



**CANYONS OF THE ANCIENTS NATIONAL MONUMENT  
BUREAU OF LAND MANAGEMENT  
ENVIRONMENTAL ASSESSMENT  
CO-800-2006-066 EA**

*EA Number:* CO-800-2006-066 EA

*Preparation Date:* January 2007

*Project Name:* Livestock Grazing Permit Renewal for Papoose Canyon Allotment

*Project Type:* Livestock Grazing Permit Renewal

*Planning Unit:* Bureau of Land Management Canyons of the Ancients National Monument

*Legal Description:* T.38N. R.20W. Sec. 1, 2, 3, 11 & 12; T.38N. R.19W. Sec. 6, New Mexico Prime Meridian; Montezuma County, Colorado.

**TABLE OF CONTENTS**

**I. INTRODUCTION/PURPOSE AND NEED**.....3  
Introduction.....3  
Purpose and Need.....3  
BLM Standards for Public Land Health in Colorado.....3  
Potentially Affected Resources and Critical Elements of the Human Environment.....4  
Issues and Critical Elements Considered But Not Addressed Further.....6  
Conformance with BLM Land Use Plan, Presidential Proclamation and Interim Guidance...7  
Relationship to Statutes and Regulations.....8

**II. PROPOSED ACTION AND ALTERNATIVES**.....9  
Alternative A, Proposed Action.....9  
Alternative B, No Action.....9  
Alternative C, No Grazing.....9  
Consideration of Permitted Use and Actual Use AUMs.....10

**III. AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES**.....10  
General Setting.....10  
Vegetation.....10  
    Affected Environment..... 10  
    Environmental Consequences.....13  
        Alternative A, Proposed Action.....13  
            Direct and Indirect Impacts.....13  
        Alternative B, No Action.....14  
            Direct and Indirect Impacts.....14  
        Alternative C, No Grazing.....14  
            Direct and Indirect Impacts.....14  
Riparian Zones.....15  
    Affected Environment.....15  
    Environmental Consequences.....16  
        Alternative A, Proposed Action.....16  
            Direct and Indirect Impacts.....16  
        Alternative B, No Action.....16  
            Direct and Indirect Impacts.....16  
        Alternative C, No Grazing.....16  
            Direct and Indirect Impacts.....16  
Invasive, Non-Native Species.....16  
    Affected Environment.....16  
    Environmental Consequences.....16  
        Alternative A, Proposed Action.....16  
            Direct and Indirect Impacts.....16  
        Alternative B, No Action.....16  
            Direct and Indirect Impacts.....16  
        Alternative C, No Grazing.....17  
            Direct and Indirect Impacts.....17  
Threatened, Endangered, or Candidate Species.....17  
    Affected Environment.....17  
    Environmental Consequences.....19  
        Alternative A, Proposed Action.....19  
            Direct and Indirect Impacts.....19  
        Alternative B, No Action.....19  
            Direct and Indirect Impacts.....19  
        Alternative C, No Grazing.....19  
            Direct and Indirect Impacts.....19  
General Wildlife Species.....19  
    Affected Environment.....19  
    Environmental Consequences.....20

	Alternative A, Proposed Action.....	20
	Direct and Indirect Impacts.....	20
	Alternative B, No Action.....	20
	Direct and Indirect Impacts.....	20
	Alternative C, No Grazing.....	20
	Direct and Indirect Impacts.....	20
	Cultural Resources.....	21
	Affected Environment.....	21
	Environmental Consequences.....	22
	Alternative A, Proposed Action.....	22
	Direct and Indirect Impacts.....	22
	Alternative B, No Action.....	22
	Direct and Indirect Impacts.....	22
	Alternative C, No Grazing.....	23
	Direct and Indirect Impacts.....	23
	Native American Religious Concerns.....	24
	Affected Environment.....	24
	Socioeconomics.....	24
	Affected Environment.....	24
	Environmental Consequences.....	24
	Alternative A, Proposed Action.....	24
	Direct and Indirect Impacts.....	24
	Alternative B, No Action.....	25
	Direct and Indirect Impacts.....	25
	Alternative C, No Grazing.....	25
	Direct and Indirect Impacts.....	25
	Cumulative Impacts.....	25
<b>IV.</b>	<b>CONSULTATION AND COORDINATION.....</b>	<b>26</b>
	Persons, Groups and Agencies Consulted.....	26
	Native American Tribes being Consulted through Review of this Environmental Assessment.....	26
	Public Notification.....	26
<b>V.</b>	<b>LIST OF PREPARERS.....</b>	<b>26</b>

**MAPS**

- Map 1      Papoose Canyon Grazing Allotment Vicinity Map
- Map 2      Papoose Canyon Grazing Allotment

**APPENDICES**

- Appendix A Standards for Public Land Health and Guidelines for Livestock Grazing in Colorado
- Appendix B Terms and Conditions
- Appendix C Proper Functioning Condition Definitions
- Appendix D Literature Cited

## **I. INTRODUCTION/PURPOSE AND NEED**

### **INTRODUCTION**

The livestock grazing permittee, has made application to renew the existing term grazing permit for the Papoose Canyon Allotment (#08065) (Map 1). This allotment is located within the Canyons of the Ancients National Monument, BLM and lies west of Pleasant View, Colorado within Dolores, County in T38N, R20W, Sections 1, 2, 3 & 12 and T38N, R19W, Section 6. The allotment is 1,064 acres in size and includes the upper reaches of Papoose Canyon and its tributaries.

The Monument is currently in the process of developing its first Resource Management Plan (RMP). Through this planning effort, the BLM will work collaboratively with interested parties to identify the management decisions that are best suited to local, regional, and national needs and concerns. These decisions could affect the allotment evaluated in this environmental assessment (EA).

### **PURPOSE AND NEED**

An interdisciplinary team has developed this EA for the purpose of analyzing potential site-specific impacts on resources that would result from issuing a new term permit for livestock grazing in the Papoose Canyon Allotment. This permit is needed to authorize the applicant permittee to continue livestock grazing on public lands (43 CFR 4130.2(a)), address public lands that are failing to achieve BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado (43 CFR 4180.2(c)) (standards and guidelines), assure protection of objects of historic and scientific interest specified in the Monument proclamation, and to comply with the 1985 San Juan/San Miguel RMP. Under this RMP, livestock grazing must be managed to maintain or improve the vegetation component of the ecosystem and to enhance the resource values of the area to permit a balanced mix of uses to ensure sustained yield.

### **BLM STANDARDS FOR PUBLIC LAND HEALTH IN COLORADO**

In the summer of 2003, a BLM interdisciplinary team was assembled to determine if the allotment was meeting the BLM Standards for Public Land Health in Colorado (standards) (43 CFR 4180.2(c)). Information including the 2001 Rangeland Health Assessment (rangeland health assessment), proper functioning conditions assessments for both lotic (i.e., streams) and lentic (i.e., springs) riparian areas, rangeland trends, vegetation production and water quality data were considered in determining if the five standards are being achieved or not achieved. These five standards include 1) upland soils; 2) riparian systems; 3) healthy, productive plant and animal communities; 4) special status, threatened and endangered species; and 5) water quality. An explanation of these standards is provided in Appendix A and is discussed in more detail in the appropriate Affected Environment/Environmental Consequences sections of this EA.

Table 1 summarizes the interdisciplinary team's determinations whether the allotment is achieving the standards, along with causal factor(s). Supporting documentation of the interdisciplinary team's determinations is provided in this EA and is available by request from the Dolores Public Lands Office.

Table 1. Summary of existing determinations and their causal factor(s) for standards.

<b>Standards</b>	<b>Determinations</b>	<b>Causal Factor(s)</b>
Upland Soils	Not Achieved	Historic Livestock Grazing Recent Wildfire
Riparian Systems	Not Achieved	Invasion of exotic species-tamarisk Historic Livestock Grazing Recent Wildfire
Healthy, Productive Plant and Animal Communities	Achieved	Not Applicable <sup>1</sup>
Special Status, Threatened and Endangered Species	Not Achieved	Historic Livestock Grazing
Water Quality	Achieved	Not Applicable <sup>1</sup>

<sup>1</sup>Causal Factor not required, as a result of standard being achieved or making significant progress towards achieving.

### **POTENTIALLY AFFECTED RESOURCES AND CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT**

The identification of issues for this EA was accomplished by considering resources and critical elements of the human environment that could be affected by implementation of one of the alternatives, through input from the BLM interdisciplinary team.

Critical elements that could be affected by the Proposed Action or the alternatives include Cultural Resources; Invasive, Non-Native Species; Threatened, Endangered, or Candidate Species; and Migratory Birds. They are described below along with the following resources: Vegetation, Riparian Zones, Range, and Socioeconomics.

#### ***Cultural Resources:***

- Range permit renewals are undertakings under Section 106 of the National Historic Preservation Act (NHPA). Livestock grazing and other rangeland management activities that would be authorized in the permit to be renewed have the potential to affect cultural resources. Direct livestock grazing effects include trampling, chiseling, churning, and compaction of site deposits and cultural features, artifact displacement and breakage, and impacts to standing walls, rock images, and other above ground cultural features. Indirect effects include an increased potential for erosion caused by livestock grazing including trailing that can lead to development of gullying in sites, as well as the potential for reduced vegetative cover and changes in soil crust development and cover reduction. Without mitigation measures the construction of range improvements such as fences and stock ponds can result in damage to, or loss of, surface and subsurface cultural deposits and features. Site types such as rockshelters, rock art, and sites with standing architecture are considered particularly vulnerable to physical impacts from livestock.

#### ***Invasive, Non-Native Species:***

- Tamarisk is common along the riparian area associated with Papoose Canyon.

***Threatened, Endangered, or Candidate Species:***

- Potential habitat for the Southwestern willow flycatcher could be impacted from livestock grazing.

***Migratory Birds:***

- The Migratory Bird Treaty Act provides oversight for the taking of native birds. There would be concern regarding disturbance and destruction of nesting birds. The Birds of Conservation Concern (U.S. Fish and Wildlife Service 2002) which may be in this project's vicinity are: Lewis' woodpecker, gray vireo, pinyon jay, Virginia's warbler, black-throated gray warbler, golden eagle, and sage sparrow. This project is low impact and unlikely to result in the destruction or disturbance of nesting birds. There would be no impact to migratory birds.

***Vegetation:***

- The rangeland health attribute biotic integrity dominantly reflects a moderate (at risk) degree of departure from the ecological site descriptions. Vegetation condition based on quantitative data is in the good condition range (51-75% of desired plant composition) for 52% of the allotment and excellent condition range (76-100% of desired composition) for 18% of the allotment. The remaining 30% of the allotment is in the fair condition range (26-50% of desired plant composition).

***Riparian Zones:***

- Papoose Canyon was rated Functional-At Risk with a downward trend. This rating was based on the sinuosity, width/depth ration and gradient being slightly out of balance as well as increased deposition and downcutting of the stream channel. These conditions were attributed to historic livestock grazing levels, current agricultural and irrigation practices upstream and a recent wildfire.

***Range:***

- Livestock grazing management should provide for either regular rest and/or deferment during the critical spring growing season.

***Socioeconomics:***

- Both local communities and ranchers (present and potential future) operating on the allotment could be financially impacted by continuation or changes in livestock grazing management.

## **ISSUES AND CRITICAL ELEMENTS CONSIDERED BUT NOT ADDRESSED FURTHER**

BLM resource specialists have determined that the following critical elements of the human environment are not present in the area addressed in the Proposed Action or alternatives:

*Farm Lands (prime or unique)*  
*Wastes (hazardous or solid)*  
*Wild and Scenic Rivers*  
*Wilderness*  
*Floodplains*  
*Water Quality (Surface and Ground)*  
*Threatened, Endangered and Sensitive Plant Species*

The following resources and critical elements are present in the project area, but would not be affected by the Proposed Action or alternatives for the reasons stated below.

### *Air Quality*

Air Quality in the area of analysis is good, as is typical of undeveloped areas of the western United States. The area is listed as Class II under the Prevention of Significant Deterioration (PSD) program. The Proposed Action and alternatives would not increase emission levels above current levels, which are within the Colorado State Air Quality Standards.

### *Environmental Justice*

No minority or economically challenged populations would be disproportionately affected because none of these populations have any investment or interest in the allotment.

Native Americans are consulted through a request for comment on this EA. If Native American religious or other concerns are identified, they will be brought forward for analysis. A list of the Native American tribes and pueblos being consulted is provided in the Consultation, Coordination, and Public Participation section of the EA.

### *Native American Religious Concerns*

Native Americans are being consulted through the request for comments on this EA. Comments and suggestions will be considered by the decision making official prior to preparation of the Finding of No Significant Impact and signing of the Decision Record. A list of the Native American tribes and pueblos being consulted is provided in the Consultation, Coordination, and Public Participation section of this EA.

### *Areas of Critical Environmental Concern*

The ACEC boundary is coincidental to the more recent Monument designation. Furthermore, Monument designation provides a higher level of protection to objects of scientific and historic interest (i.e. archaeological, geological and biological), then to the ACEC designation. As stated in the section below (i.e. Conformance with BLM Land Use Plan, Presidential Proclamation and Interim Guidance), potential impacts to these objects are analyzed in this document or, if not impacted, were omitted. Therefore, potential impacts to the ACEC are addressed.

### *Wilderness Study Areas*

A small portion of the Papoose Canyon Allotment is within the Squaw/Papoose Wilderness Study Area. The proposed action or alternatives analyzed in this EA do not propose any ground disturbing activities or any structural range improvements (i.e. fences, stock ponds, ect.) which would impair the WSA qualities.

### *Recreation*

Recreational activities within the allotment are small due to very limited public access. Therefore, it is not anticipated that livestock grazing would diminish recreational experiences.

## **CONFORMANCE WITH BLM LAND USE PLAN, PRESIDENTIAL PROCLAMATION AND INTERIM GUIDANCE**

The Proposed Action and alternatives described below are subject to the San Juan/San Miguel RMP, approved September 1985 and its amendment (i.e. Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado), approved February 1997. BLM finds the Proposed Action Alternative and Alternatives B and C in conformance with the resource objective that livestock grazing must be managed to maintain or improve the vegetation component of the ecosystem, and to enhance the resource values of the area to permit a balanced mix of uses to ensure sustained yield (U.S. Department of the Interior 1985). Furthermore, the Proposed Action and alternatives are in conformance with the RMP decisions that livestock use adjustments (i.e. kind or class of livestock grazing the allotment, season of use, stocking rate, or grazing pattern) may be made on all allotments (U.S. Department of Interior 1985), and that “spring use by domestic livestock in all allotments will not be permitted on native ranges during the critical period of early growth (i.e. March 1<sup>st</sup> through May 15<sup>th</sup>) unless a grazing system is implemented that provides critical period rest once every three years” (U.S. Department of Interior 1997).

Additionally, the Proposed Action and alternatives have been reviewed for conformance with the Presidential Proclamation, signed June 9, 2000, designating the Monument. The Monument was designated to protect its objects of scientific and historic interest (i.e., archaeological, geological and biological). Potential impacts to these objects are analyzed in this document or, if not impacted, were omitted. Furthermore, the proclamation addresses livestock grazing by stating that “laws, regulations, and policies followed by the BLM in issuing and administering grazing permits or leases on all lands

under its jurisdiction shall continue to apply with regard to the lands in the Monument” (Clinton 2000).

Interim management guidance for the Monument is provided by both the BLM Washington Office and the BLM Colorado State Director. This guidance was developed to supplement the San Juan/San Miguel RMP, until completion of the Monument’s first RMP. This guidance directs BLM to continue permitting livestock grazing, pursuant to the terms of existing permits and leases; that appropriate grazing management practices should be followed to protect rangeland resources and ensure compliance with BLM Colorado’s Standards and Guidelines, and administrative actions be implemented under existing regulations to assure compliance with existing permit and lease requirements (BLM Colorado 2002; BLM 2001). The Proposed Action and alternatives are in conformance with these interim guidelines.

### **RELATIONSHIP TO STATUTES, REGULATIONS, OR PLANS OF OTHER GOVERNMENTAL AGENCIES**

This EA is prepared under the authority of the National Environmental Policy Act (NEPA) of 1969 (PL 91-852) and its regulations (40 CFR 1500-1508), Chapter V. The Proposed Action and alternatives described below are consistent with other federal, state, and local laws, regulations, and plans to the maximum extent possible.

BLM finds Alternatives A, B and C consistent with the Federal Land Policy and Management Act (FLPMA), Public Range Improvement Act (PRIA), Taylor Grazing Act (TGA) and BLM grazing regulations under 43 CFR 4100. FLPMA sets the basic standard that public lands shall be managed for “multiple use” and “sustained yield.” (FLPMA § 102 (a)(7), 43 U.S.C. § 1701(a)(7)). FLPMA defines “multiple use” as “harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output” (43 U.S.C. § 1702(c)).

The TGA enacted the following objectives: “To stop injury to the public grazing lands by preventing overgrazing and soil deterioration, to provide for their orderly use, improvement and development, to stabilize the livestock industry dependent upon the public range, and for other purposes” (48 Stat. 1269). PRIA establishes as the goal of managing public rangelands to improve the range condition so they become as productive as feasible except where the land use planning process required pursuant to section 202 of [FLPMA] determines otherwise or the Secretary determines, and sets forth reasons for determination, that grazing uses should be discontinued (either temporarily or permanently) on certain lands (43 U.S.C. 1903 (b)).

The Proposed Action and Alternatives are also consistent with 43 CFR 4130.2(a) which states, in part, “grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the BLM that are designated as available for livestock grazing through land use plans.” Last, the

analysis within this EA is made in accordance with regulations 43 CFR 4180, Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.

**II. PROPOSED ACTION AND ALTERNATIVES**

**ALTERNATIVE A: PROPOSED ACTION**

Under this alternative the applicant’s existing term grazing permit for the Papoose Canyon Allotment (#08065) would be reissued for a time period of ten years with the following terms and conditions. Livestock grazing would occur during the season of use, and with the number of AUMs, identified in Table 2 below. Permit terms and conditions identified in Appendix B would apply.

Table 2. Grazing use authorized under Alternative A, Proposed Action.

Allotment	Livestock Number	Kind	Begin Period	End Period	Percent Public Land <sup>1</sup>	Type Use	AUMs <sup>2</sup>
Papoose Canyon	16	Cattle	11/1	1/15	80	Active	33

<sup>1</sup>Percent of livestock forage in allotment contributed by public land.

<sup>2</sup> Animal Unit Month (AUM) is the amount of forage required to sustain one cow or its equivalent for one month.

**ALTERNATIVE B: NO ACTION**

Under this alternative the applicant’s existing term grazing permit for the Papoose Canyon Allotment (#08065) would be reissued for a time period of ten years with the same terms and conditions. Livestock grazing would occur during the seasons of use, and with the number of AUMs, identified in Table 3 below. Permit terms and conditions identified in Appendix B would apply.

Table 3. Grazing use authorized under Alternative B, No Action.

Allotment	Livestock Number	Kind	Begin Period	End Period	Percent Public Land <sup>1</sup>	Type Use	AUMs <sup>2</sup>
Papoose Canyon	10	Cattle	4/1	5/16	80	Active	12
	10	Cattle	9/1	11/15	80	Active	20

<sup>1</sup>Percent of livestock forage in allotment contributed by public land.

<sup>2</sup> Animal Unit Month (AUM) is the amount of forage required to sustain one cow or its equivalent for one month.

**ALTERNATIVE C: NO GRAZING**

Under this alternative, the applicant would not be reissued a term grazing permit for the Papoose Canyon Allotment (#08065). As a result, no livestock grazing would occur on this allotment.

## CONSIDERATION OF PERMITTED USE AND ACTUAL USE AUMS.

Upon review of the actual use records submitted for livestock grazing on the allotment, it was determined that differences exist between the number of permitted AUMs (i.e., active preference) and average actual use AUMs. These differences are presented in Table 4 below. This information was used to better analyze the impacts of livestock grazing under the alternatives.

Table 4. Permitted AUMs and Actual Use AUMs.

<b>ALLOTMENT NAME</b>	<b>PERMITTED USE (AUMS)</b>	<b>AVERAGE ACTUAL USE (AUMS)</b>	<b>YEARS AVERAGE CALCULATED FROM</b>	<b>HIGH USE DURING YEARS AVERAGED</b>	<b>LOW USE DURING YEARS AVERAGED</b>
Papoose Canyon	33 AUMS	16 AUMs	16 Years	32 AUMs	5 AUMs

### III. AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

Affected resources and critical elements that might be impacted are assessed in the paragraphs that follow.

#### GENERAL SETTING

The Papoose Canyon Allotment is located west of U.S. Highway 491, east of the Utah state line and north of the Ute Mountain Ute Reservation. In this area of analysis, biotic and abiotic characteristics (e.g. climate, physiographic, soils, vegetation and wildlife), land uses and environmental setting are similar. The landscape's primary historic uses include livestock grazing, cultivated agriculture, and oil and gas resource development.

#### VEGETATION AND UPLAND SOILS

##### AFFECTED ENVIRONMENT

The Papoose Canyon Allotment is 1,064 acres in size (Map 2). The majority of the allotment is a sloping mesa surrounding the head of Papoose Canyon. In general the elevation of the allotment ranges from 6,200 feet to 6,500 feet.

The dominant vegetation type is pinyon and juniper woodland on gentle mesa slopes. About 20% of this pinyon juniper type burned 20 to 30 years ago. The remainder of the allotment is comprised of moderate to steep canyon sides and smaller areas dominated by sagebrush vegetation. There also is a small area of pinyon and juniper that was chained in the 1960s.

More specifically, the allotment has the following ecological sites. Ecological sites are areas with uniform soils and topography that produce a distinct natural (reference) plant community. The ecological sites and size are described in detail in Table 5. The 146 acres of the allotment placed in the steep canyon side category because of the steep terrain and rocky barren slopes were not considered capable for grazing and are not included in the following discussion.

Table 5. Ecological sites in the Papoose Canyon Allotment.

Ecological Site	Acres	Proportion of Allotment
Loamy Bottom – old burn	17	2%
Loamy Foothill – chaining	58	5%
Loamy Foothill – high pj cover	503	47%
Pinyon Juniper – old burn	165	16%
Pinyon Juniper – high cover	175	16%

A Rangeland Health Assessment was completed in 2001. This assessment evaluated ecological sites on the allotment comparing existing site conditions to those expected for the site potential condition. Eighteen site indicators were evaluated with a qualitative, descriptive rating system, following BLM Technical Reference 1734-6, 2000, Interpreting Indicators of Rangeland Health. The indicators were used to evaluate three rangeland health attributes: Soil and Site Stability, Hydrologic Function and Biotic Integrity. These attributes are used, in part, to help make a determination as to whether the allotment is meeting the Rangeland Health Standards for public land health (H-4180-1 Rangeland Health Standards, 1/19/01). Overall the Papoose Canyon Allotment had the following ratings applied:

Table 6. Degree of Departure from Reference Site Condition.

Percent of acres in each rating	Degree of Departure from Reference Site Condition				
	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Soil and Site Stability	0%	2%	98%	0%	0%
Hydrologic Function	0%	2%	98%	0%	0%
Biotic Integrity	0%	2%	98%	0%	0%

Additional data was collected during the rangeland health assessment to assist in making decisions regarding management of the allotment. Vegetation cover, ground cover and production were measured on all of the ecological sites in the allotment. Using this data, the vegetation for each sample point was rated based on the existing species composition as compared to desired condition. The desired condition was determined from the appropriate ecological site condition, reference sites within the monument if available, and a consideration of the general conditions on the monument for each ecological site. Overall, 18% were in excellent condition, (76 to 100% of the desired plant community represented), 52% were in good condition or 51 to 75% of the desired community and 30% were in fair condition or 26-50% of the desired community.

Table 7. Vegetation Condition Ratings.

Condition Rating	Percent of Desired Plant Community	Acres	Proportion of Allotment
Excellent	76-100%	165	18%
Good	51-75%	475	52%
Fair	26-50%	278	30%

Since the majority of acres for Biotic Integrity were in the moderate or moderate to extreme category and vegetation conditions on the allotment were rated as fair and good

it was determined that the rangeland health standard for healthy, productive plant and animal communities of native and other desirable species was being achieved.

Since the majority of acres for Soil and Site Stability and Hydrologic Function were in the moderate or moderate to extreme category (at risk or greater categories), the allotment was determined not to be meeting the rangeland health guidelines for upland soils. At risk rangelands have a reversible loss in productive capability and increased vulnerability to irreversible degradation based upon an evaluation of current conditions of the soils and ecological processes (NRC 1994).

### **Ground Cover and Soil Stability Ratings**

The amount of bare soil has a direct effect on soil and site stability and hydrologic function (Pellant et al., 2000). Bare soil is a soil surface without living vegetative cover, vegetative litter, rock, or biological crust cover. The amount of bare ground is a direct indication of site susceptibility to accelerated wind or water erosion (Pellant et al., 2000; Branson et al., 1981, page 112 - 117). When a soil does not have aerial cover, such as a vegetative canopy or surface cover such as biological crust, litter, rock or plant base, the site is more susceptible to raindrop splash erosion, decreasing infiltration, and increasing sediment suspension. Overland flow increases as a direct result, and if unimpeded by surface cover, will collect and cause erosion and sedimentation. Average bare ground measurements from the 2001 rangeland health assessment were 26% with a high of 33% and a low value of 6%.

Soil stability was measured during the rangeland health assessment with the Slake test (Pellant et al. 2000) to evaluate infiltration rates both under plant canopy and in the interspaces between plant canopies. For the Papoose Canyon Allotment, soil stability was high under plant canopies averaging 6 on a relative scale of 1 to 6 with 1 being the low end of the scale. The ratings were lower for the interspace measurements averaging 4. Sites with lower stability ratings have lower infiltration rates, less incorporated organic matter and a higher potential for erosion. Soils with decreased infiltration rates will have an increase in overland flow resulting in more water available for sediment transport (Branson et al, pg 132, 1981).

### **Biological Crusts**

Biological crusts are a living soil surface cover consisting of cyanobacteria, green algae, lichens, mosses and fungi. These crusts reduce wind and water erosion of soil surfaces. In cool deserts of the Colorado Plateau, biological crusts generally increase water infiltration (Belnap et al.2001, pg 35 - 40). The cyanobacteria and cyanolichens that are a common component of biological crusts in this area are an important source of fixed nitrogen for plants (Belnap et al.2001, pg 31). Studies have shown that many native species have higher seedling establishment where crusts are more developed. Alien species such as cheatgrass have reproductive strategies that are not adapted to sites with crust cover and seedling establishment is reduced (Belnap et al.2001, pg 33).

Biological crusts are easily disturbed by hoof or foot impacts, vehicles and bicycles and by high intensity fire. The lichen and moss components are less tolerant of disturbance than the cyanobacterial component. The positive effects of biological crusts such as nitrogen fixation, protection from wind and water erosion and increased infiltration, are higher where crusts are more developed. Recovery rates after disturbance vary greatly depending on the intensity of the disturbance, local climate, soil texture and shading availability. Cyanobacteria, the most common component of biological crusts, begins to recover from disturbance relatively quickly, 14 to 34 years on the Colorado Plateau. The cyanolichen component will take more than 50 years to recover. Later successional lichens and mosses will take several hundred years to recover (Belnap et al. 2001, pg 46). The species components that are present and their abundance will give an indication of the intensity and time since the disturbance occurred.

Within the Monument, the highest biological crust cover value sampled was 60% and the lowest 0%. The highest values for individual components were 45% cyanobacteria, 29% moss and 16% lichen. Biological crust cover varied greatly depending on the amount of associated rock cover and vegetative litter as well as the level of disturbance for each site. The highest cover values found on the Papoose Canyon Allotment were 7% cyanobacteria, 4% moss and 2% lichen. Average values for all sites sampled on the Papoose Canyon Allotment were 8% total biological crust cover consisting of 5% cyanobacteria, 2% moss and 1% lichen. The lowest values were associated with the burn area and the chained area, which amounted to 20% of the sampled area. It is possible this area has not had sufficient time for the biological crust component to re-develop.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A - Proposed Action**

#### ***Direct and Indirect Impacts***

Grazing during the dormant period will have the lowest impact on plants and provide for the greatest potential for maintaining those portions of the allotment that are in good and excellent range conditions, as well as potentially improving those areas of the allotment that are currently in fair range condition. Deferring use during the growing period will allow for plant re-growth and inputs to carbohydrate reserves. Seedlings will have an entire growing season to become established and dormant period grazing should have less of a trampling effect.

Litter cover will increase since plants will have the entire growing season to produce vegetative matter without being grazed. Higher litter covers will provide soil cover and increase organic matter in the soil surface. Erosion will decrease and water infiltration will increase.

Biological crusts on sandy soils are less sensitive to impacts when damp or frozen (Belnap et al. 2001). There is a higher potential for soils to be damp or frozen during the scheduled dormant grazing period than in the latter part of spring when temperatures are warmer, wind is common and precipitation levels lower. Grazing during the dormant

period only, should improve cover and complexity of biological crusts on this allotment. Increases in the amount of biological crust cover will provide benefits such as a reduction in wind and water erosion, increased soil nitrogen levels, and improved chances of native seedling establishment.

### **Alternative B – No Action**

#### ***Direct and Indirect Impacts***

Allowing for occasional rest during the critical growing period in spring will provide for the potential of improving those portions of the allotment in fair range conditions while continuing to maintain those portions of the allotment in good and excellent range conditions. A perennial plant's carbohydrate reserve storage is typically lowest during the initial growth period through the flowering period. Cool season grass species initiate growth early in the spring (April, May). Grazing during this period adds to the depletion of the reserve (Holechek et al. 1998, pgs 115-118). By deferring use during this critical period plants should respond. The occasional rest during the critical period will allow for re-growth and inputs to carbohydrate reserves. Seedlings will have a longer period to become established before the next grazing period when trampling will have an effect.

Over time, litter cover and biological crust cover should improve slightly due to reduced impacts and longer periods of recovery. However, improvement may be limited since grazing will occur during wet, dry and frozen soil surface conditions. Higher litter cover and the possibility of increased development of biological crusts will provide greater ground cover. Wind and water erosion will be reduced as a result of the ground cover and increased infiltration rates.

### **Alternative C – No Grazing**

#### ***Direct and Indirect Impacts***

This alternative has the highest potential for improvement of those portions of the allotment currently in fair and good range conditions, and will maintain those portions of the allotment in excellent range conditions. Plants will be able to complete their entire growing cycle each year allowing for balanced carbohydrate reserves and regular production of seeds for reproduction. Seedlings will be able to establish without damage from trampling.

Ground cover in the form of vegetative litter will increase since plants will only be utilized by wildlife. Due to reduced disturbance from hoof impacts, biological crust cover will increase and, over time, will develop characteristics of older crusts such as increased depth, lifeform and species complexity. These two factors combined will reduce erosion, increase infiltration and site productivity and promote seedling establishment (Belnap et al. 2001).

## **RIPARIAN ZONES**

### **AFFECTED ENVIRONMENT**

Papoose Canyon is mostly considered an ephemeral system with intermittent flow in a few places. Existing riparian vegetation consists primarily of small pockets of cottonwoods and few willows. Tamarisk is wide spread along the stream channel and based on riparian photos at existing survey points has been increasing since 1981. In addition, the majority of the stream channel consists of large boulders. Water flow within Papoose Canyon primarily is in response to runoff events. The system appears to carry high sediment loads when in response to these heavy runoff events.

### **BLM Standards for Public Land Health in Colorado**

Papoose Canyon Allotment is not meeting the riparian standard based on an evaluation of Papoose Canyon. However, it was determined that current grazing levels and practices are not a causal factor in non-attainment. Information used by the BLM interdisciplinary team to come to this determination is the proper functioning condition assessments for lotic (flowing water) riparian areas.

### **Proper Functioning Condition Assessments**

Papoose Canyon was assessed using Proper Functioning Condition protocol. This is a qualitative survey used to assess stream hydrology, vegetation and erosional/depositional processes. Streams are rated Proper Functioning Condition (PFC), Functional-At Risk (FAR) or Nonfunctional (NF). Functional-At Risk ratings include an assessment of trend (BLM TR 1737-9 1993). Definitions for these ratings are provided in Appendix C.

Papoose Canyon traverses public land in the Papoose Canyon Allotment for approximately 1.7 miles. Papoose Canyon rated Functional-At Risk with a downward trend during field season 2001. Papoose Canyon was rated with its ephemeral nature in mind. The floodplain above bankfull is not inundated in relatively frequent events but this is the nature of the system. Sinuosity, width/depth ratio and gradient are slightly out of balance with the landscape setting but this occurs mostly within the headwaters. Sediment loads are high and the gradient is overly steep in the headwaters due to past downcutting of the channel. In some areas the channel has downcut 1 to 2 feet within previous depositional areas. Deposition and downcutting is the result of historic livestock grazing, agricultural and irrigation practices upstream and recent fire. The species present along the stream (cottonwood and willow and some tamarisk) do indicate maintenance of riparian-wetland soil moisture, although they are not present in abundance along the stream corridor. Increased vegetation would help to maintain stream channel stability where large boulders and other energy dissipators are not present. Papoose Canyon does not have lateral stream channel movement associated with natural sinuosity, as evidenced by some braiding, and as previously mentioned, is downcutting in some places.

## **ENVIRONMENTAL CONSEQUENCES**

### ***Direct and Indirect Impacts***

All action alternatives would improve stream channel conditions at the local scale. The isolated pockets of willow and cottonwood would increase in abundance and vigor. This improvement would lead to increased stream channel stability in those areas. Where tamarisk is present it is likely to persist, providing some stream channel stability but reducing species diversity and composition. Papoose Canyon will continue to be laterally and vertically unstable in its headwaters due to upstream land use practices that increase the water and sediment being supplied to the stream. A Proper Functioning Condition rating of Functional-At Risk would not change due to the continued lateral and vertical instability. The trend rating might change to stable or upward should the riparian vegetation increase significantly enough to provide more stream channel stability in those areas that are currently unstable.

## **INVASIVE, NON-NATIVE SPECIES**

### **AFFECTED ENVIRONMENT**

Based on both the rangeland health assessment conducted in 2001 and riparian assessments, both tamarisk and cheatgrass were found in the allotment. Tamarisk is widespread along the drainage bottom within Papoose Canyon and has been increasing since 1981. Cheatgrass, which is an invasive annual grass species, was found in relatively small amounts within a small burned area of the allotment.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A – Proposed Action**

#### ***Direct and Indirect Impacts***

Under this alternative the levels of tamarisk would likely stay the same within the Papoose Canyon Drainage without applying herbicide or other treatments. The small levels of cheatgrass within the burned area may decrease in amounts because grazing would occur only during the dormant season. Grazing during the dormant season should result in further improvement of existing native vegetation conditions. As a result native vegetation should out-compete cheatgrass.

### **Alternative B – No Action**

#### ***Direct and Indirect Impacts***

Under this alternative the levels of tamarisk would likely stay the same within the Papoose Canyon Drainage without applying herbicide or other treatments. The small levels of cheatgrass within the burned area would likely remain the same.

## **Alternative C – No Grazing**

### ***Direct and Indirect Impacts***

Under this alternative the levels of tamarisk would likely stay the same within the Papoose Canyon Drainage without applying herbicide or other treatments. The small levels of cheatgrass within the burned area may decrease in amounts due to improvement in native vegetation conditions. As a result native vegetation should out-compete cheatgrass.

## **THREATENED, ENDANGERED, OR CANDIDATE SPECIES**

### **AFFECTED ENVIRONMENT**

This allotment falls within the range of several listed threatened or endangered species. The Project Area does not provide suitable habitat for the Canada lynx and Black-footed ferret. The black footed ferret's historic distribution included southwest Colorado but there are no known ferrets currently occupying this area (Fitzgerald et al. 1994). Since they have been extirpated from this area and there are no large prairie dog colonies, they have been removed from the list of threatened and endangered species to be considered for project impacts (San Juan Public Lands Unit Species List, October 6, 2006). Lynx are found in high elevation aspen and spruce-fir forests, which do not occur in the allotment. The project area may provide habitat for the Mexican spotted owl. There is willow habitat within this allotment, but there have been no confirmed locations of willow flycatcher in the Monument.

Drainages within this allotment are tributary to the San Juan River. Water depletions are not associated with range management so there would be no effect to listed San Juan River fishes. The flannelmouth sucker and the bluehead sucker are both considered sensitive species. Although they are not present within this allotment, they are present in streams adjacent to this allotment and have been located in Yellow Jacket Canyon. References also support their location within Montezuma County, specifically McElmo Creek (Woodling 1985). The bluehead is found in headwater streams and large rivers, requiring water of moderate to fast velocity (Woodling 1985). The flannelmouth is found in larger streams and rivers and all habitat types including riffles, runs, eddies, and backwaters (Woodling 1985). Both fishes are bottom feeders, eating a variety of invertebrates.

Two candidate species potentially found in southwest Colorado are the yellow-billed cuckoo and the boreal toad. The yellow-billed cuckoo and boreal toad are rare and not likely to be found in this ecosystem. There is no suitable habitat for either species within this allotment.

The Gunnison's sage grouse is considered a sensitive species. The allotment falls within the historic range of the Gunnison sage grouse. No sage grouse are known to occur and no suitable habitat is within the allotment.

Several other sensitive species may be found within this allotment including: ferruginous hawk, spotted bat, Allen's big-eared bat, fringed myotis and the big free-tailed bat. There is a diversity of habitats suitable for these species from steep, rocky canyons to pinyon-juniper woodlands.

The ferruginous hawk is uncommon to fairly common during the winter in southwest Colorado (Andrews and Righter 1992). It may be sighted foraging within this allotment area. Ferruginous hawks predominantly forage on jackrabbits and cottontails west of the Continental Divide (Preston 1998). In the Monument, black-tailed jackrabbits and both desert and mountain cottontails are likely to be found (Fitzgerald et. al. 1994). Desert cottontails tend to forage largely on forbs and grasses but the jackrabbit and mountain cottontail utilize shrubs such as juniper, sagebrush, greasewood, and rabbitbrush over the course of a year. Past grazing practices, as well as effects from past chaining projects in the pinyon-juniper have likely affected the distribution and abundance of rabbits.

Allen's big-eared bats and fringed myotis roost in mines and caves and are known to forage in pinyon-juniper woodlands. There are few, if any, mine and cave structures such as these within the Monument overall. However, there may be roosts on adjacent lands and as a result pinyon-juniper woodlands would play an important role.

The big free-tailed and spotted bats are likely to be found within this area. They roost in rocky cliffs with crevices and fissures. These features are typically found in canyon areas within the allotment.

The longnose leopard lizard is on the State Director's Sensitive Species List but was incorrectly omitted for the San Juan Public Land Center (SJPLC). Until the list is corrected, it is being considered sensitive for this area. It was also identified in the Monument proclamation. This lizard is known to occur in southwest Colorado and has been observed and recorded numerous times within the Monument. Habitat for the leopard lizard is flat or gently sloping shrublands with a large percentage of open ground. Hammerson (1999) describes other habitat associations in southwest Colorado including areas along the Dolores River where leopard lizards inhabit areas with sandy-rocky soils and scattered sagebrush, junipers, and skunk brush in canyon bottoms. Other habitats within Montezuma County include mesa tops above canyons. The longnose leopard lizard has a small home range from 1.6 to 6 acres in size (Hammerson 1999). It is limited in its activity period (from May to early August) and they have an unwary behavior, which makes them vulnerable to human exploitation (Hammerson 1999). Habitat for this lizard can be found in this allotment.

The Mesa Verde night snake is not on the State Director's Sensitive Species List but was recognized in the Monument proclamation. It may be found in the allotment. This snake inhabits landscapes (rocky slopes and canyons) that are generally not suitable for extensive development (Hammerson 1999). Hammerson (1999) stated that the habitat for this snake is largely intact and not threatened, and the distribution of this snake in western Colorado is probably more extensive than is now known.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A and B - Proposed Action and No Action**

#### ***Direct and Indirect Impacts***

Under these alternatives there would be improvements in vegetative conditions overall, both in quality and quantity. Also, riparian areas would likely improve.

There would be more perennial grasses, forbs, and shrubs available as a food source for small animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these small animals are prey items for sensitive species like the ferruginous hawk. Proper grazing management practices benefit the food chain overall.

There is a higher likelihood of livestock impacting reptiles and amphibians through trampling, under Alternative B (No Action) since there would be cattle on the allotment at the beginning of their activity period in May. However, under Alternative A (Proposed Action) trampling would not be a concern since livestock use would be concentrated in the late fall and winter months when the ground is likely frozen and both lizards and amphibians would be hibernating. Thus eliminating the concern regarding crushing of burrows and nests.

### **Alternative C – No Grazing**

#### ***Direct and Indirect Impacts***

This alternative promotes the most positive response for threatened, endangered, and sensitive species. There would be no trampling by livestock. Perennial grasses and forbs would provide the maximum nutritional value as forage for a variety of species. Riparian areas would improve.

## **GENERAL WILDLIFE SPECIES**

### **AFFECTED ENVIRONMENT**

Within the project area there were no emphasis areas identified (e.g. critical or severe big game winter ranges) in the 1985 RMP. Resident deer can be found within and adjacent to the allotment throughout the year. Wintering deer also utilize the area.

Recently, elk have been expanding into the area and in some cases are present year long. They may be found in the canyons and on the mesa-tops within the allotment where pinyon-juniper stands and protected canyons border agricultural fields. Elk are known to forage extensively in these fields, particularly during the winter period.

Several species of reptiles and amphibians are likely to be found within the allotment including the bull snake, striped whipsnake, red-spotted toads, and collared lizards. Most are either highly mobile, have a large home range, or are likely to be found in riparian areas.

Birds within the project area are typical of those associated with shrubsteppe habitats. According to Brock et al. (1992), the most important shrubsteppe neotropical migrant birds are horned lark, sage thrasher, Brewer's sparrow, vesper sparrow, and western meadowlark, all of which are ground nesting birds. The sage thrasher and Brewer's sparrow are more linked to sagebrush communities and have not been located during casual bird counts (Leslie Stewart and Cliff Stewart pers. comm). Other neotropical birds that have been noted in the vicinity include the uncommon black-throated sparrow, gray flycatcher and gray vireo; and the more common Bewick's wren, black-throated gray warbler, blue bird, Say's phoebe, and ash-throated flycatcher. Birds in this environment are primarily influenced by extreme and irregular fluctuations in precipitation and ecosystem productivity. As a result, they are highly opportunistic and ecologically adaptable (Brock et al. 1992).

Mammals that may be within the project area include: red and gray fox, raccoon, desert shrew, possibly the Merriam's shrew, black-tailed jackrabbit, desert and mountain cottontail, chipmunks, ground squirrels, prairie dogs, woodrats, several species of mice, and the ringtail (Fitzgerald et al. 1994). The condition of the grasses and forbs throughout the allotment would affect the rodent, rabbit, and prairie dog populations, since these vegetation types are the forage base for these animals. Rodents and rabbits are prey for the carnivores likely to be found within the Monument. Numerous studies have illustrated the cause and effect relationship between healthy carnivore populations and availability of prey.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A and B – Proposed Action and No Action**

#### ***Direct and Indirect Impacts***

Under these alternatives there would be improvements in vegetative conditions overall, both in quality and quantity. Riparian areas would improve. There would be more grasses, forbs, and shrubs available as a food source for animals such as jackrabbits, mice, insects, and birds. As discussed above, many of these animals are prey items for other animals commonly found within this allotment. Improvement in grazing practices benefit the food chain overall.

### **Alternative C – No Grazing**

#### ***Direct and Indirect Impacts***

This alternative promotes the most positive response for wildlife. There would be no trampling by livestock. Grasses and forbs would provide the maximum nutritional value as forage for a variety of species. Riparian vegetation would improve. There would be no competition for resources between livestock and big game.

## **CULTURAL RESOURCES**

### **AFFECTED ENVIRONMENT**

A cultural resource assessment based upon existing archaeological information (Class I) was completed for the Papoose Canyon allotment pursuant to Instruction Memorandum No. CO-2002-029 which outlines the guidelines and procedures for evaluating the effect of issuing, renewing, and transferring grazing permits on historic properties.

The Class I inventory was conducted using the Canyons of the Ancients National Monument cultural resource inventory/site overlays and GIS database; and the COMPASS site database maintained by the Colorado State Historic Preservation Office (SHPO). National Register eligibility was derived from the COMPASS database. Four livestock concentration areas were delineated by the Range Specialist onto 7.5 minute scale U.S.G.S. topographic quadrangle maps. The livestock concentration areas identified all are associated with water resources such as springs, drainages, and reservoirs. Because of the relatively small size of the Papoose Canyon allotment, all of the site forms for all documented sites within the allotment were reviewed to determine if livestock impacts, or erosion were specifically noted, and if range improvements were shown on the site maps.

A total of six Class III cultural resource inventories were conducted within the Papoose Canyon allotment, intensively surveying a total of approximately 259 acres or 24 percent of the 1,064-acre allotment. Three of the four livestock concentration areas totaling approximately 75 acres were completely inventoried by the previously conducted surveys. The fourth livestock concentration area, approximately 20 acres has not been inventoried for cultural resources.

A total of 16 sites were documented within the boundaries of the Papoose Canyon grazing allotment. Thirteen of the sites have not been formally evaluated for eligibility for the National Register of Historic Places (NRHP) and are considered potentially eligible; three sites within the allotment have been determined eligible for the NRHP. These sites are affiliated with prehistoric Ancestral Puebloan occupations that date between A.D. 500 and 1300. These prehistoric sites include artifact scatters, processing areas/temporary campsites, kilns, rockshelters, fieldhouses, water control features, seasonal, and permanent habitations.

No range improvements were noted on any of the known sites. Specific impacts were noted: active erosion was noted at five sites, "plowing" (probably chaining) at one site, and human vandalism at one site. Disturbance specifically attributed to livestock was not noted on the site forms of any of the known sites. One archaeological site is located within a livestock concentration area; slope erosion is noted on the site form for this site. It is important to note the difficulty of evaluating effects from livestock on cultural resources from existing site condition documentation due to the variability that exists in documentation, and because it is unknown to what degree of specificity recorders were making observations about site condition.

Based on previous inventories conducted within and in the general vicinity of the allotment, it is expected that a high potential for site occurrence exists in the remaining unsurveyed portion of the allotment.

The following are cultural resource monitoring and inventory needs for Papoose Canyon grazing allotment:

1. Class III (intensive) inventory of the un-inventoried livestock concentration area and surrounding area, totaling approximately 80 acres.
2. Relocate five of the known cultural resources located in and near livestock concentration areas in order to monitor the sites for livestock and other impacts, update recording, evaluate for NRHP eligibility, make determinations of effect, and design and implement measures to mitigate adverse effects, including development of a treatment plan if necessary.

All cultural fieldwork and mitigation is to be completed during the ten-year term of the grazing permit, and prior to expiration per the direction contained in Instruction Memorandum No. CO-2002-029. The Cultural Resources Assessment for the Papoose Canyon Grazing Allotment contains the specific information regarding the inventory location and sites to be monitored, it is filed in the Canyons of the Ancients archaeology files.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A and B - Proposed Action and No Action**

#### ***Direct and Indirect Impacts***

Direct impacts that occur to prehistoric and historic sites located in areas where livestock concentrate include trampling, chiseling, churning, pollution of, and compaction of site soils, cultural deposits and features; damage to and displacement of artifacts; impacts to rock images and standing masonry and wooden structures resulting from livestock standing, leaning, and rubbing against them. Direct impacts can also occur to sites during the construction of range improvements such as stock ponds and fence lines, and in the areas where salt blocks and supplemental water and feed are placed. Indirect impacts include soil erosion, and a potential for an increase in unlawful collection and vandalism as sites become exposed due to loss of vegetation, or access is made into new areas.

The specific impacts noted on sites previously recorded within the Papoose Canyon grazing allotment include: active erosion at five sites, “plowing” (probably chaining) at one site, and human vandalism at one site. Disturbance specifically attributed to livestock was not noted on the site forms of any of the known sites. One of the archaeological sites is located within a livestock concentration area and slope erosion is noted on the site form for this site.

#### **Mitigation**

Class III (intensive) cultural resource inventory would be conducted in the livestock concentration area not inventoried for cultural resources; and on an 80-acre parcel located to the southwest of the concentration area. Sites that are identified would be documented according to the standards in the BLM Colorado Cultural Resources Handbook and BLM Manual. These sites would also be assessed for livestock and other impacts using a standardized monitoring form; and they would be evaluated for NRHP eligibility and effect. Five of the previously recorded sites identified in the Cultural Resources Assessment would be re-located in order to update the site documentation, assess them for livestock and other impacts, and evaluate them for NRHP eligibility and effects. These inventories and site assessments would be conducted during the 10-year term of the permit.

If following inventory and site monitoring the BLM determines, in consultation with the SHPO, that livestock grazing or other range management activities are adversely affecting historic properties, mitigation measures would be developed and treatment plans would be prepared. Following approval of the treatment plans; the BLM would treat the affected properties during 10-year term of the permit.

Any new range improvements associated with the allotments (e.g. spring developments, stock tanks, fences) are subject to compliance with Section 106 of NHPA, and would undergo standard cultural resources inventory and evaluation procedures prior to construction of range improvements.

### **Cumulative Impacts**

Conducting inventory to identify sites within livestock concentration areas; and updating condition assessments on previously recorded sites in order to determine effects; along with regular monitoring and treatment to mitigate such effects should serve to prevent or stop on-going damage from livestock during the term of this permit. Damage to archaeological sites resulting from direct and indirect impacts (as discussed in the Environmental Consequences section above) would become cumulative if mitigation measures are not taken to address them.

### **Alternative C - No Grazing**

#### ***Direct and Indirect Impacts***

Direct and indirect impacts to cultural resources as a result of livestock grazing would be eliminated under this alternative, as no livestock grazing would be allowed within the allotment.

**Cumulative Impacts-** cumulative impacts to cultural resources as a result of livestock grazing would be eliminated under this alternative, as no livestock grazing would be allowed within the allotment.

**Mitigation-** No mitigation measures would be needed for this alternative, as there would be no livestock grazing.

## **NATIVE AMERICAN RELIGIOUS CONCERNS**

### **AFFECTED ENVIRONMENT**

Native Americans will be consulted through the request for comments on this EA. Comments and suggestions will be considered by the decision making official prior to preparation of the Finding of No Significant Impact and signing of the Decision Record. A list of the Native American tribes and pueblos being consulted is provided in the Consultation, Coordination, and Public Participation section of this document.

## **SOCIOECONOMICS**

### **AFFECTED ENVIRONMENT**

The Papoose Canyon Allotment is within Dolores County, Colorado. The population for Dolores County was reported at 1,876 (Dolores County). The county has experienced modest growth in the 1990s with 5% annual change upward in the late 1990's.

The Dolores County economy is dominated by agriculture, and the production of dry land crops. However, irrigated farming with water from McPhee Reservoir has resulted in the production of new crops. Agricultural products and services in Dolores County provide 20% of employment and 21% of employment income.

Livestock grazing is recognized as an important aspect of the local custom, culture, and economy. The local counties including Dolores County believe that declines in federal livestock grazing would result in the decline of ranching and agriculture, which would also result in declines of privately maintained open space and wildlife. This decline would occur due to ranches with federal grazing permits becoming nonviable and therefore subject to subdivision, and other sprawl developments which would in turn affect the livelihood of the grazing permittees themselves.

## **ENVIRONMENTAL CONSEQUENCES**

### **Alternative A – Proposed Action**

#### ***Direct and Indirect Impacts***

The proposed action would not change the existing permitted AUMs. Under this alternative the permittee would be authorized to graze livestock for a total of 33 AUMs.

As requested by the applicant permittee, the current season of use for livestock grazing would be changed from April 1<sup>st</sup> through May 16<sup>th</sup> and September 1<sup>st</sup> through November 15<sup>th</sup> to November 1<sup>st</sup> through January 15<sup>th</sup>.

There would be no negative economic impacts to the permittee, or to the socioeconomics of the county. Because the change in season of use is more suitable to the applicant's livestock operation, this may positively enhance the economic impacts.

## **Alternative B – No Action**

### ***Direct and Indirect Impacts***

The no action alternative would not change the existing permitted AUMs. Under this alternative the permittee would continue to be authorized to graze 10 cattle from April 1<sup>st</sup> through May 16<sup>th</sup> and 10 cattle from September 1<sup>st</sup> through November 15<sup>th</sup> for a total of 33 AUMs.

Because the current permitted AUMs would remain the same under this alternative there would be no negative economic impacts to the permittee, or to the socioeconomics of the county.

## **Alternative C – No Grazing**

### ***Direct and Indirect Impacts***

The no grazing alternative would result in the loss of 33 AUMs and could result in a negligible decrease in livestock-generated revenues to the applicant permittee, assuming an alternative location could not be found to seasonally graze the same number of cattle.

Also, the cost to the Colorado Boards of Grazing Advisors would be the loss of approximately \$6.00 per year from permit fees for this allotment. Furthermore, not permitting livestock grazing on this allotment could also result in negligible impacts of livestock-generated revenues to local goods and services providers within Dolores County as well as adjacent counties.

### **Cumulative Impacts**

All other resource values have been evaluated for cumulative impacts and were found to be negligible.

Ranching operations often operate close to the margin and their profitability can be significantly affected by market conditions. In addition, periods of drought conditions since 2000 have in some cases reduced the amount of grazing capacity on both public and private lands. Federal land grazing plays an important and vital role in the economic viability of those ranchers who hold grazing permits, and significant changes to the permitted livestock numbers affect those operations.

Alternative C (No Grazing) would have the most impact to the applicant permittee because it would remove livestock grazing from public lands. The uncertainty of being able to find alternative pasture lands, combined with fluctuating market conditions and ongoing periods of drought may have the potential to adversely affect the viability of the applicant permittees livestock operation. However because of the small number of livestock (10-16 head) permitted on the allotment, it is anticipated that the cumulative impacts would be negligible to the permittee as well as to the county.

Alternative A (Proposed Action) and Alternative B (No Action) would have no immediate effect to the current livestock operation. Therefore, Alternatives A and B

would not contribute to adverse cumulative economic effects because they would ensure that livestock grazing would continue on this allotment.

#### **IV. CONSULTATION AND COORDINATION**

##### **Persons, Groups and Agencies Consulted**

A copy of the EA will be mailed directly to the following for a 30-day comment period:

Mary Watkins  
Dolores Board of County Commissioners  
Montezuma Board of County Commissioners  
Montezuma County Stewardship Committee  
Colorado Division of Wildlife  
Canyons of the Ancients Advisory Committee

##### **Native American Tribes will be Consulted Through Review of this Environmental Assessment**

The Northern Ute Tribe  
The Ute Mountain Ute Tribe  
The Southern Ute Tribe  
The Navajo Nation  
The Hopi Tribe  
The Jicarilla Apache Tribe  
The Pueblos of Acoma, Cochiti, Isleta, Jemez, Laguna, Nambe, Picuris, Pojoaque, Santa Ana, Santo Domingo, Sandia, San Felipe, San Juan, San Ildefonso, Santa Clara, Tesuque, Taos, Zia, and Zuni

##### **Public Notification**

Notification of the availability of the EA for a 30-day public comment period will be made through the local media and Monument website (<http://www.co.blm.gov/canm/index.html>).

#### **V. LIST OF PREPARERS**

LouAnn Jacobson, Monument Manager  
Michael Jensen, Rangeland Management Specialist  
Kathy Nickell, Wildlife Biologist  
Penny Wu, Outdoor Recreation Planner  
Shauna Jensen, Hydrologist  
Leslie Stewart, Ecologist  
Linda Farnsworth, Archaeologist  
Roger Baker, Noxious Weed Program Coordinator

**STANDARDS  
FOR PUBLIC HEALTH**

**AND**

**GUIDELINES  
FOR LIVESTOCK GRAZING MANAGEMENT**

**IN COLORADO**  
January 1997

**Standards for Public Land Health**

**STANDARD 1:** *Upland soils* exhibit infiltration and permeability rates that are appropriate to soil, type, climate, land form, and geologic processes. Adequate soil infiltration and permeability allows for accumulation of soil moisture necessary for optimal plant growth and vigor, and minimizes surface runoff.

Indicators:

- Expression of rills and soil pedestals is minimal.
- Evidence of actively-eroding gullies (incised channels) is minimal.
- Canopy and ground cover are appropriate.
- There is litter accumulating in place and is not sorted by normal overland water flow.
- There is appropriate organic matter in soil.
- There is a diversity of plant species with a variety of root depths.
- Upland swales have vegetation cover or density greater than that of adjacent uplands.
- There are vigorous, desirable plants.

**STANDARD 2:** *Riparian systems* associated with both running and standing water, function properly and have the ability to recover from major disturbances such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment, and provides forage, habitat and bio-diversity. Water quality is improved or maintained. Stable soils store and release water slowly.

Indicators:

- Vegetation is dominated by an appropriate mix of native or desirable introduced species.
- Vigorous, desirable plants are present.
- There is vegetation with diverse age class structure, appropriate vertical structure, and adequate composition, cover, and density.

- Streambank vegetation is present and is comprised of species and communities that have root systems capable of withstanding high streamflow events.
- Plant species present indicate maintenance of riparian moisture characteristics.
- Stream is in balance with the water and sediment being supplied by the watershed (e.g., no headcutting, no excessive erosion or deposition).
- Vegetation and free water indicate high water tables.
- Vegetation colonizes point bars with a range of age classes and successional stages.
- Active floodplain is present.
- Residual floodplain vegetation is available to capture and retain sediment and dissipate flood energies.
- Stream channels have appropriate size and meander patterns for the streams' position in the landscape, and parent materials.
- Woody debris contributes to the character of the stream channel morphology.

**STANDARD 3:** Healthy productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential. Plant and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes.

Indicators:

- Noxious weeds and undesirable species are minimal in the overall plant community.
- Native plant and animal communities are spatially distributed across the landscape with a density, composition, and frequency of species suitable to ensure reproductive capability and sustainability.
- Plants and animals are present in mixed age classes sufficient to sustain recruitment and mortality fluctuations.
- Landscapes exhibit connectivity of habitat or presence of corridors to prevent habitat fragmentation.
- Photosynthetic activity is evident throughout the growing season.
- Diversity and density of plant and animal species are in balance with habitat/landscape potential and exhibit resilience to human activities.
- Appropriate plant litter accumulates and is evenly distributed across the landscape.
- Landscapes are composed of several plant communities that may be in a variety of successional stages and patterns.

**STANDARD 4:** Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Indicators:

- All the indicators associated with the plant and animal communities standard apply.
- There are stable and increasing populations of endemic and protected species in suitable habitat.
- Suitable habitat is available for recovery of endemic and protected species.

**STANDARD 5:** The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado, Water Quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and antidegradation requirements set forth under State law as found in (5 CCR 1002-8), as required by Section 303© of the Clean Water Act.

Indicators:

- Appropriate populations of macroinvertebrates, vertebrates, and algae are present.
- Surface and ground waters only contain substances (e.g., sediment, scum, floating debris, odor, heavy metal precipitates on channel substrate) attributable to humans within the amounts, concentrations, or combinations as directed by the Water Quality Standards established by the State of Colorado (5 CCR 1002-8).

### **Colorado Livestock Grazing Management Guidelines**

1. Grazing management practices promote plant health by providing for one or more of the following:
  - Periodic rest or deferment from grazing during critical growth periods;
  - Adequate recovery and regrowth periods; and
  - Opportunity for seed dissemination and seedling establishment.
2. Grazing management practices address the kind, numbers, and class of livestock, season, duration, distribution, frequency and intensity of grazing use and livestock health.
3. Grazing management practices maintain sufficient residual vegetation on both upland and riparian sites to protect the soil from wind and water erosion, to assist in maintaining appropriate soil infiltration and permeability, and to buffer temperature extremes. In riparian areas, vegetation dissipates energy, captures sediment, recharges ground water, and contributes to stream stability.

4. Native plant species and natural revegetation are emphasized in the support of sustaining ecological functions and site integrity. Where reseeding is required, on land treatment efforts, emphasis will be placed on using native plant species. Seeding of non-native species will be considered based on local goals, native seed availability and cost, persistence of non-native plants and annuals and noxious weeds on the site, and composition of non-natives in the seed mix.
5. Range improvement projects are designed consistent with overall ecological functions and processes with minimum adverse impacts to other resources or uses of riparian/wetland and upland sites.
6. Grazing management will occur in a manner that does not encourage the establishment or spread of noxious weeds. In addition to mechanical, chemical, and biological methods of weed control, livestock may be used where feasible as a tool to inhibit or stop the spread of noxious weeds.
7. Natural occurrences such as fire, drought, flooding, and prescribed land treatments should be combined with livestock management practices to move toward the sustainability of biological diversity across the landscape, including the maintenance, restoration, or enhancement of habitat to promote and assist the recovery and conservation of threatened, endangered, or other special status species, by helping to provide natural vegetation patterns, a mosaic of successional stages, and vegetation corridors, and thus minimizing habitat fragmentation.
8. Colorado Best Management Practices and other scientifically developed practices that enhance land and water quality should be used in the development of activity plans prepared for land uses.

**TERMS AND CONDITIONS THAT APPLY TO ALTERNATIVES A and B**

**Resource/Livestock Management**

1. The terms and conditions of this grazing permit could be modified if additional information indicates that a revision is necessary to conform with Title 43 CFR 4180, or if livestock use is jeopardizing cultural resources on public lands.
2. All grazing use shall be in accordance with the grazing regulations found in 43 CFR 4100, and shall meet the requirements as described in Appendix A - BLM Standards for Public Land Health in Colorado. All livestock grazing use shall be managed according to BLM Guidelines for Livestock Grazing Management in Colorado (Appendix A).
3. During the dormant season livestock numbers may be increased to make use of the full amount of permitted AUMs during a shortened grazing season. These changes must be applied for and approved in advance of the grazing season.
4. Utilization levels shall not exceed 50 percent on key forage species of current years growth as measured at the key monitoring sites.
5. The placement of salt blocks, supplemental feed, water tanks, holding pens or other facilities on public lands requires prior authorization from BLM. Proposed locations should be flagged prior to seeking authorization. All archaeological and/or historic sites must be avoided.
6. Maintenance of all authorized structural range improvements and other projects (i.e. reservoirs, springs, corrals, etc.) would be the responsibility of the permittee to which it has been assigned. Maintenance would be in accordance with cooperative range improvement agreements and/or range improvement permits. Cultural resource inventories may be required prior to authorizing any maintenance activities.
7. The permittee is responsible for informing all persons associated with their livestock operation that they are subject to prosecution for knowingly disturbing Native American shrines, historic and prehistoric archaeological sites, or for collecting artifacts of any kind, including historic items, and/or arrowheads and pottery shards from Federal lands.
8. If archaeological or historic sites are discovered during livestock operations on the allotment, the BLM would be notified as soon as possible so that further deterioration and resource loss can be prevented.
9. As provided for in Title 43 CFR 4130.3-2 (h), the permittee shall provide

reasonable administrative access across private and leased lands to the BLM for the orderly management and protection of the public lands.

10. Livestock grazing use that is different from that authorized by a permit or lease must be applied for prior to the grazing period and must be filed with and approved by the authorized officer before grazing use can be made.
11. An accurate actual grazing use report showing use by pasture must be turned in within fifteen days after completing grazing use.

### **Administrative**

12. No member of, or delegate to, Congress or Resident Commissioner, after his election or appointment, or either before or after he has qualified, and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, other than members of advisory committees appointed in accordance with the Federal Advisory Committee Act (5 U.S.C. App.1) and Sections 309 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) shall be admitted to any share or part in a permit or lease, or derive any benefit to arise therefrom; and the provision of section 3741 Revised Statutes (41 U.S.C. 22; 18 U.S.C. Sections 431-433, and 43 CFR Part 7), enter into and form a part of a grazing permit or lease, so far as the same may be applicable.
13. Grazing fee payments are due on the date specified on the billing notice and must be paid in full within fifteen days of the due date, except as otherwise provided in the grazing permit or lease. If payment is not made within that time frame, a late fee (the greater of \$25 or 10 percent of the amount owed but not more that \$250) would be assessed.
14. Billing notices are issued which specify fees due. Billing notices, when paid, become a part of the grazing permit or lease. Grazing use cannot be authorized during any period of delinquency in the payment of amounts due. Including settlement for unauthorized use.
15. Grazing permit or lease terms and conditions and the fees charged for grazing use are established in accordance with all the provisions of the grazing regulations now or hereafter approved by the Secretary of the Interior.
16. This grazing permit/lease is subject to cancellation, in whole or in part, at any time because of:
  - a. Noncompliance by the permittee/lessee with rules and regulations.
  - b. Loss of control by the permittee/lessee of all or a part of the property upon which it is based.
  - c. A transfer of grazing preference by the permittee/lessee to another party.
  - d. A decrease in the lands administered by the BLM within the allotment(s) described.

- e. Repeated willful unauthorized grazing use.
- 17. Those holding permits or leases must own or control and be responsible for the management of livestock authorized to graze.
- 18. The permittees/lessees grazing case file is available for public inspection as required by the Freedom of Information Act.
- 19. Grazing permits or leases are subject to the nondiscrimination clauses set forth in Executive order 11246 of September 24, 1964, as amended. A copy of this order may be obtained from the authorized officer.
- 20. The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze.

## **TERMS AND CONDITIONS THAT APPLY TO ALTERNATIVE B**

### **Resource/Livestock**

- 1. During the critical growing season livestock numbers may not be increased above the livestock numbers on the permit.

**PROPER FUNCTIONING CONDITION DEFINITIONS**

- Riparian areas are functioning properly (PFC) when there is adequate vegetation and landform structure present to dissipate stream energy from high flows, thereby reducing erosion and improving water quality, filtering sediment, aiding floodplain development, improving flood water retention and ground water recharge, developing root masses that stabilize stream banks against cutting action, developing pools and channel characteristics necessary for fish production (where applicable) and other uses, and supporting greater biodiversity.
- Riparian areas are functional-at-risk (FAR) when they are functioning properly but an existing soil, water, or vegetative attribute makes them susceptible to degradation.
- Non-functioning (NFC) are streams where the lack of floodplain and riparian vegetation reduce the streams' ability to dissipate water energy; thus, every major flow event can have serious impacts such as down-cutting, and excessive siltation. Riparian areas are properly (PFC) where there is adequate vegetation.

LITERATURE CITED

Andrews, R. and R. Righter. 1992. Colorado birds. Denver Museum of Natural History. 442 pp.

Belnap, Jayne, R. Rosentreter, Steve Leonard, J. H. Kaltrenecker, J. Williams and D. Eldridge, 2001. Biological Soil Crusts: Ecology and Management, USDI, BLM-National Science and Technology Center, 2001. Technical Reference 1730-2.

BLM, 2001. State Director's Interim Management for Canyons of the Ancients National Monument.

BLM, 2002. Interim Management for all National Monuments.

Branson, Ferrel A. G.F. Gifford, K.G. Renard, and R.F. Hadley, 1981. Rangeland Hydrology. Society for Range Management, Range Science Series, second edition.

Brock, C.E., V.A. Saab, T.D. Rich, and D.S. Dobkin. 1992. Effects of livestock grazing on neotropical migratory landbirds in western North America in Finch, D.M. and P.W. Stangel, eds. 1993. Status and management of neotropical migratory birds; 1992 September 21-25; Estes Park, CO. Gen. Tech. Rep. RM-229. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 422 pp.

Clinton, William B. 2000. A Proclamation, Establishing Canyons of the Ancients National Monument.

Dolores County, Colorado. Dolores County Web Site.

Fitzgerald, J.P., C.A. Meaney, D.M. Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History and University Press of Colorado. 467 pp.

Hammerson, G.A. 1999. Amphibians and reptiles in Colorado. University Press of Colorado. 484 pp.

Holechek, Jerry L., Rex D. Pieper and Carlton H. Herbel, 1998. Range Management Principles and Practices, third edition.

L. Stewart, BLM Ecologist and C. Stewart, Forest Service Range Specialist, personal communication.

National Research Council. 1994. Rangeland health: new methods to classify, inventory, and monitor rangelands. National Academy Press, Washington DC. National Research Council.

Pellant Mike, P. Shaver, D. A. Pyke and J. E. Herrick, 2000. USDI, BLM-National Science and Technology Center, Technical Reference 1734-6, Interpreting Indicators of Rangeland Health, version 3.

Preston, C.R. 1998. in Kingery, H.E., editor. Colorado breeding atlas. Colorado Bird Atlas Partnership and Colorado Division of Wildlife. 636 pp.

United States Department of the Interior, Bureau of Land Management. 1997. Environmental Assessment, Decision Record and Finding of No Significant Impact, Standard for Public for Public Land Health and Guidelines for Livestock Grazing Management in Colorado.

United States Department of the Interior, Bureau of Land Management. 1985. Record of Decision for San Juan-San Miguel Resource Management Plan and Final Environmental Impact Statement, Montrose District, Colorado.

United States Department of the Interior, Bureau of Land Management. Interpreting Indicators of Rangeland Health. TR 1734-6, 2000.

United States Department of the Interior, Bureau of Land Management. Riparian Area Management, Process for Assessing Proper Functioning Condition. TR 1737-9, 1998.

Woodling, J. 1985. Colorado's little fish a guide to the minnows and lesser known fishes in the state of Colorado. Colorado Division of Wildlife. 77pp.