line with the National Register of Historic Places.
- ***Title 36 CFR Part 800***: This provides for the protection of historic properties.

- ***BLM Manual 8100, 8110, 8120, H-8120-1, 8131, 8140, 8150, and 8170***: These provide policy and program guidance for the management of cultural resources
- ***FSM 2360***: This provide policy for special interest areas.
- ***BLM Departmental Manual Part 411 Museum Property Management***
- ***SJPL Fire Management Plan and Appendix B—Polygons (2004)***
- ***BLM Emergency Fire Rehabilitation Handbook, H-1742***
- ***IM No. CO-90-072***: This provides policy regarding "Colorado Burial Discovery Procedures."
- ***BLM IM No. CO-98-052***: This provides policy regarding "Clarification of Cultural Resource Clearance Responsibilities and Maintenance on On-Going Projects."
- ***BLM IM No. CO-2000-016***: This provides policy regarding "Disposition Policy on Native American Graves Protection and Repatriation Act (NAGPRA) Repatriated Museum Collections."
- ***BLM IM IB No. WO-2002-002***: This provides policy regarding "New Heritage Education Plan."
- ***BLM IM No. CO-2002-029***: This provides policy regarding "Interim Historic Preservation Guidelines and Procedures for Evaluating the Effect of Rangeland Management Activities on Historic Properties."
- ***BLM IB No. WO-2002-101***: This provides policy regarding "Cultural Resource Considerations in Resource Management Plans."
- ***BLM IB No. WO-2003-093***: This provides policy regarding "Implementation of Executive Order (EO) 13287 and Preserve America Initiative."
- ***BLM IM No. WO-2003-147***: This provides policy regarding "Application for Permit to Drill (APD) – Process Improvement #3 – Cultural Resources."
- ***BLM IM No. WO 2004-020***: This provides policy regarding "Guidance for Recording Cultural and Paleontological Resource Locations for the Bureau of Land Management using Global Positioning System Technology."
- ***BLM IM No. WO-2004-052***: This provides policy regarding "Assessing Tribal and Cultural Considerations as Required in IM-2003-233, Integration of the Energy Policy and Conservation Act (EPCA) Inventory Results into the Land Use Planning Process."
- ***BLM IB No. WO-2004-154***: This provides policy regarding "Amendments to 36 CFR Part 800, Protection of Historic Properties."
- ***BLM IM No. WO-2005-003***: This provides policy regarding "Cultural Resources and Tribal Consultation and Fluid Minerals Leasing."
- ***BLM IM No. WO-2005-027***: This provides policy regarding "National Historic Preservation Act (NHPA) Section 106 and Oil and Gas Permitting."
- ***BLM IM No. CO-2006-026***: This provides policy regarding "Cultural Resource Standards and Guidelines for Renewal of Right-of-Way grants and Temporary Use Permits under Section 106 of the National Historic Preservation Act."
- ***BLM IM No. WO-2007-002***: This provides policy regarding "Disposition Policy on Native American Graves Protection and Repatriation Act Repatriated Museum Collections."

OTHER AGREEMENTS

- Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers regarding the manner in which BLM will meet its responsibilities under the National Historic Preservation Act.
- State Protocol Agreement between the Colorado State Director of the BLM and the Colorado State Historic Preservation Officer regarding the manner in which BLM will meet its responsibilities under the National Historic Preservation Act and the National Programmatic Agreement among BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.
- Programmatic Agreement among BLM, the State of Colorado, the USFS, National Forests in the State of Colorado, USFS, the State Historic Preservation Office of Colorado, and the Advisory Council on Historic Preservation regarding the Management of Wildland Fire for Resource Benefits (Agreement No. 1102-002-98-038).
- Addendum 1 to the Colorado Protocol: Section 106 requirements For Comprehensive Travel and Transportation Management Planning.

DESIGN CRITERIA

Management guidelines and design criteria describe the environmental protection measures that would be applied to all of the alternatives at the project level in order to protect, enhance, and, where appropriate, improve heritage and cultural resources. Guidelines and design criteria are presented in Part 3 of Volume 2 of the DLMP/DEIS.

AFFECTED ENVIRONMENT

Existing Conditions and Trends

As of June 2006, BLM-administered lands within the planning area contained approximately 1,868 previously recorded heritage/cultural resources. As of May 1998, USFS-administered lands within the planning area contained approximately 2,950 previously recorded heritage/cultural resources. These heritage/cultural resources represent a variety of site types and chronological periods. The estimated density of sites on BLM lands is 16 sites per square mile. The estimated density of sites on USFS lands is estimated to be approximately 2.8 sites per square mile. The known heritage/cultural resources on BLM lands include 1,360 prehistoric and 508 historic sites. The known heritage/cultural resources on USFS lands include 2,408 prehistoric sites, 441 historic sites, and 95 multi-component historic-prehistoric sites. Together, these resources document an almost continuous record of human occupation in the planning area for more than 10,000 years.

In general, cultural resources are identified through field inventories conducted by qualified professionals in order to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966. Informant information and historical records are also used to identify archaeological, historical, and traditional values. Three types of inventories are conducted in order to identify and assess these values on public lands: Class I, Class II, and Class III. An estimated 11% of the BLM lands and 9.5% of the USFS lands have been inventoried for heritage/cultural resources at the Class III level. A majority of the Class III inventories were associated with Federal undertakings where cultural properties needed to be identified and evaluated in order to protect significant values and to minimize impacts on these values.

Four Class I level overviews of prehistoric and historic resources in southwestern Colorado encompass the planning area, and provide a synthesis of available information (Duke1998; Lipe et al. 1999; Reed and Metcalf 1999; Collins et al. 2006). The "Class I of Cultural Resources Overview of Bureau of Land Management" by Collins et al. (2006) divides the BLM lands into 23 geographic units. A predictive model for each of these geographic units was developed that identifies areas with high, medium, and low site potential. This Class I Overview also developed management recommendations for each geographic unit (including recommendations for archaeological inventory, monitoring, evaluating sites, and development of Cultural RMPs).

Of the 1,868 known sites on the BLM lands within the planning area, 468 have been determined to be eligible for the National Register of Historic Places (NRHP), 800 have been determined to be not eligible for the NRHP, and 600 sites need more data before a determination of eligibility for the NRHP can be made. Of the 2,944 known sites on the USFS lands within the planning area, 1,132 sites have been determined to be eligible for the NRHP. Of these 1,132 eligible sites on national forest lands, 997 have been formally listed on the NRHP. This includes contributing sites within the Anasazi Archaeological District, Lost Canyon Archaeological District, Spring Creek Archaeological District, Falls Creek Archaeological Area, and Chimney Rock Archaeological District. There are two designated National Historic Landmarks that incorporate, or are adjacent to, public lands: Silverton National Historic Landmark and Durango-Silverton Narrow Gauge Railroad National Historic Landmark. National Historic Trails traversing the planning area include the Dominguez-Escalante National Historic Trail and the Old Spanish National Historic Trail.

The planning area is situated at the boundaries of two distinct physiographic and cultural areas: the Rocky Mountains and the Colorado Plateau. Native Americans associated with the two cultural areas have lived on, or traversed through, the lands within the planning area for thousands of years. They hunted, fished, gathered plant foods, farmed, buried their dead, and conducted religious ceremonies on these lands.

The 25 Native American Tribes and Pueblos maintain active interests in the planning area. Individual tribal members occasionally use public lands to gather plants or other native materials, and to hunt. Consultation efforts with these groups are on-going. The tribes and pueblos have expressed concerns over the preservation and protection of specific archaeological sites. The Hopi have identified Falls Creek as an area of traditional interest to them. Ethnographic sources indicate that Hesperus Peak in the La Plata Mountains is considered sacred by the Navajo. To date, none of these sites have been formally established as Traditional Cultural Properties.

Table 3.21.1 – Tribes and Pueblos with Cultural Ties or interests in the Planning Area

TRIBES AND PUEBLOS		
Pueblo of Isleta	Pueblo of Pojoaque	Pueblo of Santa Ana
Pueblo of Jemez	Pueblo of San Felipe	Pueblo of Santa Clara
Pueblo of Laguna	Pueblo of San Ildefonso	Pueblo of Santo Domingo
Pueblo of Nambe	Pueblo of San Juan	Pueblo of Taos
Pueblo of Picuris	Pueblo of Sandia	Pueblo of Tesuque

Cultural Chronologies

Paleoindian Stage (11500 to 5550 B.C.) - The Paleoindian Stage represents immigrants to the New World who adapted to the environmental changes occurring at the end of the Pleistocene. Based upon Paleoindian artifacts, hunting appears to have been the dominant form of subsistence, although in some environments gathering may have played a more significant role. Within the planning area, there are 13 Paleoindian sites recorded on BLM lands and 25 Paleoindian sites recorded on USFS lands.

Archaeological evidence of Paleoindians is limited within the study area. Still, current studies (cf. Pitblado 1993) maintain that there was a significant Paleoindian occupation within southwestern Colorado, particularly associated with the Plano complex. Pitblado (1993) notes that not only are Paleoindian sites likely at higher elevations than archaeologists have looked in the past, but they may be under much deeper strata (i.e., Quaternary fill deposits) than normally recorded or researched through surface observation. More excavation and testing of these deposits for potential Paleoindian sites are needed in order to better understand their subsistence and settlement patterns (including the level of seasonal use of the area).

Archaic Stage (6400 to 400 B.C.) - The Paleoindian Stage transitioned into the Archaic Stage, with a shift to a broader subsistence pattern. This pattern was characterized by an increased reliance on smaller animals, more varied projectile point types, an increased focus on gathering plant resources, and the construction of more labor-intensive, long-term habitation structures and pits. These traits may be spread over a slightly smaller geographic area than many of the Paleoindian complexes. There was a significant Archaic population in the planning area. Within the planning area, there are 211 Archaic sites recorded on BLM lands, and 179 on USFS lands.

Early Archaic (6500 sc-3500 B.C) Pioneer Period (6400 ec-4500 B.C.) - The Early Archaic is generally characterized by stemmed projectile points, side scrapers, and large bifacial knives. There may have been a population increase toward the end of the period (Duke 1998). Reed and Metcalf (1999) describe the Pioneer Period as a time when Paleoindian populations became more sedentary, adopting seasonal settlement patterns.
Middle Archaic (4500 to 1500 B.C.) Settlement Period (4500 to 2500 B.C.) Transitional Period - During the Middle Archaic, there was an apparent increase in population in the area, as well as the introduction of post-holed temporary dwellings. Generally speaking, the Settlement Period represents more localized and predictable settlement locations, especially during the winter months. Daub architecture also developed at this time. Many of the traits of the Settlement Period are still present in the Transitional Period. During the Transitional Period, populations may have become more seasonal in their utilization of resources found at higher elevations and slightly less sedentary, and they exhibited greater variability in their material culture (Reed and Metcalf 1999). These behavioral characteristics coincided with a population shift from higher to lower elevations, as the overall temperature rose sometime between 2000 and 1500 BC (Lipe et al. 1999). This shift marks the beginning of the Late Archaic.

Late Archaic (1500 to 500 B.C.) Terminal Period (1000 to 400 B.C.) - In the southern Colorado River Basin, the Late Archaic saw a general reduction in mobility (Lipe et al. 1999:105). The reduced mobility coincided with maize use, as early as 1000 B.C., although a maize-based subsistence system did not develop until much later. In the northern Colorado River Basin, the Terminal Period populations began to use the bow and arrow, processed more seed, and may have even experimented with maize horticulture, although perhaps to a lesser extent than populations to the south (Reed and Metcalf 1999).

Formative Stage (1000 B.C. to A.D. 1300) - In southwestern Colorado, the Formative Stage marks the beginning of established maize, bean, and squash agriculture. This time was also characterized by less mobility, and more sedentary settlement patterns, demonstrated by the use of permanent habitation structures. Hunting was accomplished using bow-and-arrow technology. Ceramics were manufactured during this time, as were maize-grinding implements and woven textiles. Within the planning area, there have been 538 Formative Stage sites recorded on BLM lands, and 1,700 on USFS lands. The Fremont and Ancestral Puebloan cultures are both Formative and exhibit these traits.

Fremont Tradition (A.D. 200 to 1500) - Within the northern Colorado River Basin, Fremont sites are generally characterized by varying degrees of reliance on horticulture, as well as on four other characteristics: distinct coiled pottery; one-rod-and-bundle basketry; deer or mountain sheep moccasins; and a trapezoidal, anthropomorphic style of rock or clay figurines. Of these, the pottery is the most diagnostic of a Fremont site. This is due to its durability. The ceramics are more clearly associated with open artifact sites than with rock art (Reed and Metcalf 1999).

Basketmaker II (1000 B.C. to A.D. 500) - Within the planning area, the highest concentration of Basketmaker II sites is in the Columbine Geographic Area. These sites sometimes appear more characteristic of the Navajo Reservoir Basketmaker occupation than other Basketmaker occupations within the region. In general, Basketmaker II characteristics across the southern Colorado River Basin include the use of maize and maize-grinding implements (with deeper basins than used previously by forager groups); the use of deer, elk, and mountain sheep; and later, some use of plain, coiled brown ware pottery. However, most sites outside of the Durango area have no evidence of pottery, and can be difficult to distinguish from Late Archaic and even Protohistoric Ute sites. The habitations from this period are typically shallow pithouses with slab-lined cists and beehive-shaped storage units. Site locations appear to be most common along bluffs and benches, and in rock shelters near ecologically diverse zones (Duke 1998).

There appear to be relatively few documented Basketmaker II sites within the planning area; however, there are difficulties with identifying these sites by surface inspection and survey methods alone. Many of these sites may have been assigned to the Archaic period by the original recorder (Lipe et al. 1999:152). In order to rectify this situation, excavation, testing, diagnostic artifact reevaluation, and general research are priorities in order to refine the characteristics of Basketmaker II sites within the planning area.

Basketmaker III (A.D. 500 to 750) - The Basketmaker III Period is generally marked by the introduction of bow-and-arrow technology (Lipe et al. 1999:143). There is also evidence of the widespread use of maize and squash and the introduction of beans, as well as a corresponding decrease in hunting and the use of wild plants. Some of the habitations were utilized throughout the year, and the archaeological record reflects more activity areas associated with the habitations. Pithouses evolved, becoming gradually deeper and losing the antechamber. Some storage rooms were partially aboveground, and there was an increased number of storage features to accommodate more stored food (Duke 1998; Lipe et al. 1999). Chapin gray ceramics appeared early, followed by Chapin black-on-gray and Sambrito brown/utility wares. Both trough and slab metates were used during this period. Many Basketmaker III sites have been located near farmable land and pinyon-juniper woodlands, as well as on terraces or benches near rivers and other water sources (Lipe et al. 1999).

Basketmaker III sites have several distinctive characteristics; however, their small middens and mostly buried elements make it quite difficult to identify these sites through surface examination alone. For sites with subterranean habitations, subsurface testing and excavation are the best ways to identify and research these occupations (Lipe et al. 1999). With few Basketmaker III sites in the planning area having undergone testing or excavation, it is clear that more research is necessary. Still, increased Class III survey coverage will undoubtedly shed light on the community and landscape level use of the area by Basketmaker III and other occupations.

Pueblo I (A.D. 750 to 900) - Pueblo I sites represent a period when populations increased from around 2,000 to more than 4,000 people, distributed over nearly 2,000 square miles of southwestern Colorado (Lipe et al. 1999). The habitations were occupied on more of a year-round basis than during the previous period; however, long-term residential occupations were still relatively short. Farming became such an important part of life that households were located close to arable lands. Communities with stockaded settlements became more prevalent than under the previous period, as did surface storage and surface habitation structures (Duke 1998; Lipe et al. 1999). Technological changes are evident in ceramics and projectile points. Pottery styles included Plain gray ware, neckbanded, Piedra black-on-white, and Rosa black-on-white. Even some red-on-orange and black-on-red vessels are represented in the ceramic traditions for this period (while projectile points were thinner and side-notched) (Duke 1998:9Lipe et al. 1999).

The field house was an architectural element that arose during this period. Although not likely used extensively until the Pueblo II and Pueblo III periods, the presence of this architectural feature demonstrates increased intensification of agriculture, and its importance in the subsistence patterns of the people of this period and later. The unit pueblo was also developed during this period. The great kiva was also introduced, which represented a change in social organization (Lipe et al. 1999).

Pueblo 1 sites are fragile. They are deteriorating at a rapid rate (Lipe et al. 1999). In order to better protect and understand this period, more Class III block surveys, as well as testing and excavation, are needed in order to better understand the dynamics of the Pueblo I occupation of the planning area.

Pueblo II (A.D. 900 to 1150) - The Pueblo II occupation of the southern Colorado River Basin began with a low population density, which gradually increased only to decline again toward the end of the period. Reed and Metcalf (1999) speculate that a small number of Pueblo II groups entered the northern Colorado River Basin during periods of population paucity (although site characteristics are too atypical to easily type the known sites or identify possible sites). Most of the existing recorded Pueblo II sites are situated within the southern Colorado River Basin. Chimney Rock Great House is an excellent example of a Pueblo II Chacoan Outlier. Pueblo III (A.D. 1150 to 1300) - The Early Pueblo III period (A.D. 1150 to 1225) is notable for a general population decline, then for a late dramatic population increase. Sites of the period became larger and aggregated into large mesa-top villages, with towers and some “great houses” incorporated into their community centers. Other archaeological evidence characteristic of Pueblo III is the production of Dolores and Mesa Verde corrugated wares, and McElmo and Mesa Verde black-on-white wares. Grooved stone axes were abundant, and triangular projectile points lacking stems are most notable (Lipe et al. 1999).

By the Late Pueblo III period (A.D. 1225 to 1300), populations continued to aggregate into large community centers. However, unlike previous periods, the people congregated into multi-story cliff dwellings or complexes near canyon rims and springs. Great houses were phased out, and tower complexes became more common. There was a rapid population decline at the end of the period, with a migration of area inhabitants to the southeast and southwest.

The Pueblo III period has been the most studied and researched; therefore, it generates more research questions. Although survey data are always helpful, more significant methods for answering research questions include excavation, testing, and climate studies; as well as more detailed analysis of data and collections from the Pueblo III period. As an additional consideration, large communities from this period left a highly visible footprint on the landscape and exhibit massive, often still-standing architecture (including towers and cliff dwellings).

Protohistoric (A.D. 1300 to 1880) - The Protohistoric is also called the Post-Puebloan by Lipe et al. (1999). The northern Colorado River Basin context protohistoric stage only includes Ute occupations, while the southern Colorado River Basin discusses Ute and Athabaskan (Navajo and Apache) peoples. Within the planning area, there are 62 Protohistoric sites recorded on BLM lands, and 137 Protohistoric sites recorded on USFS lands.

Protohistoric Ute (A.D. 1300 to 1881) - The Ute were the primary occupants of much of Colorado throughout the protohistoric and historic stages, until historic Euro-American settlement. Unfortunately, the archaeological and early historical records of these peoples have been the least studied and understood. It should not be surprising, then, that the southern Colorado River Basin has no chronological sequence for discussing Ute occupation of the area. In the northern Colorado River Basin; however, more studies have been conducted and a basic chronology has been developed. This chronology is split into two phases by Reed (1988) and Reed and Metcalf (1999), the Canalla phase and the Antero phase.

The overall characteristics of the Protohistoric Ute are often considered an "extension" of the Archaic lifestyle. This similarity can make it difficult to distinguish sites from these two time periods. Ute subsistence, however, focused more upon foraging than collecting, and their settlement patterns reflect their preference for high residential mobility over the logistical mobility of the Archaic groups (Reed and Metcalf 1999). Still, this is a differentiation that is often difficult to discern, except, perhaps, through excavation or a more intensive analysis of surface manifestations than has been done to date.

Protohistoric Navajo (A.D. 1485 to 1760) - Similar to cultural remains of the Ute, little archaeological evidence points to a firm date for the first Navajo occupation of southwestern Colorado. Oral traditions from modern Navajo groups detail an emergence from the San Juan Mountains. Hesperus Peak (Dibe nitsaa) is sacred and marks a portion of traditional Navajo boundaries (Lipe et al. 1999). Based upon oral tradition, the Navajo occupation of the area started around A.D. 1485. Most Protohistoric Navajo sites in southwestern Colorado likely date back prior to A.D. 1750, although some date to before A.D. 1700 (Lipe et al. 1999).

Problems associated with identifying both Navajo and Ute sites from the protohistoric and historic periods are numerous. Material culture from Navajo, Ute, and Archaic contexts exhibit similar manifestations, and infer similar functions. These peoples occupied and utilized similar environments and, sometimes, even the same landscapes,. The later Ute and Navajo used much of the same material culture that Euro-Americans did, such that the cultural affiliation of artifact scatters can be difficult to distinguish. One of the biggest problems is the general lack of excavated Navajo and Ute sites within the planning area. Testing and excavation of sites, analysis of collected artifacts, and ethnographic overviews of the Navajo and Ute within the planning area are needed in order to increase the understanding of sites from this period.

Historic (A.D. 1630 to 1950) - In spite of its obvious presence across the landscape of the planning area, the historic period is sorely understudied and even undervalued relative to the Prehistoric period (Duke 1998). Historic archaeologists and historians need to conduct research on historic sites before the integrity and history of these sites are lost.

Historic Ute (A.D. 1640 to 1950) - Prior to Euro-American contact, the Ute consisted of at least six bands that occupied portions of what is now Colorado: the Muache, Capote, Weminuche, Uncompahgre, Parasunuch, and Yampa. After Ute and Euro-American contact, a treaty was signed in 1863 that was intended to move the Ute to a reservation (so settlers could move in). After this treaty failed, the size of the reservation was reduced by the Treaty of 1868, which gave the settlers more land, and more access to minerals in the mountains. Tension continued to build between the Ute and Euro-American settlers and miners. In 1873, the Brunot Agreement was signed, which moved the Ute to lands away from the San Juan Mountains. By 1881, all Utes had been moved out of western Colorado onto reservations in Utah or southern Colorado. Bands descended from the Muache and Capote were moved to the Southern Ute Reservation. Bands descended from the Weeminuche were moved to the Ute Mountain Ute Reservation (Duke 1998; Husband 1984; O'Rourke 1980). Although these reservations were significantly reduced by 1934, each has now increased its size by purchasing surrounding lands (Duke 1998; O'Rourke 1980). The current limitation of Ute territory should not preclude archaeologists and managers from seeking archaeological evidence of these people within their former territories.

Historic Euro-American (A.D. 1660 to 1950) - This portion of the chronology encompasses the history of all ethnic groups, other than Native Americans, who occupied the planning area. There are eight general themes represented within the planning area: 1) exploration, 2) mining, 3) transportation, 4) agriculture, 5) logging and lumber industry, 6) recreation and tourism, 7) Federal activity, and 8) socio-cultural developments. Within the planning area, there are 512 historic Euro-American sites recorded on BLM lands, and 773 historic Euro-American sites recorded on USFS lands.

Trends

Within the planning area, heritage and cultural resources are currently facing numerous impacts from natural and human disturbances. Over the last 10 years, the San Juan region has experienced unprecedented growth and development. This trend is expected to continue and increase. Growth and development may impact non-renewable heritage and cultural resources, both directly and indirectly. Direct impacts may include disturbance from construction, vandalism, and excessive or inappropriate visitor use. Indirect impacts may include accelerated erosion and visual impacts to cultural landscapes. Once these resources are destroyed, they are lost forever.

In addition to impacts from natural and human disturbances, there is a trend for decreasing USFS and BLM budgets (while, at the same time, workloads are increasing). This trend hampers the ability to conduct a proactive heritage and cultural resource program. In order to help address the increasing impacts and decreasing budgets, there is a trend toward increasing opportunities for greater public participation and partnerships in heritage and cultural resources management. The goal of these partnerships is to instill a sense of ownership in visitors, and to conduct proactive preservation, research, education, and interpretative projects.

Use Categories

BLM planning and manual guidance stress the importance of meeting specified goals through the allocation of all cultural properties within the planning area into defined "use categories," based on their nature and relative preservation value.

Sites located on BLM lands have been allocated to the following use categories (some sites have been allocated to more than one use, and 693 sites are unallocated).

- ***Scientific Us***e: Under this category, sites would be preserved until research potential is realized (592 sites).
- ***Conservation for Future Use***: Under this category, sites would be preserved until conditions for use are met (44 sites).
- ***Traditional Use***: Under this category, there would be long-term preservation of sites (0 sites).
- ***Public Use***: Under this category, there would be long-term preservation and on-site interpretation (7 sites).
- ***Experimental Use***: Under this category, sites would be protected until used (3 sites)0
- ***Discharged from Management***: Under this category, sites would be removed from protective measures (608 sites).

Sites may be placed into more than one use category. (For example, a prehistoric site with little or no scientific value may be placed under a Discharged from Management category, but may also, however, be useful under the Experimental Use category. Similarly, a historic site may be placed in the Public Use category, but may still require stabilization and preservation efforts and, therefore, warrant placement under the Conserve for Future Use category as well.)

Priority Heritage Assets (PHA)

Priority Heritage Assets (PHAs) are those USFS heritage assets that are, or should be, actively maintained. In order to be considered a PHA, an asset must meet one or more of the following criteria:

- The significance and management priority of the property is recognized through a special designation (e.g., listing on the National Register or State Register of Historic Place).
- The significance and management priority of the property is recognized through prior investment in preservation, interpretation, and use.
- The significance and management priority of the property is recognized in an approved management plan.
- The property exhibits critical deferred maintenance needs, and those needs have been documented.

The SJPLC is in the process of designating Priority Heritage Assets.

DIRECT AND INDIRECT IMPACTS

Under all of the alternatives, the heritage/cultural resource program would provide support to all resource projects, as required by Section 106 of the NHPA. Prior to any Federal undertaking within the planning area, the SJPLC must consider impacts to heritage and cultural resources. Under all of the alternatives, the preferred management strategy for eligible sites would be to avoid and protect these sites from direct, indirect, and cumulative effects. Eligible sites are non-renewable resources, and they would lose integrity, heritage value, and potentially important information if they were destroyed or altered. Measures would continue to be implemented in order to avoid the impacts to sites under Federal jurisdiction. Treatments designed to minimize or mitigate adverse effects to eligible properties may include project relocation, redesign or modification, physical protection measures (including fencing or padding), stabilization, restoration, rehabilitation, documentation, monitoring, repair, and data recovery. Any treatment of an eligible site must be consistent with Federal standards and other guidelines, policies, and directions.

In addition, under all of the alternatives, the program will include proactive inventory, documentation, analysis, preservation, monitoring, stabilization, research, stewardship, and public interpretation and education. Generally, adverse impacts may result from ground-disturbing activities that damage archaeological sites or disrupt cultural landscapes (reducing their information potential). Generally, beneficial impacts may result from minimizing or preventing surface disturbance, and avoidance of archaeological sites, as well as from measures used to protect sites. There is also a direct relationship between the number of acres disturbed through project implementation and the number of acres surveyed for heritage/cultural sites. This relationship also exists for the number of heritage/cultural sites located and evaluated.

In spite of inventories, the potential exists for undiscovered sites to be exposed and/or damaged by surface disturbance and/or other events. These sites may, or may not, be noticed in time to allow mitigation. This damage would represent an unavoidable adverse impact related to management activities and programs, which may be similar under all of the alternatives.

There will be some irreversible loss of heritage/cultural resources regardless of the alternative selected. Examples include inadvertently damaged or destroyed sites, vandalized or looted sites, and sites undergoing loss from natural processes. Every alternative would seek to minimize this loss through inventory and evaluation, monitoring, preservation and stabilization, research, interpretation, education, and improved project implementation.

It is difficult to measure individual adverse impact components; therefore, the number of acres of ground disturbance may be used as a relative comparison of alternatives. Estimates of disturbance were compiled from the Comparison of Alternatives (see Chapter 2). Given the enormity of the planning area (more than 2.5 million acres) and the diversity of its landscapes (which results in a wide variability of heritage/cultural site densities, ranging from 3 sites per square mile to more than 100 sites per square mile) it would be very difficult to make reasonably accurate quantitative assessments of impacts without activity locality information. Therefore, a descriptive, qualitative analysis of the impacts is presented.

Direct impacts may result from natural events as well as from human activities that can damage heritage resources or alter their settings. Examples may include surface disturbance, soil compaction, erosion, heating and freezing, wildfire, prescribed burns, livestock trampling, OHV use, alteration of a heritage/cultural resource setting and/or landscape (including introduction of atmospheric or audible intrusions), potential loss of protection for undiscovered heritage/cultural resources if land is transferred from Federal to non-Federal ownership, and from unauthorized uses (including commercial looting of artifacts).

Indirect impacts to cultural resource sites are not always as obvious or immediate as direct impacts, and may include impacts that occur off-site from project areas. Indirect impacts may include accelerated erosion due to increased traffic, construction, loss or changes of vegetation, and changes in drainage patterns; and inadvertent damage from increased visitation to sites not previously accessible and not "hardened" for public use (which may also result in increased vandalism and removal of artifacts). Projects may also result in piecemeal or incremental loss or degradation of the various elements of integrity such as setting, feeling, location (which includes visual and auditory elements) that may be integral to the cultural landscape and individual site significance. In general, impacts to cultural resources would be managed by applying appropriate surveys and the design criteria (listed above), and through law enforcement support and education, as appropriate.

Impacts Related to Cultural Resources Management

As stated above, under all of the alternatives cultural resources would continue to be protected under Section 106. The heritage/cultural resources program would continue to include proactive inventory, documentation, analysis, preservation, monitoring, stabilization, research, stewardship, and public interpretation and education under all of the alternatives.

Alternatives B and C would provide the most proactive management and, therefore, may result in the most beneficial impacts to heritage/cultural resources. This is because it would propose the establishment of two additional Special Area 2 Archaeological Areas (McPhee and Mesa Verde Escarpment) that are not included under any of the other alternatives. Under these alternatives, McPhee and Mesa Verde Escarpment would be managed specifically for their outstanding heritage/cultural resource values and for their recreational/ interpretive/educational opportunities. These Management Areas (MAs) would not be included under Alternative A or D.

Alternatives A and C would provide additional proactive management of heritage/cultural resources. This is because it would retains the Anasazi ACEC (which was established in the previous BLM San Juan/San Miguel RMP.) This ACEC was established in order to protect significant prehistoric archaeological resources. The majority of lands within the ACEC were designated as the Canyons of the Ancients National Monument (the Monument). The lands remaining within the Anasazi ACEC are the same as those designated by the BLM Class I (2006) as the Mud Springs Geographic Unit (which still contain a high density of significant prehistoric sites). This ACEC has a multitude of competing uses, including mineral materials and recreation. Retention of the ACEC under Alternatives A and C would ensure a greater level of focused management and protection of cultural resources.

DLMP/DEIS Alternatives: Cultural resource management under Alternatives B and C may result in the greatest benefits to heritage and cultural resource (due to the proposed establishment of the greatest number of protective MAs). This would be followed by Alternatives A, and then Alternative D.

Impacts Related to Recreation Management

Recreational use of public lands has increased dramatically over the last 25 years, and will most likely continue to increase. Recreational use of the planning area may result in unintentional damage to cultural resources that, although individually minor, may result in widespread, adverse impacts through time. Examples of such impacts may include robbing boards from historic structures for campfires; creating routes through sites (which accelerates erosion); sitting, standing, or climbing on walls; shooting or defacing rock art panels; collecting artifacts or relocating artifacts by creating "collector's piles." Some forms of vehicle-assisted recreation may damage sites directly or by increasing site accessibility for vandalism and looting.

Four major, and 15 minor, SRMAs would be proposed under Alternatives B, C, and D. In general, managed recreation, as proposed by the SRMAs, would result in less potential impacts to cultural resources than would dispersed unmanaged recreation. However, this benefit may not be realized if recreational impacts to heritage and cultural resources are not monitored and mitigated (especially if recreational use dramatically and/or unexpectedly increases as a result of focused management).

Historic cultural resources have long been a focus of management in the Silverton SRMA, and would continue to be a focus under all of the alternatives. However, as stated above, the projected increased recreation use would require on-going monitoring, proactive preservation, education, and mitigation of potential impacts (as directed in The Alpine Loop Cultural Resource Management Plan).

The Durango SRMA would focus on non-motorized recreation (including hiking, mountain biking, and rock climbing). The BLM Class I Overview (2006) identifies Grand View Ridge as an area of high potential for cultural resources. Grand View Ridge would be included in the Durango SRMA. Additionally, three known rock art sites are currently in an established popular rock climbing area within this proposed SRMA. Under all of the alternatives, the development of trails and facilities would take place under Section 106 of the NHPA; therefore, impacts to cultural resources would be avoided or mitigated. The focused recreation management direction provided by the SRMA under all of the alternatives may result in beneficial impacts to cultural resources.
The Dolores River SRMA would focus on river recreation. There are a high number of cultural resources present and river-related use is topographically constrained; therefore, this area would have a high potential for impacts to cultural resources. Sites in this area that are visible from the river would be especially at risk from camping, frequent visitation, or vandalism. These impacts may be the same under all of the alternatives. As stated above, a directed management approach provided by the SRMA may limit adverse impacts to cultural resources.

The Cortez SRMA would provide motorized and non-motorized recreation. This area contains the Mud Springs Geographic Unit, as identified in the BLM Class I (2006), which is the remnant Anasazi ACEC. It would also include the Stinking Springs Geographic Unit. These areas have a high density of significant and sensitive sites. Due to their proximity to Cortez, these areas currently experience a large volume of open OHV-use, can result in extensive direct damage to cultural resources. Indirectly, the use of OHVs may damage or destroy vegetation, inorganic surface crusts, natural ground cover, and may also result in visual and auditory impacts. Erosion and compaction of soils and alteration of soil stratigraphy may result from motorized recreation. Increased looting and vandalism may also take place. These impacts may result in the loss of site integrity and significance. Under Alternatives B, C, and D, a management plan would be developed for the Cortez SRMA. This would designate routes and trails in order to avoid cultural resources and develop monitoring plans and mitigation (if impacts are identified). As stated above, SRMA designation may result in beneficial impacts.

The minor SRMAs proposed under all of the alternatives would not overlap with any currently identified sensitive archaeological areas, with the exception of Saul's Creek and Sage Hen. Saul's Creek has been identified as a potential National Register Historic District. Sage Hen overlaps with the Anasazi National Register District. Like the 4 major SRMAs discussed above, these areas currently experience extensive unmanaged recreational use. Development of the Saul's Creek and Sage Hen SRMAs may result in beneficial impacts to cultural resources. This is because managed recreation may result in fewer potential impacts to cultural resources than would dispersed unmanaged recreation. However, as stated above, this benefit may not be realized if recreational impacts to heritage and cultural resources are not monitored and mitigated, especially if recreational use dramatically and/or unexpectedly increases as a result of focused management.

DLMP/DEIS Alternatives: In general, Alternatives B, C, and D may result in similar potential benefits/impacts to cultural resources (due to the proposed establishment of SRMAs). These potential benefits/impacts may be less apparent in Alternative A.

Impacts Related to Travel Management

OHVs driving over heritage/cultural sites may result in extensive direct damage. Indirectly, the use of OHVs may damage or destroy vegetation, inorganic surface crusts, natural ground cover. It may also result in visual and auditory impacts. Erosion and compaction of soils and alteration of soil stratigraphy may result from motorized recreation. Increased looting and vandalism may also take place. These impacts may result in the loss of site integrity and significance. Motorized travel over snow may result in negligible, if any, impacts to heritage/cultural resources.

Implementation of the 2005 Travel Management Rule would greatly reduce the impacts to heritage/cultural resources by directing motorized travel to designated routes. Travel on designated routes may still have the potential to directly and indirectly impact heritage/cultural resources that have not been avoided or hardened for such use. Designation of specific travel routes would be developed under a Travel Management Plan, which would require a separate NEPA process from this DLMP/DEIS. As part of that separate NEPA process, impacts to heritage/cultural resources within the planning area would be addressed in accordance with the "Addendum 1 to the Colorado Protocol: Section 106 requirements for Comprehensive Travel and Transportation Management Planning."

DLMP/DEIS Alternatives: This DLMP/DEIS identifies areas that are suitable for over-ground and over-snow travel by alternative. Alternatives B and C would designate the largest amount of acreage as not suitable for over-ground motorized travel; therefore, these alternatives may have the least potential to impact heritage/cultural resources. Alternatives A and D would designate the largest amount of acreage as suitable for motorized travel; therefore, the potential for ground disturbance and impacts to heritage/cultural resources may be the highest under those alternatives.

Impacts Related to Fire and Fuels Management

Wildfires and prescribed burns have the potential to directly impact heritage/cultural resources (by burning wooden historic and prehistoric structures and damaging or destroying flammable artifacts and features of archaeological sites, such as wickiups, tepee poles, tree platforms, and brush game drives). Non-flammable artifacts, such as lithic materials, may be impacted by high-intensity fires. Rock art may also be damaged by fire and smoke. Activities carried out under emergency situations in order to control a wildfire (including the construction of firelines) may also directly damage heritage/cultural resources. Indirect impacts related to fire include post-fire erosion losses resulting from burned vegetation cover and hydrophobic soils; deterioration and weathering after the artifacts and features are initially damaged by extreme temperatures; changes in the landscape adjacent to heritage/cultural resources; and looting and vandalism due to increased site visibility. Impacts would tend to be greater in wildfire situations than they would for prescribed burns. This is because of extreme fire temperatures, an inability to control the impacts, and because it would be almost impossible to plan inventories of heritage/cultural resources in advance. Some inventories may be conducted during the construction of firelines. Impacts related to fire may be determined, and appropriate mitigation measures may be carried out if a complete inventory of the burned area is conducted shortly after the fire has been controlled. This is not, however, always possible. Therefore, potentially significant impacts related to wildfire may remain undetermined under all of the alternatives. The number of heritage/cultural resources impacted by wildfire on an annual basis cannot be predicted.

Mechanical fuels treatments would have the potential to directly impact heritage/cultural resources. This is because they may result in moderate to high amounts of ground disturbance and mixing of soils. This would especially be the case if tracked vehicles were used on wet soils (which may masticate features such as wickiups, tepees, and brush corrals). However, most of these impacts would be avoidable through the Section 106 process. Indirect impacts may include erosion and changes to vegetation that result from off-site projects, which may change the characteristics and integrity of a site. Sites that are avoided and left as "leave islands" within fuels treatment project areas may be more vulnerable to looting and vandalism (because they can be easily identified and targeted). There is some evidence that under the correct conditions, fuels treatments such as "hydro-mulch" may have a beneficial impact to heritage/cultural resources (because they may reduce erosion and act as a protective cover). Hazardous fuels reduction may also be beneficial to heritage/cultural resources by providing "defensible space" for resources (including rock art and wooden structures) that are especially vulnerable to the impacts related to wildfire.

Annually, Section 106 inventories, evaluation, and consultation would be completed on the estimated 12,500 acres in response to prescribed burn plans or other fuels treatments. This estimated acreage would be approximately the same under all of the alternatives; therefore, potential impacts to heritage/cultural resources may be the same under all of the alternatives. These impacts are expected to be minimal. This is because all identified significant, or potentially significant, heritage/cultural resources would be avoided or mitigated. Location information for these fuels treatments is not yet available; therefore, it is not possible to estimate the number of heritage/cultural resources that may be potentially impacted. Wildfire is unpredictable; therefore, the potential impacts to heritage/cultural resources is not quantifiable. Wildfire Cultural Resource Constraint Maps for each Ranger District/Field Office identifies prescriptions for individual sites, site types, and archaeologically sensitive areas. These maps are referred to in the event of wildfire.

DLMP/DEIS Alternatives: Potential impacts to heritage/cultural resources may be similar under all of the alternatives.

Impacts Related to Oil and Gas Management

The DLMP/DEIS planning decision to identify areas open or closed to oil and gas and geothermal leasing is an undertaking under Section 106 of the NHPA. This activity would require a specific analysis of existing cultural and heritage information in order to identify "no leasing" areas or "open areas" with special stipulations or standard stipulations. Native American tribal and State Historic Preservation Office (SHPO) consultation would specifically address oil and gas leasing as a Section 106 undertaking that required their input.

Development of oil and gas would involve local areas of earth disturbance (including the drilling location itself, laydown and support areas, access roads, pipelines, and additional support facilities, such as meter stations and water handling facilities). Any earth-disturbing activities may destroy or diminish heritage/cultural resources, as well as the setting and context that are part of their importance. Direct physical impacts to heritage/cultural resources related to the construction and operation of oil and gas facilities may be immediate and irreversible; however, most of these impacts would be avoidable through the Section 106 process. It is expected that these impacts may be localized.

In addition to the general direct impacts described above, indirect physical impacts related to oil and gas development to heritage/cultural resources may also include deterioration of structures or rock art from vibration, dust, or exhaust produced by construction or operation. Erosion and changes to vegetation that result from off-site construction may also change the characteristics and integrity of a site. If the setting and feeling of a site are essential elements of its importance, visual or auditory intrusions or deterioration of the local environment would also constitute an indirect impact to the aesthetic quality of the site. An additional potential indirect impact may result when development of oil and gas access roads makes some areas more accessible to motorized vehicles. This accessibility may result in the potential for more people to visit sites and, thereby, increase the chance for incidental deterioration or vandalism. This may be mitigated by closing access roads to public traffic.

There may be as many as 1,185 new wells developed in the RFD Area over the 15-year life of the RFD projection. The total disturbance for these new wells is projected to be 290 acres per year, with a total surface disturbance of 4,350 acres over the 15-year period. Each well and ancillary facility location would undergo Section 106 inventory, evaluation, and consultation. Avoidance or mitigation measures would be utilized where eligible heritage/cultural resource sites are present. Location information for these wells is not yet available; therefore, it is not possible to estimate the quantity of heritage/cultural resources that may be potentially impacted. Under all of the alternatives (except Alternative A), Chimney Rock Archaeological Area, Falls Creek Archaeological Area, and Anasazi Archaeological District would be designated No Lease. This is because these areas contain very significant archaeological resources and these resource values would be very difficult, if not impossible, to avoid or mitigate. The Chimney Rock and Falls Creek also have great significance for Native Americans. The Anasazi Archaeological District has a very high site density, with 907 sites listed on the NRHP. In addition, the viewshed of Chimney Rock is integral to maintaining its integrity and significance. Therefore, the portion of the foreground viewshed, which is not included in the No Lease area, and middle viewshed, would be protected with CSU stipulations.

The following National Register Historic Districts, Proposed National Register Historic Districts, and sites would be protected with NSO stipulations under all of the alternatives (except Alternative A, which is the No-Action Alternative):

- Spring Cr. National Register Historic District;
- Lost Canyon National Register Historic District;
- Saul's Cr. Proposed National Register Historic District;
- Peterson Gulch Proposed National Register Historic District;
- Turkey Cr. Proposed National Register Historic District;
- Armstrong Ritter Proposed National Register Historic District;
- Mesa Verde Escarpment;
- Anasazi ACEC remnant (a.k.a. Mud Springs);
- Indian Henry Cabin;
- Bull Canyon Rockshelter; and
- Dolores River Corridor.

Under all of the alternatives (except for Alternative A) Grandview Ridge would be protected with a CSU stipulation.

DLMP/DEIS Alternatives: Alternatives B, C, and D would provide for equal amounts of protection of heritage/cultural resources. Alternative A would provide for less protection. Standard stipulations and Section 106 of the NHPA would apply to all heritage/cultural resources outside of the above areas with designated No Lease, NSO, and CSO stipulations. It is, therefore, expected that oil and gas management may have limited direct adverse impacts to heritage/cultural resources. Indirect and cumulative impacts related to oil and gas management may be moderate. Section 106 archaeological surveys and excavations associated with oil and gas development have long been a major contributor to our knowledge and understanding of heritage/cultural resources. This beneficial impact to archaeology and cultural resource management may continue under all of the alternatives. Under a no new oil and gas lease scenario the anticipated moderate indirect and cumulative effects to heritage/cultural resources would not occur, which would be an overall positive benefit to these resources. However, the information regarding heritage/cultural resources which is obtained through Section 106 archaeological surveys and excavation associated with oil and gas development would not be gained.

Impacts Related to Livestock Grazing

The impacts of livestock grazing on cultural resources varies due to non-uniform grazing patterns that reflect differences in terrain, forage abundance and preference, soil attributes, and cultural resource site distribution. Livestock grazing (especially where they congregate to drink water or consume minerals, where they shelter under rock overhangs, and/or where they use pathways and stock trails), may result in impacts to any heritage/cultural resources in those areas. The stratigraphic soil layers that are very important in establishing cultural chronologies may be churned and distorted by livestock digging, movements, and congregation. Areas were livestock concentrate are often located near springs, rock shelters, cliff faces, drainages, and forest edges -- the same areas that are important to humans prehistorically and historically. Cattle may also damage standing prehistoric and historic structures and rock art through rubbing and trampling. These impacts may be direct, indirect, and cumulative.

Impacts of range-related activities (including fence construction, spring developments, wells, stock tanks, pumps, pipelines, water storage, and cattle guards) and non-structural projects (including noxious weed treatments, forage improvements, and mineral supplementation) may have the potential to alter or destroy heritage/cultural resources. These activities would be considered undertakings, and would, therefore, undergo Section 106 inventory, evaluation, and consultation. Avoidance or mitigation measures would be utilized where eligible heritage/cultural resource sites are present. Under all of the alternatives, a cultural assessment (as outlined in BLM IM No. CO-2002-029: "Interim Historic Preservation Guidelines and Procedures for Evaluating the Effect of Rangeland Management Activities on Historic Properties") would be necessary in order to assess the impacts related to grazing.

DLMP/DEIS Alternatives: Alternative D would propose the most acres suitable for livestock grazing and may, therefore, have the most potential to result in impacts to cultural resources, followed by Alternatives A and B, which may result in similar impacts. Alternative C may have the least potential to result in impacts to heritage/cultural resources.

Impacts Related to Solid Minerals Management

Solid-minerals management includes both locatable minerals and salable minerals. Locatable minerals include mining of precious and base metals, and locatable uranium and vanadium. Locatable mineral mining is a statutory right and is not discretionary. However, locatable mineral regulations require that mining activities result in no undue or unnecessary degradation. Salable minerals include the mining of gravel, and stone quarries and collection. Salable minerals are discretionary when the land management agency owns the mineral rights. When private mineral rights are involved, management is less discretionary.

Solid-minerals management has the potential to damage or destroy heritage/cultural resources through major ground-disturbing and construction activities related to mining, milling, and the development of ancillary facilities (including waste rock piles, mill tailings, roads, and loading facilities). Many of the areas with the potential for locatable minerals were mined historically for precious and base metals, as well as for uranium and vanadium. Many of these historic mining/milling sites are now eligible for listing on the NRHP. Gravel operations have the potential to damage or destroy archaeological sites, including buried archaeological sites that have no surface artifacts or features. Stone collection has the potential to damage sites (including prehistoric and historic stone masonry structures, stone game drives, and stone alignments). Mining of both locatable and salable minerals has the potential to indirectly impact heritage/cultural resources as the result of cultural landscape alterations, and visual and auditory intrusions, as well as of changes to vegetation that result from off-site projects (which could alter the characteristics and integrity of a site).

Under all of the alternatives, precious and base metal, and uranium and vanadium, mining may have a high potential to impact historic mining resources. Salable mineral management may have a moderate potential to impact heritage/cultural resources. Federal land management agencies are responsible for ensuring that Section 106 inventory, evaluation, consultation, and, if necessary, avoidance or mitigation occurs prior to authorizing solid-minerals projects.

DLMP/DEIS Alternatives: Overall, the potential impacts related to solid-minerals management on heritage/cultural resources may be the same under all of the alternatives.

Impacts Related to Timber Management

Timber harvesting activities may impact heritage/cultural resources as the result of surface disturbance caused by machinery and vehicles, by the felling trees on certain types of sites, by the skidding of logs, by theft or vandalism caused by workers, or by erosion from vegetation removal or damage. In addition, fuels and oils used by heavy equipment may be spilled or dumped on heritage/cultural sites. Construction or reconstruction of permanent or temporary roads associated with timber sales may have the potential to impact heritage/cultural resources, as the result of damage or destruction of areas directly impacted. Construction of roads may also have the potential to result in indirect impacts to heritage/cultural resources (by making sites more accessible). This accessibility may increase the chances for incidental deterioration or vandalism. As noted above, under all of the alternatives, eligible sites would be avoided, or mitigation of impacts would occur though the Section 106 process.

DLMP/DEIS Alternatives: Alternative D may have the greatest potential to impact heritage/cultural resources. This is because it would propose the highest amount of ground-disturbing activities, followed by Alternatives A and B. Alternative C would have the lowest amount of proposed road construction and timber treatment; therefore, it may have the least impact on heritage/cultural resources.

CUMULATIVE IMPACTS

Over time, cumulative impacts to heritage/cultural resources may include the loss of sites, or parts thereof (prior to the development of better preservation methods and research techniques); the loss of interpretive values, and the incremental loss of the heritage/cultural resource base.

Past actions that have contributed, cumulatively, to impacts on cultural resources include livestock grazing and vegetation management, mineral development, recreation, looting and vandalism, and ongoing natural erosion. These negative factors are present outside, as well as inside, the planning area.

Prior to Section 106 of NHPA, many activities occurred with no regard for the protection of cultural resources. Activities such as vegetation treatments using chains or harrows drug large pieces of equipment across the ground surface in order to remove trees and shrubs. This, and other mechanical treatments, undoubtedly destroyed many archaeological sites within their path. In addition, many roads within the planning area were constructed prior to Section 106 protection requirements, and were, as a result, destroyed or disrupted. Many of these cultural sites continue to be impacted by increased vehicle use and erosion.

Land management projects may result in surface disturbance, may bring additional people in contact with heritage/cultural resources, and/or may affect the fabric of prehistoric and historic structures. Under the different alternatives, differences in cumulative impacts to heritage/cultural resources would be the result of sanctioned management activities (which would be low due to the protection and mitigation measures that would be implemented). Alternatives A and D would have the projected highest amounts of development and, therefore, may have the highest potential to impact heritage/cultural resources. Alternatives B and C would provide for a more proactive management of heritage/cultural resources of McPhee and the Mesa Verde Escarpment. Alternatives A and C would retain the remnant Anasazi ACEC, and would, thereby, provide more administrative protection for the cultural resources located within the ACEC.

Cumulative impacts may also occur to heritage/cultural resources as a result of non-sanctioned activities (including vandalism, looting, or illegal excavation). Efforts to control and monitor these activities would be similar under all of the alternatives, and may, therefore, result in a similar moderate level of cumulative adverse impacts to heritage/cultural resources. Under Alternatives A and D, there would be less emphasis on controlling and monitoring non-sanctioned activities at McPhee and Mesa Verde Escarpment and, therefore, they may have a greater potential for cumulative impacts. However, under Alternatives B and C, efforts to control and monitor non-sanctioned activities would be more proactive at McPhee and Mesa Verde Escarpment; therefore, the cumulative impacts are expected to be less under those alternatives.

Alternatives that result in more acres of planned and budgeted management activities, such as Alternatives A and D, may reduce adverse cumulative impacts. This is because more inventory and evaluation would be required under these alternatives. The additional inventory and evaluation may lead to more heritage/cultural resources being located, and a potential reduction of adverse cumulative impacts caused by natural processes after heritage/cultural resources are brought under appropriate management (assuming sufficient funding and personnel are available). An additional benefit would be increased knowledge and understanding of heritage/cultural resources. Oil and gas management and fuels management are large contributors to the inventory and evaluation of heritage/cultural resources.

Cumulatively, heritage/cultural resources on Federal lands may assume greater importance because such resources on lands of other ownership are not provided the same degree of protection. Projects in, and around, the planning area funded by the Federal government would be subject to Federal requirements for protection of heritage/cultural resources. However, construction on, and development of, private land may destroy heritage sites without providing an opportunity for recovery of data or other mitigation.

It is believed that cumulative impacts to heritage resources on State and private lands are much greater than for federally administered lands because: 1) little or no inventory or evaluation is being conducted on State or private lands; and 2) implementation of protection or mitigation measures is extremely rare on State or private lands.