TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF MAPS

LIST OF APPENDICES

CHAPTER 1 INTRODUCTION

The Colorado Bureau of Land Management (BLM), Little Snake Field Office (LSFO) has initiated the planning process to develop a Resource Management Plan (RMP) for approximately 1.3 million acres of BLM-administered public lands and 1.1 million acres of federal mineral estate in Moffat, Routt, and Rio Blanco counties in northwest Colorado (Map 1). An Environmental Impact Statement (EIS) will be prepared as part of this project.

The management of public lands and federal mineral estate within the LSFO boundaries (from this point forward referred to as the Little Snake Resource Management Plan Planning Area [RMPPA]) is the subject of this document (Map 2). Areas within the RMPPA administered by other federal agencies, such as the U.S. Forest Service (USFS), the U.S. Fish and Wildlife Service (USFWS), and the National Park Service (NPS) and state agencies, such as the Colorado State Land Board, are not the subject of this document or the current RMP planning effort. Additionally, planning decisions and descriptions in this document do not apply to private lands.

1.1 PURPOSE AND NEED FOR THE RMP REVISION

The Federal Land Policy and Management Act of 1976 (FLPMA) requires that BLM "develop, maintain, and, when appropriate, revise land use plans" (43 United States Code [U.S.C.] 1712 (a)). BLM has deemed it necessary to revise the existing RMP for the LSFO based on a number of new issues that have arisen since preparation of the initial RMP in 1989. An RMP is a set of comprehensive long-range decisions concerning the use and management of resources administered by BLM. In general, an RMP accomplishes two objectives:

- Provides an overview of goals, objectives, and needs associated with public lands management
- Resolves multiple-use conflicts or issues associated with those requirements that drive the preparation of the RMP.

The BLM resource management planning process, explained in Title 43 of the Code of Federal Regulations, Part 1600 (43 CFR 1600), BLM 1601 Manual, and BLM Land Use Planning Handbook (H-1601-1), falls within the framework of the National Environmental Policy Act of 1969 (NEPA) environmental analysis and decision-making process described in the Council on Environmental Quality (CEQ) regulations of 40 CFR 1500-1508, the Department of the Interior NEPA Manual (516 DM 1-7), and the BLM NEPA Handbook H-1790-1. This Analysis of the Management Situation (AMS) is a planning precursor to developing potential alternatives, as required by NEPA regulations.

Major issues to be addressed in the RMP revision include:

- Management of public land to support numerous wildlife species and their habitats (e.g., white-tailed prairie dog, black-footed ferret, Canada lynx, greater sage-grouse, and elk).
- Management of lands containing wilderness character and oil and gas potential, including non-WSA areas such as the Vermillion Basin where a 2001 BLM inventory found over 77,000 acres of wilderness character.
- Management of energy and mineral resources, including identifying areas and conditions in which mineral development can occur.

- Increased off-highway vehicle (OHV) use and non-motorized visitation over the years in areas such as Sand Wash Basin that have led to increased concerns regarding resource protection and conflicting uses.
- Conducting Wild and Scenic River Eligibility and Suitability studies on river segments within the Little Snake RMPPA.
- The need to consider opportunities for land tenure adjustment to improve manageability of public lands.
- The needs of local levels of government and citizens to be heard on an array of issues regarding both traditional and emerging uses of public land and their potential social and economic effects on local communities and values.

1.2 PURPOSE OF ANALYSIS OF THE MANAGEMENT SITUATION

The AMS is a summary document that describes the physical and biological characteristics and condition of the resources within the RMPPA and how these resources are currently being managed. An analysis of the resource conditions and capabilities provides a reference for developing land use plans (LUP). This document represents an early component of the resource management planning process. The AMS is not a comprehensive, detail-oriented document, nor does it represent extreme details about various resources. It is intended to provide a summary analysis of existing management practice, including direction from existing plans and agency policy, and local resource, social, and economic conditions.

1.3 BLM PLANNING PROCESS

The process for the development, approval, maintenance, and amendment or revision of RMPs was initiated under the authority of Section 202(f) of FLPMA and Section 202(c) of the National Environmental Policy Act of 1969 (NEPA). The process is guided by BLM planning regulations in 43 CFR 1600 and CEQ regulations in 40 CFR 1500.

Development of the RMP represents the first of the two-tiered BLM planning process: the land use planning tier. As such, the RMP prescribes the allocation of and general future management direction for the resource and land uses of the BLM-administered public lands in the RMP planning area. In turn, the RMP guides the second tier of the planning process: the more site-specific activity or implementation planning tier and daily operations.

Activity or implementation planning extends the resource and land use decisions of the RMP into site-specific management decisions for smaller geographic units of public lands within the RMP planning area. Activity planning includes such elements as allotment management plans, habitat management plans, and interdisciplinary or coordinated activity plans that issue various land and resource use authorizations; identification of specific mitigation needs; and development and implementation of other similar plans and actions.

All management direction and/or actions developed as part of the BLM planning process are subject to valid existing rights and must meet the objectives of BLM's multiple use management mandate and responsibilities (FLPMA Section 202(c) and (e)). Valid existing rights include all valid lease, permit, patent, right-of-way, or other land use right or authorization existing on the date of approval of the Federal Land Policy and Management Act (FLPMA) of 1976.

Although the courts may recognize adjudicated RS 2477 rights-of-way as valid existing rights, BLM current policy does not allow BLM to consider unadjudicated RS 2477 claims as valid existing rights. The current moratorium precluding the BLM from processing RS 2477 claims is still in effect, making RS 2477 assertions a legal issue beyond the scope of this planning effort.

The Moffat County RS 2477 assertions are acknowledged in this AMS and will be considered along with other pertinent information when making resource management decisions in the RMP. However, because we cannot determine the validity of these assertions, the existence of the claims will not control resource allocation decisions made by the BLM in the RMP/EIS. That being said, if any RS 2477 claim is determined to be valid in the future, it would be considered a valid existing right that would be recognized in RMP decisions.

1.4 GENERAL DESCRIPTION OF PLANNING AREA, GEOGRAPHIC SCOPE, AND RESOURCES/PROGRAMS

The Little Snake RMPPA encompasses approximately 4,224,500 acres of federal, state and private lands in Moffat, Routt and Rio Blanco Counties of northwestern Colorado (Map 2). The area is bordered on the north by the State of Wyoming; on the west by the State of Utah; on the south by the White River Field Office, the Routt National Forest, and the White River National Forest; and on the east by Routt National Forest.

Of the total area, 1.3 million acres (40 percent) are BLM-administered public lands (Table 1-1) and 1.1 million acres of the private and state lands are underlain by federally-owned minerals. Approximately 53 percent is privately owned, and 7 percent is administered by the State of Colorado.

Table 1-1. — BLM-Administered Surface Acres by County

County	Approximate total acres in county	BLM-Administered surface acres	Percent of county total managed by LSFO
Moffat	3,025,000	1,285,200	43
Routt	1,512,000	59,900	4
Rio Blanco	2,061,000	4,300	0.2
Total Acreage	6,598,000	1,349,400	21

Resources and/or resource uses discussed in this AMS include: air quality, soil, vegetation, rangelands, forests and woodlands, riparian areas and wetlands, fish and wildlife habitat, special status species, wild horses, fire, cultural and heritage resources, paleontological resources, special management designations, visual resources, energy and minerals, livestock grazing, recreation, lands and realty, transportation and access, and social and economic conditions.

1.5 KEY FINDINGS

In many respects the 1989 RMP, along with subsequent amendments, has done a good job in providing direction for management of BLM-administered lands in the RMPPA. In particular, the 1996 amendment incorporating the Colorado Standards for Public Land Health and Guidelines for Livestock Grazing Management effectively provides a long-term approach for management of land health. Key issues

needing resolution generally relate to revised national level BLM policy (e.g. establishment of major ROW corridors, cultural resource management, visual resource management, etc.), changing resource conditions or demands (e.g. increases in OHV use, substantial increases in elk populations, existence of federally listed threatened and endangered [T&E] or other "sensitive " species, etc.), national policy direction (e.g. focus on energy development including coalbed methane resources), and renewed focus on other issues (e.g. Wild and Scenic Rivers, designation of areas of critical environmental concern (ACEC), and protection of wilderness characteristics).

The following brief summary of currently known key issues is being provided in advance of completion of the formal public scoping period for the RMP, and for that reason it is expected that additional issues will be added for consideration. The following is primarily drawn from local knowledge of BLM staff and managers and their involvement with the local communities of interest.

Off-Highway Vehicle Management. Increasing OHV use and accompanying conflicts with other resources requires that BLM engage with the public in establishing a framework for management.

Status of Vermillion Basin and Other Public Wilderness Proposals. Vermillion Basin has been recognized by the BLM as possessing wilderness character. Concurrently, the area may also be valuable for production of oil and gas resources. BLM has suspended oil and gas leasing decisions pending an RMP review of the existing values. Six other areas, including additions to existing WSAs, have been proposed for wilderness protection by citizens since 1994; management of these areas will also be considered in this planning process.

Development of Oil and Gas Resources. Recent national level focus on production of oil and gas from BLM-administered lands has renewed the discussion of the appropriate stipulations and Conditions of Approval (COA) that should accompany development of federal oil and gas resources (both traditional oil and gas and coalbed methane). The RMP will provide analysis of options and direction for future leasing and development of these resources within the RMPPA.

Areas of Critical Environmental Concern. As part of the RMP process, BLM is required to review public lands to determine whether ACECs should be designated for special protection and/or management. As part of this process, BLM will also review whether existing ACECs are still required for protection of the resources/values for which they were designated.

Wild and Scenic Rivers. As part of the RMP process, BLM is required to conduct an inventory and analysis of rivers and streams within the RMPPA to determine whether rivers or segments of rivers are "eligible" for consideration for inclusion in the National Wild and Scenic Rivers System (NWSRS). If there are "eligible" segments, BLM must consider in the planning process whether any of the eligible segments may be "suitable" for inclusion in the NWSRS. If the BLM determines through the planning process there are suitable segments, they will forward that finding to Congress who must make the final determination on designation.

Wildlife Resources on Public Lands. There has been increasing focus on the management of public lands to provide for the needs of sensitive wildlife and plant species. At the same time, increases in elk populations are affecting public land resources and livestock permittees. As part of the RMP, BLM will be reviewing the role to be played by public lands in providing wildlife habitat and for accommodating other uses of public lands.

Realty Issues. The following questions represent key realty issues that have been raised. Are there areas that should be designated to accommodate major utility corridors across the RMPPA? Are there areas that should be precluded from this use? Are there public lands that could be sold or exchanged and if so, under what criteria? Are there areas of public land where legal access does not currently exist and where access should be acquired?

CHAPTER 2 CURRENT MANAGEMENT DIRECTION

This chapter includes provisions of the Little Snake Resource Management Plan (RMP) and additional management direction and actions that have been implemented since the adoption of the RMP in 1989 (Table 2-1). The chapter is divided into three sections, resources, resource uses, and management units, that each contain the original RMP planned actions and maintenance or amendment actions that have taken place since the RMP record of decision (RMP/ROD) was signed in 1989. Resources are those natural, biological, and/or cultural components that make up the Little Snake Resource Management Plan Planning Area (RMPPA). Resource uses involve activities that utilize the natural, biological, and/or cultural components of the RMPPA, such as livestock grazing, recreation, and mineral development. Management units are geographic areas that make up the RMPPA and have been delineated for the purposes of managing the resource values and uses present to attain the best multiple-use prescriptions to provide maximum benefit to the general public (Map 3).

Each section, except for the management units, is mirrored in Chapters 3 and 4 to assist in cross-referencing current resource and resource use management with resource conditions and trends (Chapter 3) and management opportunities (Chapter 4). Collectively, these management actions represent current management of BLM-administered lands within the RMPPA and will form the basis of the No Action Alternative in the RMP/EIS. This management direction would continue into the future without additional RMP changes.

Table 2-1. — Relevant Plans and Amendments

Document Title	Year	Description
Little Snake Field Office RMP & Record of Decision	1989	Current RMP for the Little Snake Field Office
Oil and Gas Amendment, Little Snake RMP/EIS	1991	Amendment/EIS for compliance with the *Supplemental Planning Guidance for Fluid Minerals* released in 1987.
Black-Footed Ferret Reintroduction Amendment, Little Snake RMP/EIS	1995	Amendment/EA for proposed reintroduction of black-footed ferret as a nonessential experimental population into the Little Snake Black-Footed Ferret Management Area.
Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado	1996	Amendment/EA for adoption of the standards for public land health and guidelines for livestock grazing management (Standards and Guidelines)

2.1 RESOURCES

Resources are those natural, biological, and/or cultural components that make up the RMPPA.

2.1.1 Air Quality

Air quality was not specifically addressed in the 1989 RMP or any RMP amendments.

2.1.2 Soil Resources

2.1.2.1 Management Objectives

- Prevent deterioration of soil conditions and stabilize and rehabilitate areas where accelerated erosion and runoff have resulted in unacceptable resource conditions.
- Prevent disturbance of fragile soil areas where resulting erosion could not be controlled.

2.1.2.2 Planned Actions

Little Snake Resource Management Plan (1989)

Soil and water resources will be protected through mitigation or restrictions applied to surface- and underground-disturbing activities, as needed, on case-by-case basis. Water quality parameters will conform to state water quality standards.

The fragile soil and water areas (Vermillion Management Unit) identified below are areas where soil erosion potential is known to exist. The following fragile soil areas encompass approximately 2 to 3 percent of the total acres within the RMPPA:

- The area along Canyon Creek, including the adjacent steep side slopes, to approximately ½ mile either side of the creek
- The area of Shell Creek, including the adjacent steep side slopes, to approximately ½ mile either side of the creek
- The area along Vermillion Creek, including the adjacent steep side slopes, to approximately ½ mile either side of the creek, downstream to the confluence with Douglas Draw
- The area along Sand Wash, including the adjacent side slopes, to approximately ½ mile either side of the wash, from Section 10, T.9N., R.99W. to the confluence with Dugout Draw
- The area along Yellow Cat Wash, including the adjacent side slopes, to approximately ½ mile either side of the wash, from Section 12,T.9N.,R.98W. to the confluence with Sand Wash
- The area along Dry Creek, including the adjacent side slopes, to approximately ½ mile either side of the creek, from Section 22,T.11N.,R.99W. to the confluence with Vermillion Creek
- The northwest facing slopes of the Vermillion Bluffs, from the Vermillion Bluffs ridge top road downslope to the Dry Creek drainage.

Performance objectives apply to all surface-disturbing activities within fragile soil areas. If the performance objectives cannot be met, surface occupancy will not be permitted on federal surface. On private surface with federal mineral ownership BLM will, if necessary, develop an acceptable surface-use program where the impact of development of federal minerals might impact off-lease lands or resources. The following performance objectives are established for fragile soils:

- Maintain the soil productivity by reducing soil loss from erosion and through proper handling of the soil material
- Reduce impact to offsite areas by controlling erosion and/or overland flow from these areas
- Protect water quality and quantity of adjacent surface water and groundwater sources

- Reduce accelerated erosion caused by surface-disturbing activities
- Select the best possible sites for development to reduce the impacts to the soil and water resources.

All proposed surface-disturbing activities within fragile soil areas will undergo a site-specific review by the LSFO. Special performance standards (listed below) will be applied to these activities as well. If the performance objectives through application of the performance standards cannot be met, surface occupancy will not be authorized.

To achieve the performance objectives, BLM has identified the following performance standards that may apply to surface-disturbing activities. These standards are presented to identify the types of mitigation measures that may be necessary, based on the type of activity to be permitted, the timing of development activities, the geographical location, specific soil types and conditions, etc. Depending on these variables, an applicant must demonstrate that the performance objectives have been met either through a plan of development, using alternative measures, or through use of the following mitigation measures:

- All sediments generated from the surface-disturbing activity will have to be retained on site.
- Construction or other surface-disturbing activities will not be allowed when the soils are saturated to a depth of more than 3 inches.
- Vehicle use will be limited to existing roads and trails.
- All new permanent roads will be built to meet BLM primary road standards. Their location will be approved by the authorized officer. For oil and gas purposes, permanent roads are those used for production.
- All geophysical and geochemical exploration will be conducted by helicopter, horseback, on foot or from existing roads.
- Any sediment-control structures, reserve pits or disposal pits will be designed to contain a 100 year, 6 hour storm event. Storage volumes within these structures will have a design life of 25 years.
- Before reserve, production or emergency pits are reclaimed and all residue will be removed and trucked off site to an approved disposal site.
- Reclamation of disturbed surfaces will be initiated before November 1 each year.
- All reclamation plans will be approved in advance by the authorized officer and might require a bond if one has not been previously posted.

These requirements do not supersede valid existing rights on approved applications for permits to drill, developing leases or entry under the general mining laws. They do apply to new oil and gas leases and all surface-disturbing activities permitted under the 1989 RMP. BLM will work with operators/permittees to achieve performance objectives on undeveloped leases or permits consistent with previously granted lease rights.

Rights-of-way (ROW) construction will be allowed along Moffat County Roads 4, 67, and 126 on a case-by-case basis, and may not have to meet the performance standards listed above. Stipulations will be applied at the approval stage.

Surface-disturbing activities on isolated sites that meet fragile soil criteria as outlined below will be subject to the performance standards and objectives (listed above). Surface disturbance will be allowed only where performance standards and objectives can be met. Fragile soil criteria include the following:

a. Areas rated as highly or severely erodible by wind or water, as described by the Soil Conservation Service in the Area Soil Survey Report or as described by onsite inspection.

b. Areas with slopes greater than or equal to 35%, if they also have one of the following soil characteristics:

- Surface texture that is sand, loamy sand, very fine sandy loam, silty clay or clay
- A depth to bedrock less than 20 inches
- Erosion condition rated as 'poor'
- K factor (see glossary) greater than 0.32.

Range and water projects will be developed and implemented in order to encourage the relocation of livestock from within fragile soil and water areas. Where necessary, fencing will be used to improve the management of riparian areas; an alternate water source will be provided.

No-surface occupancy (NSO) stipulations will be established from within 500 feet to ¼ mile of perennial water sources, depending on the type and use of source, soil type and slope steepness.

Construction will be allowed within or near intermittent drainages and their floodplains only after completing a case-by-case analysis of soil type and slope steepness. Compliance with E.O. 11988 will be ensured. These actions will not preclude road crossings built to BLM specifications.

To ensure that unstable areas are avoided, accelerated erosion is prevented and detailed soil information is available, detailed soil surveys will be conducted on timber harvesting areas of Diamond Peak/Middle Mountain and Douglas Mountain.

The remaining water quality and quantity inventory of the RMPPA springs and seeps will be completed. Groundwater quality and aquifers will be inventoried within selected areas of the RMPPA. Water quality and watershed activity plans will be developed in areas with potential for water quality improvements. The potential for salinity control projects on BLM-administered public lands in the Milk Creek, Vermillion Creek, and Little Snake River watersheds will be analyzed.

Nonpoint sources of pollution will require that management actions be coordinated with federal, state and local agencies.

BLM roads and trails on public lands will be closed and rehabilitated if they have high erosion rates that cannot be corrected.

BLM will seek appropriative water rights for domestic, livestock, wildlife, and recreation uses.

Oil and Gas Amendment (1991)

Controlled surface use (CSU) stipulations will be used to protect coal mines where the mining method or location is such that location of subsequent wells can avoid significant conflicts, fragile soil areas, steep slopes, riparian/wetland vegetation, Irish Canyon ACEC, and Lookout Mountain ACEC.

Standards and Guidelines Amendment (1996)

Standard 1 establishes the standard and indicators for upland soils.

Standard 2 establishes the standard and indicators for healthy riparian systems, which includes consideration of water quality and soil stability.

Standard 5 establishes the standard and indicators to achieve or exceed water quality standards for the State of Colorado.

2.1.3 Water Resources

2.1.3.1 Management Objectives

- Maintain the integrity of streams and their associated riparian values on public lands that meet state water quality standards and have acceptable channel stability.
- Protect from further degradation and, if feasible, improve the quality of those streams and their associated riparian values that do not meet state water quality standards and do not have acceptable channel stability.
- Protect and maintain present groundwater quality and quantity.

2.1.3.2 Planned Actions

See discussion under Section 2.1.2 (Soil Resources) above.

2.1.4 Vegetation

2.1.4.1 Management Objectives

Management objectives for vegetation resources are specifically addressed in the Soil Resources, Water Resources, Fish and Wildlife Habitat, Special Status Species, Special Management Designations, and Livestock Grazing Management sections of this document.

2.1.4.2 Planned Actions

Little Snake Resource Management Plan (1989)

See discussions under Sections 2.1.5 (Fish and Wildlife Habitat) and 2.2.2 (Livestock Grazing Management) below.

Standards and Guidelines Amendment (1996)

Standard 2 establishes the standard and indicators for healthy riparian systems, which includes consideration of native and desirable introduced species.

Standard 3 establishes the standard and indicators for healthy plant and animal communities.

2.1.4.3 Rangelands

Management Objectives

Improve range conditions in terms of species diversity and abundance, as well as increasing carrying capacities for both livestock and wildlife.

Planned Actions

Little Snake Resource Management Plan (1989)

See discussions under 2.1.2 (Soil Resources), 2.1.5 (Fish and Wildlife Habitat), 2.1.7 (Wild Horses), 2.1.8 (Fire), and 2.2.2 (Livestock Grazing Management).

2.1.4.4 Forests and Woodlands

Management Objectives

Manage the suitable pinyon-juniper woodlands and commercial forest lands to maintain stand productivity and to help meet fuelwood and saw timber demand on a sustained-yield basis.

Planned Actions

Little Snake Resource Management Plan (1989)

Existing 10-year forest management plans will continue for Diamond Peak/Middle Mountain and Douglas Mountain.

Commercial forest lands (6,330 acres) will be managed to produce a variety of forest products on a sustained yield basis. Limited management (such as natural revegetation and minimal cultural treatments) will apply to remaining commercial forest lands. Allowable harvest levels under a sustained yield have been calculated at 300,000 board feet per year. The allowable harvest will be recalculated periodically based on updated inventories.

Approximately 37,600 acres of woodland will be managed to produce a variety of woodland products on a sustained-yield basis. Limited management will apply to the remaining woodland acreage. Annual allowable woodland harvest levels under a sustained yield have been calculated at 2,500 cords, or 1.25 million board feet per year. The allowable harvest will be recalculated periodically based on updated inventories.

Access will be acquired for future timber sales (RMP/ROD pages 20-21).

Public harvest areas will be opened to meet local demand.

2.1.4.5 Riparian Areas and Wetlands

Management Objectives

The 1989 RMP did not specifically address management objectives for riparian areas and wetlands.

Planned Actions

See discussion under Section 2.1.2 (Soil Resources) above.

Oil and Gas Amendment (1991)

CSU stipulations will be used to protect coal mines where the mining method or location is such that location of subsequent wells can avoid significant conflicts, fragile soil areas, steep slopes, riparian/wetland vegetation, Irish Canyon ACEC, and Lookout Mountain ACEC.

2.1.5 Fish and Wildlife Habitat

2.1.5.1 Management Objectives

- Improve those rangelands that are key wildlife habitats and have the potential for increased forage production for wildlife grazing by improving soil and water resources. Maintain those rangelands that are at their desired plant communities.
- Determine stocking rates for wildlife and livestock that result in proper use of the public rangelands within the 13 conflict allotments. Issue decisions or enter into agreements to establish forage use and grazing capacity. The BLM will consult with the Colorado Division of Wildlife, affected grazing permittees, and other interested parties.

2.1.5.2 Planned Actions

Little Snake Resource Management Plan (1989)

Forage will be provided on BLM land to maintain approximately 66,400 mule deer, 6,500 elk, 6,300 pronghorn and 70 bighorn sheep. Total RMPPA big game populations are 110,660 mule deer, 21,700 elk, 8,350 pronghorn and 70 bighorn sheep until further studies are completed and proper stocking rates are established.

BLM will immediately begin monitoring studies on M and I category allotments to yield information needed to make decisions on wildlife numbers.

Wildlife-use adjustments will be implemented through consultation and coordination with the Colorado Department of Wildlife (CDOW) if monitoring data indicate that adjustments are necessary.

Wildlife habitat will be maintained or improved through mitigation or restrictions applied to all wildlife habitat-disturbing activities.

Wildlife habitat will be maintained or improved by using seasonal restrictions on activities (RMP/ROD page 12).

Wildlife habitat for raptors and the greater sandhill crane, as well as wildlife watering areas, beaver colonies, greater sage-grouse strutting grounds and potential black footed ferret habitat (some prairie dog towns), will have NSO stipulations applied to new oil and gas leases. These areas vary in size between 10 and 110 acres and are scattered throughout the RMPPA. Such stipulations will also be applied to similar habitat identified on future surveys.

BLM will cooperate with CDOW in monitoring the habitat and populations of bighorn sheep on Cross Mountain and in the Cold Spring Mountain area.

BLM will coordinate with CDOW for joint funding of wildlife projects.

Wildlife habitat management plans will be prepared and implemented, emphasizing aquatic/riparian habitats for the Little Snake River, Yampa River, Vermillion Creek, Beaver Creek, Canyon Creek, Shell Creek Morgan Gulch, Milk Creek, Fortification Creek, West Timberlake Creek, Willow Creek, and Fourmile Creek.

Aquatic surveys will be completed on 3,000 acres of riparian areas and 400 acres of known wetland wildlife habitat.

Inventories will be conducted to determine if other riparian or wetland habitats occur in the RMPPA and to determine their value as wildlife habitat.

Wildlife watering guzzlers will be installed on Godiva Rim, Sand Wash Basin, Cross Mountain and Dry Mountain. Additional environmental analyses will be completed and design specifications will be adhered to before any wildlife habitat improvement project is implemented.

Sage-grouse and elk habitat will be improved on West Cold Spring Mountain by roller chopping or burning irregular shaped areas of sagebrush.

Elk habitat will be improved in Bald Mountain Basin and Great Divide by conducting prescribed burns. Antelope distribution in Sand Wash, Powder Wash and Great Divide will be improved by constructing 25 antelope passes, installing 2 miles of lay down panels, and constructing fence modifications.

Elk habitat on Dry Mountain will be improved by chaining or burning irregular shaped plots of juniper. An undetermined number of springs and seeps, and associated wetlands and riparian areas, will be protected by fencing or other means that will improve the riparian habitat. Water will be transported outside the fenced area for other uses.

Oil and Gas Amendment (1991)

NSO stipulations will be used to protect Cross Mountain and Limestone Ridge ACECs; Little Yampa/Juniper Canyon and Cedar Mountain Special Recreation Management Areas (SRMA); Steamboat Lake and Pearl Lake State Parks; coal mines where development would be incompatible with the planned coal extraction; grouse, raptor, bald eagle, peregrine falcon, Mexican spotted owl, waterfowl and shorebird nests; and special status plant species.

Lease Notices will be used to alert lessees to special requirements for paleontological areas, sage grouse nests, sensitive species, sheep lambing grounds, and prairie dog complexes.

Timing Limitation stipulations will be used to protect crucial habitat, birthing, fledgling, and nesting areas.

Black-footed Ferret Reintroduction Amendment (1995)

Deterrent devices designed to prevent raptors from perching on powerline structures will be required on all new construction to discourage predation on ferrets.

To optimize the potential to establish a self-sustaining population of black-footed ferrets as projected in this RMP, prairie dog management on Bureau lands will now be designed to maintain at least 90 percent of the known or potential prairie dog acreage mapped on those lands in 1989.

Standards and Guidelines Amendment (1996)

Standard 3 establishes the standard and indicators for plant and animal communities.

2.1.6 Special Status Species

2.1.6.1 Management Objectives

Protect, conserve, and manage Colorado BLM sensitive plant species and locations with adjacent critical sites that affect their habitat. If any threatened, endangered or candidate plant species is identified on BLM-administered lands within the RMPPA, it would be protected through NSO stipulations and any other actions needed to prevent its deterioration and allow its recovery.

2.1.6.2 Planned Actions

Little Snake Resource Management Plan (1989)

Activity will not be permitted in threatened, endangered and sensitive species' habitat that would jeopardize their continued existence. CDOW and USFWS will be consulted according to Section 7 of the Endangered Species Act (ESA) before implementing projects that might affect threatened and endangered species' habitat.

Proposed project locations likely to harbor threatened, endangered, candidate or Colorado BLM sensitive plants will be surveyed before project development. Section 7 of the ESA states that consultation procedures with the USFWS will be implemented when a 'may affect' determination is made for listed threatened and endangered species.

If identified, threatened, endangered and candidate species would be protected through NSO stipulations.

Identified Colorado BLM sensitive plants will be protected through avoidance stipulations. When applied, the avoidance stipulation will include: "habitat of known populations of Colorado sensitive plants, and those remnant vegetation associations specifically identified, will be protected from human-induced activities to the extent such mitigation of impacts to these resources does not unduly hinder or preclude the exercise of valid existing rights. For Colorado BLM sensitive plants, the area of protection will include the actual location of the population and, if present, adjacent critical sites that affect their habitat."

Colorado BLM sensitive plants will be protected by designation of Limestone Ridge ACEC/Resource Natural Area (RNA), Cross Mountain Canyon ACEC, Irish Canyon ACEC, and Lookout Mountain ACEC.

The federally-endangered American peregrine falcon, Colorado Squawfish, humpback chub, bonytail chub and the Colorado State protected razorback sucker will be protected by designation of Cross Mountain Canyon ACEC.

Oil and Gas Amendment (1991)

NSO stipulations will be used to protect Cross Mountain and Limestone Ridge ACECs; Little Yampa/Juniper Canyon and Cedar Mountain SRMAs; Steamboat Lake and Pearl Lake State Parks; coal mines where development would be incompatible with the planned coal extraction; grouse, raptor, bald eagle, peregrine falcon, Mexican spotted owl, waterfowl and shorebird nests; and special status plant species.

Lease Notices will be used to alert lessees to special requirements for paleontological areas, sage grouse nests, sensitive species, sheep lambing grounds, and prairie dog complexes.

Standards and Guidelines Amendment (1996)

Standard 4 establishes the standard and indicators for special status, threatened, and endangered plant and animal species (both federal and state).

2.1.7 Wild Horses

2.1.7.1 Management Objectives

- To protect wild free-roaming horses in the Sand Wash Basin Herd Management Area (HMA) from unauthorized capture, branding, harassment, and destruction.
- To manage herds of wild horses as an integral part of the public lands ecosystem under the principle of multiple use.
- To manage wild horse habitat to achieve and maintain a thriving natural ecological balance.
- To maintain current data about wild horse populations and their habitat.
- To remove excess wild horses periodically to maintain appropriate management levels on the HMA.
- To remove wild horses that stray from Sand Wash Basin HMA as soon as practical.

2.1.7.2 Planned Actions

Little Snake Resource Management Plan (1989)

Habitat condition in Sand Wash Basin will be managed to maintain an appropriate management level of 130 to 160 wild horses.

An annual census will be taken to monitor the growth of the horse herd. Surplus wild horses will be removed once herds reach 250 head or when special situations, such as drought, threaten the horses with water or forage shortages.

A monitoring program will be established to determine annual utilization of key forage plants and vegetation trends within the Sand Wash Basin.

The Sand Wash Basin HMA Plan will continue to be used to guide the management of wild horses in this area.

2.1.8 Fire

2.1.8.1 Management Objectives

In full suppression zones:

- Give first priority to personal safety, life, or property.
- Prevent wildfire from causing any tree mortality in current and proposed commercial timber sale and woodland product contract areas.
- Prevent wildfire from destroying any perishable designated cultural resource sites.
- Prevent wildfires from destroying areas with significant riparian values.

In conditional suppression zones, where conditions may not warrant the highest level of fire suppression:

- Suppress all wildfires by taking appropriate suppression action. Appropriate actions will be based upon preplanned analysis consistent with land management objectives, including the threat of life and property, economic evaluations, and resource constraints.
- Use suppression strategies that do not require unnecessary exposure of firefighters and equipment to threatening situations.
- Utilize appropriate suppression actions that will avoid all unnecessary impairment of wilderness values and is consistent with Interim Management Policy.

In prescribed fire zones:

- Use planned and unplanned ignition to meet the objectives of other resources, such as livestock and wildlife for use of fire to improve vegetative conditions.

2.1.8.2 Planned Actions

Little Snake Resource Management Plan (1989)

Maximum suppression will be used on areas with high resource values, structures, commercial forest, oil and gas developments, cultural values, improvements, etc. Buffer areas near or adjacent to critical management areas for threatened, endangered and candidate species, Colorado BLM sensitive plant species, and RNAs will require full protection. Maximum suppression will be used in other areas to prevent fire from spreading to adjacent private property/structures.

Conditional fire suppression will be used in areas with resources of low value or that do not warrant full suppression actions and/or high suppression costs. Fires in the Douglas Mountain area (five Dinosaur adjacent wilderness study areas (WSA), Diamond Breaks WSA, West Cold Spring WSA, and Cross Mountain WSA) will be handled under this strategy.

Prescribed fire will be used to improve resource habitat, condition, etc. Both planned and unplanned fires will be used.

2.1.9 Cultural and Heritage Resources

2.1.9.1 Management Objectives

To identify and protect the cultural resources within the RMPPA.

2.1.9.2 Planned Actions

Little Snake Resource Management Plan (1989)

Evaluate all proposed surface-disturbing actions to determine inventory needs and sites potentially impacted by such activities.

Ensure that all sites that are listed on, or potentially eligible for listing on, the National Register of Historic Places are identified and assessed through the Section 106 consultation process before any surface-disturbing action is permitted.

An overall cultural resource management plan as well as a paleontological management plan will be developed that addresses the prehistoric and historic cultural presence, as well as the fossil presence in the RMPPA. Separate plans, on a smaller scale, would be developed to include site-specific or region-specific areas of the RMPPA. These developed plans would address the existing data gaps and research questions that have been developed in the Little Snake Resource Area Class I Overview (La Point 1987) and the Paleontological Overview (Armstrong and Wolny 1989). These future plans will be the data orientation and collection designs needed to develop the basic knowledge of these resources that has been lacking in the past.

Cultural and paleontological resource management plans will be developed to address the identification, protection, and monitoring of these resources within the RMPPA. A cultural resource and paleontological management plan will be developed for the Sand Wash Basin within the next five years.

All known prehistoric and historic cultural resources and paleontological sites are monitored to determine effectiveness of the program. This monitoring provides the basis for additional needs that may be warranted for their management. Selected cultural and paleontological sites may have specific monitoring or excavation plans developed for them. This depends upon the potential for impacts and other circumstances that may affect individual cultural resources or paleontological sites over time.

Black-footed Ferret Reintroduction Amendment (1995)

Class 3 cultural surveys will be conducted on the specific sites where surface disturbance will occur. If necessary, the surface disturbing activity will be relocated to a site in which surveys reveal no significant cultural/paleontological resources.

2.1.10 Paleontological Resources

2.1.10.1 Management Objectives

To identify and protect the paleontological resources within the RMPPA.

2.1.10.2 Planned Actions

Little Snake Resource Management Plan (1989)

Evaluate all proposed surface-disturbing actions to determine inventory needs and sites potentially impacted by such activities.

An overall paleontological management plan will be developed that addresses the fossil presence in the RMPPA. Separate plans, on a smaller scale, would be developed to include site-specific or region-specific areas of the RMPPA. These developed plans would address the existing data gaps and research questions that have been developed in the Little Snake Resource Area Paleontological Overview (Armstrong n.d.). These future plans will be the data orientation and collection designs needed to develop the basic knowledge of these resources that has been lacking in the past.

Oil and Gas Amendment (1991)

Lease Notices will be used to alert lessees to special requirements for paleontological areas, sage grouse nests, sensitive species, sheep lambing grounds, and prairie dog complexes.

Surface-disturbing activities in Class I and II Paleontological Areas will have an inventory performed by an accredited paleontologist approved by the Authorized Officer.

2.1.11 Special Management Designations

2.1.11.1 Wilderness Study Areas

Management Objectives

To determine the suitability or non-suitability for wilderness designation of eight WSAs.

Planned Actions

Little Snake Resource Management Plan (1989)

The Diamond Breaks WSA will be recommended as preliminarily suitable for wilderness designation (RMP/ROD page 22). If Congress does not designate Diamond Breaks as wilderness, the Colorado portion of the WSA (31,480 acres) would be managed as a recreation management unit; the Utah portion (3,900 acres) would be managed by the Vernal District according to existing management framework plans.

The Cross Mountain WSA (including the proposed Cross Mountain Canyon ACEC) will be recommended as preliminarily suitable for wilderness designation. BLM will recommend that the proposed Cross Mountain wilderness remain open to oil and gas leasing with NSO stipulations. If Congress does not designate Cross Mountain as wilderness, the area would be managed as an SRMA (13,000 acres), including the Cross Mountain ACEC (3,000 acres).

The West Cold Spring WSA will be recommended as nonsuitable for wilderness designation. If Congress does not designate the area as wilderness, the Colorado portion of West Cold Spring would be managed as the Cold Spring and Little Snake River management units (total of 14,482 acres). The Utah portion of the WSA would be managed under the Brown's Park Management Framework Plan.

Four WSAs evaluated under Section 202 of FLPMA – Ant Hills, Chew Winter Camp, Peterson Draw, and Vale of Tears – will be recommended as nonsuitable for wilderness designation but would be recommended to the Secretary for forwarding to Congress for the final decision. If Congress does not designate these areas as wilderness, they would be managed as follows:

- The northwest corner of Ant Hills would be managed as the Douglas Mountain Management Unit, and the remainder as the Scattered Sands Management Unit.
- Chew Winter Camp would be managed as the Scattered Sands Management Unit.
- The north third of Peterson Draw would be managed as the Scattered Sands Management Unit, and the remainder as the Douglas Mountain Management Unit.
- Most of the Vale of Tears would be managed as the Little Snake River Management Unit, and the other portions in the northwest corner would be managed as the Douglas Mountain and Scattered Sands Management Units.

Tepee Draw, the fifth WSA evaluated under Section 202 of FLPMA, is dropped from further consideration and will be managed as the Douglas Mountain Management Unit.

Except for the Tepee Draw WSA, WSAs would continue to be managed in compliance with BLM's Interim Management Policy until they were reviewed and acted upon by Congress.

Public land designated as wilderness will be managed in compliance with BLM's Wilderness Management Policy and the Wilderness Act of 1964. Site-specific wilderness management plans will be developed for areas designated by Congress as wilderness.

Oil and Gas Amendment (1991)

The Cross Mountain, Diamond Breaks, West Cold Spring, Ant Hills, Chew Winter Camp, Peterson Draw, and Vale of Tears WSAs will not be leased. These areas total 35,280 acres of BLM-administered mineral estate within the RMPPA.

2.1.11.2 Areas of Critical Environmental Concern

Management Objectives

To protect identified areas that contain important historic, cultural, scenic, and natural values or to protect human life and safety from natural hazards, pursuant to the FLPMA and BLM regulations in 43 CFR 1610.

Planned Actions

Little Snake Resource Management Plan (1989)

The following sites, totaling 22,530 acres, are designated to protect and enhance the values noted:

- Limestone Ridge ACEC/RNA (1,350 acres; remnant plant associations, Colorado BLM sensitive plant species, scenic quality).
- Irish Canyon ACEC, including the Ink Springs area (11,680 acres; remnant plant associations, Colorado BLM sensitive plant species, geologic values, cultural resources, scenic quality).

- Lookout Mountain ACEC (6,500 acres; Colorado BLM sensitive plant species, scenic quality).
- Cross Mountain ACEC (3,000 acres; threatened and endangered species, Colorado BLM sensitive plant species, scenic quality).

Management plans will be written for each designated site, and each site will also be monitored. Remnant plant associations will be protected through avoidance stipulations in Ace in the Hole, Hells Canyon, G Gap, Vermillion Creek, Vermillion Bluffs, and Horse Draw.

Memorandums of understanding (MOU) or memorandums or agreement (MOA) will be developed with the Colorado Natural Areas Program, the Nature Conservancy, and other interested agencies or groups to provide recommendations on protecting, managing and studying the unique resource values found in the designated areas and elsewhere in the RMPPA. BLM would retain sole management responsibility.

See also discussion under Sections 2.1.5 (Fish and Wildlife Habitat), 2.1.6 (Special Status Species), 2.1.11.1 (Wilderness Study Areas), and 2.2.1 (Other Minerals).

Oil and Gas Amendment (1991)

NSO stipulations will be used to protect Cross Mountain and Limestone Ridge ACECs; Little Yampa/Juniper Canyon and Cedar Mountain SRMAs; Steamboat Lake and Pearl Lake State Parks; coal mines where development would be incompatible with the planned coal extraction; grouse, raptor, bald eagle, peregrine falcon, Mexican spotted owl, waterfowl and shorebird nests; and special status plant species.

CSU stipulations will be used to protect coal mines where the mining method or location is such that location of subsequent wells can avoid significant conflicts, fragile soil areas, steep slopes, riparian/wetland vegetation, and Irish Canyon and Lookout Mountain ACECs.

2.1.12 Visual Resources

2.1.12.1 Management Objectives

The 1989 RMP did not specifically address management objectives for visual resources.

2.1.12.2 Planned Actions

See discussion under Section 2.2.3 (Recreation) below.

2.2 RESOURCE USES

Resource uses involve activities that utilize the natural, biological, and/or cultural components of the RMPPA, such as mineral development, livestock grazing, and recreation.

2.2.1 Energy and Minerals

2.2.1.1 Management Objectives

Coal

- Maximize the availability of the federal coal estate for exploration and development.
- Facilitate orderly, economic, and environmentally-sound exploration and development of the coal resource within the principles of balanced multiple-use management.

Oil and Gas

- Maximize the availability of the federal oil and gas estate for exploration and development.
- Facilitate orderly, economic, and environmentally-sound exploration and development of oil and gas resources within the principles of balanced multiple-use management.

Other Minerals

- Maximize the availability of the federal mineral estate for mineral exploration and development.
- Facilitate orderly, economic, and environmentally-sound exploration and development of mineral resources within the principles of balanced multiple-use management.

2.2.1.2 Planned Actions

Coal

Little Snake Resource Management Plan (1989)

Approximately 638,800 acres (containing an estimated 5.8 billion tons of coal) are acceptable for further consideration for federal coal leasing. Of this total, approximately 457,089 acres (an estimated 4.2 billion tons of coal) are acceptable for further consideration for leasing for surface or underground development.

Approximately 181,669 acres (an estimated 1.3 billion tons of coal) are acceptable for further consideration for leasing for underground development only (RMP/ROD pages 7-8). Approximately 266 million tons of coal throughout the region are not available for surface mining.

Site-specific activity planning, including additional environmental analysis, is needed before a decision to lease specific tracts can be made.

Exploratory drilling will be allowed in order to obtain sufficient data for resource management decisions and fair market value determinations.

Other data gathering efforts will be scheduled when needed to ensure data adequacy standards will be met for activity planning within the coal planning area.

Oil and Gas Amendment (1991)

NSO stipulations will be used to protect Cross Mountain and Limestone Ridge ACECs; Little Yampa/Juniper Canyon and Cedar Mountain SRMAs; Steamboat Lake and Pearl Lake State Parks; coal mines where development would be incompatible with the planned coal extraction; grouse, raptor, bald eagle, peregrine falcon, Mexican spotted owl, waterfowl and shorebird nests; and special status plant species.

CSU stipulations will be used to protect coal mines where the mining method or location is such that location of subsequent wells can avoid significant conflicts, fragile soil areas, steep slopes, riparian/wetland vegetation, and Irish Canyon and Lookout Mountain ACECs.

Oil and Gas

Little Snake Resource Management Plan (1989)

The BLM-administered lands within the RMPPA are available for oil and gas leasing. Areas have been designated for leasing with standard stipulations, seasonal restrictions, avoidance stipulations, performance objectives, or NSO stipulations; areas where no new leasing is allowed have also been identified (RMP/ROD page 9). Stipulations or restrictions may be waived or reduced if resource conditions change and the protection is no longer necessary or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts.

When considering leasing and development of federal minerals where the surface is privately owned, efforts will be made to identify environmental concerns and work with the private surface owners regarding potential impacts to their surface. Private surface owners are encouraged to become involved in the activity planning process. Whenever possible, BLM's actions will be consistent with the wishes of the surface owner; however, impacts to federal lands or resources, threatened or endangered species, or other resource values protected by nondiscretionary statute will be mitigated to an acceptable level.

Oil and Gas Amendment (1991)

Approximately 1,878,000 acres of BLM-administered mineral estate within the RMPPA are open to oil and gas leasing and development, subject to the lease terms and (as applicable) lease stipulations noted in Appendix A of the Amendment.

COAs will be applied to operational approvals as determined necessary by the Authorized Officer to protect other resources and values within the terms, conditions, and stipulations of the lease contract.

Black-footed Ferret Reintroduction Amendment (1995)

Compensation plans and plans of operation will be developed for oil and gas field development in the Little Snake Black-Footed Ferret Management Area. BLM would develop offsite mitigation plans for replacement of lost habitat, if necessary.

Other Minerals

Little Snake Resource Management Plan (1989)

All public land is open to mineral entry and development under the General Mining Law of 1872 unless administratively withdrawn or proposed for withdrawal (proposed wilderness designation). Locatable mineral exploration and development on public land would be regulated under 43 CFR 3800.

Applications for removing common variety mineral materials, including sand and gravel, will continue to be processed as they are received. Interdisciplinary review of each proposal will determine stipulations to protect important surface values. Mineral material sales will not be allowed in Cross Mountain Canyon ACEC, Limestone Ridge ACEC/RNA, Little Yampa/Juniper Canyon SRMA, and the Cedar Mountain Recreation management unit.

BLM will consider leasing geothermal energy resources or other leasable minerals as each application is received. Minerals that are leasable only on lands acquired under the Bankhead Jones Act will be treated as other leasable minerals. In Cross Mountain Canyon ACEC, Limestone Ridge ACEC/RNA, Little Yampa/Juniper Canyon SRMA, and the Cedar Mountain recreation management unit, leasing of other minerals for underground mining will be allowed with NSO stipulations. Leasing for surface mining will not be allowed in these four areas.

New leases and mineral material sales within fragile soil and water areas, such as the Vermillion Management Unit, will be subject to the performance objectives described under Section 2.1.2 (Soil Resources).

The recommended Diamond Breaks and Cross Mountain wilderness areas (including Cross Mountain Canyon ACEC) would be withdrawn from locatable mineral entry, leasing and development of other minerals, and mineral material sales if designated as wilderness by Congress.

Black-footed Ferret Reintroduction Amendment (1995)

New mineral material sales operations (sand and gravel) proposed in prairie dog towns within ¼ mile of release sites may be required to delay or suspend operations for 3 to 4 months during the release period. Mineral material sales operations existing at the time of release site selection will not be restricted. Sales within the common use areas within ¼ mile of release sites will also be suspended during the 3 to 4 month release period.

2.2.2 Livestock Grazing Management

2.2.2.1 Management Objectives

Improve range conditions in terms of species diversity and abundance, as well as increasing carrying capacities for both livestock and wildlife.

2.2.2.2 Planned Actions

Little Snake Resource Management Plan (1989)

Livestock grazing utilizing federal preference (166,895 AUMs) will be allowed until monitoring studies are completed.

BLM will begin rangeland monitoring studies on M and I category allotments[1], including 13 conflict allotments (allotment numbers 4203, 4206, 4207, 4209, 4210, 4219, 4225, 4302, 4431, 4332, 4520, 4521, 4522), to yield information needed to make decisions on livestock stocking rates. Priorities for rangeland monitoring studies will be determined by the worse forage conditions established from the 1981-1983 surveys. The level of monitoring will depend on funding and staff.

Surveys conducted during 1981-1983 for 73% of the area and earlier surveys for the area, which estimated forage available to support a grazing level of 148,821 AUMs, will be used as baseline inventory data.

Livestock use adjustments will be implemented in accordance with 43 CFR 4110.3-3 after acquiring a minimum of 2 years of rangeland monitoring data, in combination with baseline data. Decisions implementing changes in livestock use will be issued as soon as data are available to support that change. No more than 5 years of rangeland monitoring data would be required for adjustments. Any adjustments would result in consultation/coordination with the livestock operator.

BLM policy is to issue decisions or enter into agreements within 5 years of publication of a rangeland program summary (RPS) following completion of a Grazing EIS/RMP. An RPS is issued within 5 months after the RMP is signed. A five year implementation period will be used. Decisions will be issued in the third and fifth years to modify the adjustments as necessary to reach estimated grazing capacity. These decisions will be contained in the RPS updates. Mutual agreements may be entered into at any time during the five year period. These will also be documented in the RPS updates.

Grazing will be temporarily suspended in areas where key forage plants have been critically overutilized.

Vegetation land treatments will be implemented on 68 allotments. Treatments will involve interseeding, burning and reseeding, spraying, and plowing and reseeding. In conducting these treatments, BLM will adhere to established procedures and design specifications to protect all resource uses and values. A benefit/cost analysis and environmental analysis will be completed before any treatments are implemented.

Range improvement projects will be constructed on 69 allotments to control livestock use, improve distribution, and improve riparian/wetland habitat. A benefit/cost analysis and environmental analysis will be completed before any projects are implemented.

Allotment management categorization (M, I, or C) will be updated as a result of rangeland condition change or as data that supports changes becomes available through the monitoring program.

Allotment management plans (AMP) will be developed for all allotments within the RMPPA. The level of detail for each plan will be determined from the management category (M, I, or C) for that allotment.

[1] *The condition of grazing allotments relative to these standards is indicated by the allotment category to which they are assigned. These allotment categories are used to establish priorities for resource allocation and to group allotments needing similar prescriptions. In order of increasing priority for management the allotment categories are: C (custodial), M (maintain), and I (improve). These categories are no longer used; rather, rangeland condition is currently judged by whether an allotment is or is not meeting the Guidelines for Livestock Grazing Management. For allotments not meeting the Guidelines, rectification is required within 1 year.*

Black-footed Ferret Reintroduction Amendment (1995)

Rangeland improvement projects (e.g., fences, water developments) will not be allowed within ¼ mile of black-footed ferret release cages or release sites to prevent disturbance or damage during the 3 to 4 month release period.

Standards and Guidelines Amendment (1996)

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
- Opportunity for seed dissemination and seedling establishment.

Grazing management practices address livestock health; the kind, numbers and class of livestock; and the season, duration, distribution, frequency and intensity of grazing use.

Grazing management practices will maintain sufficient residual vegetation in 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.

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 plant species will be considered based on local goals, native seed availability and cost, persistence of non-native plants, annuals, and noxious weeds on the site, and composition of non-natives in the seed mix.

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.

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.

Natural occurrences of fire, drought, and flooding and prescribed land treatments should be combined with livestock management practices to move the sustainability of biological diversity across the landscape. This would include 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, which would minimize habitat fragmentation.

Colorado Best Management Practices (BMP) and other scientifically developed practices that enhance land and water quality should be used in the development of activity plans prepared for land use.

2.2.3 Recreation

2.2.3.1 Management Objectives

- Protect and maintain a diversity of outdoor recreation opportunities, activities, and experiences.
- Provide high quality visitor services, including interpretive information.
- Maintain established recreation opportunity spectrum classes upon implementation of all planned management actions.
- Ensure maintenance and minimize degradation of existing visual resource management classes.

2.2.3.2 Planned Actions

Little Snake Resource Management Plan (1989)

The Little Yampa/Juniper Canyon area (19,840 acres) will be administered as an SRMA to provide unrestricted flatwater river floatboating in the region. The area is divided into upper (4,480 acres) and lower (15,360 acres) units. Periodic use supervision will be provided. Access will be negotiated for parking areas at put-in and take-out points. Other facilities will be constructed as needed for public sanitation and safety. A map/brochure will be developed to promote visitor health and safety, provide resource protection, and inform the public of available opportunities. Limited signs will be provided for information, direction, and interpretation. A Little Yampa/Juniper Canyon Recreation Area Management Plan will be developed.

The remainder of BLM-administered land within the RMPPA will receive limited management as an Extensive Recreation Management Area where recreation use is dispersed and requires only minimal management. BLM will provide basic information on public safety and recreation opportunities within the RMPPA, and provide access and minimal facilities as demand warrants.

BLM-administered lands within Cedar Mountain (880 acres) will be managed as part of the Extensive Recreation Management Area for environmental education, hiking, and viewing. Trails and signs will provide information and interpretation. Leasing of the shooting range site will continue with stipulations for sanitation, visual design, and safety; more public use will be allowed.

BLM-administered lands within Cold Spring Management Unit (approximately 54,000 acres) will be managed as part of the Extensive Recreation Management Area, primarily for hunting. The area will be managed under visual resource management (VRM) Class II objectives to maintain scenic quality.

BLM-administered lands around Wild Mountain (approximately 21,000 acres) will be managed as part of the Extensive Recreation Management Area, primarily for hunting. The area will be managed under VRM Class II objectives to maintain scenic quality.

Access to public lands will be acquired as funding and time permit in the areas identified (RMP/ROD pages 20-21 and 26).

Areas have been designated as open, limited, or closed to vehicle use (RMP/ROD page 28). The Little Snake RMP map shows the areas listed in the table. A vehicle use implementation plan will be completed within one year of the RMP's approval.

Oil and Gas Amendment (1991)

NSO stipulations will be used to protect Cross Mountain and Limestone Ridge ACECs; Little Yampa/Juniper Canyon and Cedar Mountain SRMAs; Steamboat Lake and Pearl Lake State Parks; coal mines where development would be incompatible with the planned coal extraction; grouse, raptor, bald eagle, peregrine falcon, Mexican spotted owl, waterfowl and shorebird nests; and special status plant species.

Black-footed Ferret Reintroduction Amendment (1995)

A temporary closure to leghold and snare trapping will be required within a one mile radius of black-footed ferret cage groups or release sites for 3 to 4 months during the release period. In all prairie dog towns within the Little Snake black-footed Ferret Management Area, tension adjustments will be required on leghold traps, and stops will be required on snare traps until it is determined that trapping is no longer a threat to ferret survival.

Target shooting, plinking, or any type of sport hunting will be prohibited within ¼ mile of black-footed ferret release cages or release sites for 3 to 4 months during the release period.

2.2.4 Lands and Realty

2.2.4.1 Management Objectives

- To increase the overall efficiency and effectiveness of public land management by identifying public land suitable for retention or disposal or lands needed for acquisition.
- To allow the most efficient ROW routes while identifying areas that would not be compatible with use as ROW.

2.2.4.2 Planned Actions

Little Snake Resource Management Plan (1989)

The BLM-administered lands within the RMPPA have been divided into general retention and disposal areas (RMP/ROD pages 30-31).

- The retention area is the existing land base to be managed under multiple use concepts. All land tenure adjustment actions (including recreation and public purposes [R&PP] actions and exchanges), except sales under Section 203 of FLPMA, will be considered on a case-by-case basis, if the public interest would be served. Section 302 leases and permits will be allowed. Conveyance actions will be precluded in wilderness areas and other special management areas (SMA).
- Disposal land tenure adjustment actions will be allowed on approximately 6,670 acres of public land that meet the criteria for disposal under applicable authority. This acreage includes land tenure adjustment actions for existing BLM authorized sanitary landfill sites near Oak Creek and Maybell located within the retention area. Section 302 leases and permits would also be allowed.

Acquisition of land will be pursued based on identified resource values and needs (RMP/ROD pages 30-31).

No ROW corridors are formally designated.

Specific areas unsuitable for major ROWs are shown on page 29 of the RMP/ROD.

The existing and potential corridors identified as suitable on page 29 of the RMP/ROD and displayed on pages 32 and 33 of the RMP/ROD are considered open and are preferred routes.

Specific areas that are sensitive for siting major ROWs are shown on page 35 of the RMP/ROD.

Minor ROWs will be processed on a case-by-case basis, generally guided by the criteria identified for major ROWs.

ROWs will be allowed in all areas if needed to develop valid existing rights.

Black-footed Ferret Reintroduction Amendment (1995)

ROWs on public land that have the potential to disturb occupied black-footed ferret habitat will be rerouted to avoid those prairie dog towns.

2.2.5 Transportation and Access

2.2.5.1 Management Objectives

The 1989 RMP did not specifically address management objectives for transportation and access.

2.2.5.2 Planned Actions

Little Snake Resource Management Plan (1989)

An access/transportation plan will be prepared that lists areas needing attention, types of access to be acquired, preferred and alternate routes, and roads and trails to be closed or constructed; describes survey and support needs; and includes construction or maintenance guidelines. This will be based on other resource program needs to meet their respective program objectives.

See also discussion under Section 2.2.3 (Recreation) above.

Black-footed Ferret Reintroduction Amendment (1995)

OHV use will be closed within ¼ mile of black-footed ferret release cages or release sites for 3 to 4 months during the release period.

2.2.6 Social and Economic Conditions

2.2.6.1 Management Objectives

The 1989 RMP did not specifically address management objectives for social and economic conditions.

2.2.6.2 Planned Actions

Standards and Guidelines Amendment (1996)

Recognizing that social and economic factors must be considered in achieving healthy public lands, the Authorized Officer will coordinate, consult and cooperate with the local cooperators and interested publics during all phases of implementing standards and guidelines, whether it be for an allotment, group of allotments, or watershed. The Resource Advisory Council (RAC) may be requested by any party to assist in reaching agreement in resolving disputes. As greater understanding of ecosystems, including socio-economic factors, becomes available, it will be applied to the management of public lands within the RMPPA.

2.3 MANAGEMENT UNITS

Management units are geographic areas that make up the RMPPA and are delineated for the purposes of managing the resource values and uses present to attain the best multiple-use prescriptions to provide maximum benefit to the general public (Map 3).

2.3.1 Management Unit 1: Eastern Yampa River

2.3.1.1 Management Objectives

To realize the potential for development of coal, oil, and gas resources.

2.3.1.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Other Minerals. Public lands are open to exploration and development of other leasable minerals and to location of mining claims. Development of other federal leasable minerals and federal materials sales will be allowed consistent with the management objectives for this unit.

Livestock Grazing. Public lands are open to livestock grazing unless coal development is imminent. Range management practices or projects will be permitted consistent with the management objectives for this unit.

Wildlife. Wildlife habitats, including threatened or endangered species habitats, will be protected by limitations or restrictions placed on the development of federal coal, as the result of the application of the coal unsuitability criteria (RMP/ROD Appendix 2). Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit.

Forest Lands and Woodlands. Public lands are open to harvesting of forest and woodland products consistent with the management options for this unit.

Recreation. Public lands are available for dispersed recreation use consistent with the management objectives for this unit. Limited development of recreation sites will be allowed in areas proposed for underground mining. Recreation development can occur in other areas within this management unit consistent with the management objectives for this unit. The unit is open to OHV use.

Realty Actions. Realty actions such as ROWs, leases, and permits, can be allowed on public land consistent with the management objectives for this unit. Land tenure adjustments, primarily through

exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.2 Management Unit 2: Northern Central

2.3.2.1 Management Objectives

To provide for the development of the oil and gas resource.

2.3.2.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Other Minerals. Public lands are open to exploration and development of other leasable minerals and to location of mining claims. Development of other federal leasable minerals and federal materials sales will be allowed, consistent with the management objectives for this unit.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for this unit.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit.

Wild Horses. Habitat condition will be maintained to support a portion of the herd of 130 to 160 wild horses within the Sand Wash Basin and a monitoring program will be established to determine utilization. Wild horse projects and management practices will be designed to be compatible with the management objectives of this unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. The unit is open to OHV use.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.3 Management Unit 3: Little Snake River

2.3.3.1 Management Objectives

To improve soil and watershed values, increase forage production, and enhance livestock grazing.

2.3.3.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration. This management unit contains approximately 1,100 acres of the coal planning area. This acreage has had the coal unsuitability criteria, 43 CFR 3461 applied (RMP/ROD Appendix 2). These 1,100 acres are identified as acceptable for further consideration for federal coal leasing for surface or underground mining.

Oil and gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit. Other funded projects or treatments will be authorized if the proposed project or treatment would have a neutral or beneficial effect on the management objectives of the unit, and the operator agrees to share benefits to meet objectives of the unit.

Wild Horses. Habitat condition will be maintained to support a portion of the herd of 130 to 160 wild horses within the Sand Wash Basin and a monitoring program will be established to determine utilization. Wild horse projects and management practices will be designed to be compatible with the management objectives of this unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. The unit is open to OHV use.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.4 Management Unit 4: Eastern Foothills

2.3.4.1 Management Objectives

To provide for the development of oil, gas, and geothermal resources.

2.3.4.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Other Minerals. Public lands are open to exploration and development of other leasable minerals and to location of mining claims. Development of other federal leasable minerals and federal materials sales is allowed, consistent with the management objectives for this unit.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or projects will be permitted and existing range improvements will be maintained consistent with the management objectives for this unit.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit.

Recreation. Public lands are available for dispersed recreation use consistent with the management objectives for this unit. The unit is open to OHV use.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur, consistent with the management objectives for this unit. Approximately 6,670 acres of this unit are classified for disposal. This disposal will be by sale or exchange.

2.3.5 Management Unit 5: Douglas Mountain

2.3.5.1 Management Objectives

To manage the forest and woodlands resources to produce a variety of forest and woodland products on a sustained-yield basis.

2.3.5.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to exploration and development of other leasable minerals and to location of mining claims. Development of other federal leasable minerals and federal materials sales is allowed, consistent with the management objectives for this unit.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for this unit.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit.

Wild Horses. Habitat condition will be maintained to support a portion of the herd of 130 to 160 wild horses within the Sand Wash Basin and a monitoring program will be established to determine utilization. Wild horse projects and management practices will be designed to be compatible with the management objectives for this unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. The unit is open to OHV use.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur, consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.6 Management Unit 6: Northern Great Divide

2.3.6.1 Management Objectives

To maintain and improve critical habitat for sage grouse, mule deer and pronghorn antelope.

2.3.6.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing. BLM funded rangeland improvement projects or vegetation treatments, or livestock operator-funded projects or treatments will be authorized when compatible with the management objectives for this unit. Livestock operator-funded projects or treatments will be authorized if the proposed project or treatment would have a neutral or beneficial effect on the management objectives of the unit and the operator agrees to share benefits to meet objectives of the unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. Vehicle use in this management unit is limited to existing roads and trails.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur, consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.7 Management Unit 7: Scattered Sands

2.3.7.1 Management Objectives

Provide for the development of locatable minerals and leasable minerals other than coal, oil, gas, and geothermal resources and make areas available to supply demand for sand, gravel, and other salable mineral materials.

2.3.7.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for this unit.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit.

Wild Horses. Habitat condition will be maintained to support a portion of the herd of 130 to 160 wild horses within the Sand Wash Basin and a monitoring program will be established to determine utilization. Wild horse projects and management practices will be designed to be compatible with the management objectives for this unit.

Forest Lands and Woodlands. Public lands are open to harvesting of timber on forest lands and woodlands consistent with the management objectives for this unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. This unit is open to OHV use.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur, consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.8 Management Unit 8: Axial Basin

2.3.8.1 Management Objectives

To maintain and improve critical habitats for mule deer, elk, and sage grouse.

2.3.8.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit. The majority of this management unit lies within the coal planning area. The coal unsuitability criteria, 43 CFR 3461, have been applied. While some areas are acceptable for further consideration only for underground mining, the majority of the unit is acceptable for further consideration for surface or underground mining (RMP/ROD Appendix 2). Further consideration will include consistency with the management objectives of this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing. BLM funded rangeland improvement projects or vegetation treatments, or livestock operator-funded projects or treatments will be authorized when compatible with the management objectives for this unit. Livestock operator-funded projects or treatments will be authorized if the proposed project or treatment would have a neutral or beneficial effect on the management objectives of the unit and the operator agrees to share benefits to meet objectives of the unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. Vehicle use in this management unit is limited to existing roads and trails.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur, consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.9 Management Unit 9: Cold Spring

2.3.9.1 Management Objectives

To maintain and improve the quality of the habitat for elk, mule deer, big horn sheep, the fisheries in Beaver Creek, and the recreational opportunities that exist here, primarily for hunting use.

2.3.9.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing. BLM funded rangeland improvement projects or vegetation treatments, or livestock operator-funded projects or treatments will be authorized when compatible with the management objectives for this unit. Livestock operator-funded projects or treatments will be authorized if the proposed project or treatment would have a neutral or beneficial effect on the management objectives of the unit and the operator agrees to share benefits to meet objectives of the unit.

Forest Lands and Woodlands. Public lands are open to harvesting of timber on forest lands and woodlands consistent with the management objectives for this unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. Vehicle use in this management unit is limited to existing roads and trails. The Matt Trail is closed to vehicle use for safety.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur, consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.10 Management Unit 10: Proposed Wilderness Areas

2.3.10.1 Management Objectives

The 1989 RMP did not specifically address management objectives for Management Unit 10.

2.3.10.2 Management Unit 10A: Cross Mountain WSA

Planned Actions (Little Snake Resource Management Plan, 1989)

Oil and Gas. Public lands are open to oil and gas leasing with no surface occupancy stipulations (except for Cross Mountain Canyon ACEC which would be proposed for total mineral withdrawal).

Water. BLM will undertake no actions nor permit any activities that could adversely affect or impact any outstandingly remarkable values of the Yampa River segment in Cross Mountain which is listed in the Nationwide Rivers Inventory List which makes it eligible for inclusion in the National Wild and Scenic River System. Free-flowing characteristics of identified river segments cannot be modified, to the extent the BLM is authorized under law to control stream impoundments, diversions, or other development.

The WSA will be managed in compliance with BLM's Wilderness Management Policy and the Wilderness Act of 1964. Site-specific wilderness management plans would be developed for such areas after designation by Congress.

2.3.10.3 Management Unit 10B: Diamond Breaks WSA

Planned Actions (Little Snake Resource Management Plan, 1989)

The WSA will be managed in compliance with BLM's Wilderness Management Policy and the Wilderness Act of 1964. Site-specific wilderness management plans would be developed for such areas after designation by Congress.

2.3.11 Management Unit 11: Recreation Areas

2.3.11.1 Management Objectives

The 1989 RMP did not specifically address management objectives for Management Unit 11.

2.3.11.2 Management Unit 11A: Little Yampa/ Juniper Canyon

Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. The majority of this management unit lies within the coal planning area. The coal unsuitability criteria, 43 CFR 3461, have been applied (RMP/ROD Appendix 2). The SRMA is acceptable for further consideration only for underground mining, with a no-surface-occupancy stipulation.

Oil and Gas. Public lands are open to oil and gas leasing and development, with a no-surface-occupancy stipulation on any new federal leases.

Other Minerals. Public lands are open to leasing of federal minerals, with a no-surface-occupancy stipulation. Mineral material sales are not allowed. Lands are also open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing, except within developed or intensively used recreation sites. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for the SRMA.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit.

Woodlands. Woodcutting is not allowed.

Vehicle Use. Vehicle use is limited to designated roads and trails, except as associated with valid existing rights.

Realty Actions. Ownership adjustments will be allowed where they would help achieve the SRMA management objectives. Management of the Upper Little Yampa Canyon unit 1) honors all valid existing rights, 2) allows for necessary maintenance of existing facilities even if such maintenance was outside the existing ROWs, and 3) allows for processing of new public land ROWs, if associated with development of the nearby Iles Mountain Coal Lease Tract or consistent with the management objectives of the unit. ROWs will be allowed in either unit if associated with valid existing rights or permitted uses. Other ROWs will be allowed in either the upper or lower units if they can be designed to be consistent with the management objectives of the SRMA. This is expected to preclude development of major ROWs in the SRMA not associated with valid existing rights or development of the Iles Mountain Coal Lease Tract.

2.3.11.3 Management Unit 11B: Cedar Mountain

Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. The majority of this management unit lies within the coal planning area. The coal unsuitability criteria, 43 CFR 3461, have been applied (RMP/ROD Appendix 2). The unit is acceptable for further consideration only for underground mining, with a no-surface-occupancy stipulation.

Oil and Gas. Public lands are open to oil and gas leasing and development, with a no-surface-occupancy stipulation on any new federal leases.

Other Minerals. Public lands are open to leasing of federal minerals, with a no-surface-occupancy stipulation. Mineral material sales are not allowed. Lands would also remain open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing, except within developed or intensively used recreation sites. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for this unit.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit.

Woodlands. Woodcutting is not allowed.

Vehicle Use. Vehicle use is limited to designated roads and trails, except as associated with valid existing rights.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.11.4 Management Unit 11C: Wild Mountain

Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development, consistent with the management objectives for this unit.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for this unit.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for this unit.

Forest Lands and Woodlands. Public lands are open to harvesting of timber on forest lands and woodlands consistent with management objectives for this unit.

Vehicle Use. Vehicle use is limited to designated roads and trails, except as associated with valid existing rights.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.12 Management Unit 12: Vermillion

2.3.12.1 Management Objectives

To prevent any increases in erosion and/or sediment yield.

2.3.12.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration subject to the performance standards.

Oil and Gas. Public lands are open to oil and gas leasing and development subject to the performance standards.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or range improvement projects will be permitted and existing range improvements will be maintained subject to the performance standards.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be subject to the performance standards.

Wild Horses. Habitat condition will be maintained to support a portion of the herd of 130 to 160 wild horses within the Sand Wash Basin and a monitoring program will be established to determine utilization. Wild horse projects and management practices will be subject to the performance standards.

Recreation. Public lands are available for dispersed recreation use consistent with the management objectives for this unit. Vehicle use in this management unit is limited to existing roads and trails.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur subject to the performance standards. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.13 Management Unit 13: Areas of Critical Environmental Concern

2.3.13.1 Management Unit 13A: Limestone Ridge

Management Objectives

To protect or enhance remnant plant associations, Colorado BLM sensitive plant species, and scenic quality.

Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Coal exploration is not allowed.

Oil and Gas. Public lands are open to oil and gas leasing with no-surface-occupancy stipulations on new federal leases. Avoidance stipulations to protect the specific values of the ACEC/RNA will be placed on application for permits to drill for existing federal leases, consistent with lease rights granted. The avoidance stipulation, when applied, would incorporate wording to the effect that "habitat of known populations of Colorado BLM sensitive plants, remnant plant associations specifically identified, and scenic values will be protected from human induced activities to the extent such mitigation of impacts to these resources does not preclude the exercise of valid existing rights." For Colorado BLM sensitive plants, the area of protection will include the actual location of the population and, if present, adjacent critical sites that affect their habitat.

Other Minerals. Public lands are open to locatable mineral entry. Where necessary and allowed by law, avoidance stipulations will be placed on development of locatable minerals and leasable minerals under existing leases (see Oil and Gas above). No-surface-occupancy stipulations will be placed on new federal leases. Mineral material sales are not allowed.

Livestock Grazing. Public lands are open to livestock grazing and management practices consistent with the management objectives for the ACEC/RNA . Range improvement projects or treatments are not permitted.

Wildlife. Public lands are open to wildlife habitat management and wildlife habitat will be protected consistent with the management objectives for the ACEC/RNA. No wildlife habitat development projects or treatments are allowed.

Woodlands. Woodcutting is not allowed.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for the ACEC/RNA. The unit is closed to vehicle use.

Realty Actions. Realty actions, such as ROWs, are excluded unless associated with valid existing rights. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.13.2 Management Unit 13B: Irish Canyon

Management Objectives

To protect or enhance the remnant plant associations, Colorado BLM sensitive plant species, geologic values, cultural resources, and scenic quality.

Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for the ACEC.

Oil and Gas. Public lands are open to oil and gas leasing with avoidance stipulations to protect Colorado BLM sensitive plants. Avoidance stipulations to protect the specific values of the ACEC will be placed on application for permits to drill for new or existing federal leases, consistent with lease rights granted. The avoidance stipulation, when applied, will incorporate wording to the effect that "the habitat of known populations of Colorado BLM sensitive plants, remnant plant associations specifically identified, geologic values, cultural resources, and scenic values will be protected from human induced activities to the extent such mitigation of impacts to these resources does not preclude the exercise of valid existing rights." For Colorado BLM sensitive plants, the area of protection will include the actual location of the population and, if present, adjacent critical sites that affect their habitat.

Other Minerals. Public lands are open to locatable mineral entry. Where necessary and allowed by law, avoidance stipulations will be placed on development of locatable, saleable, and leasable minerals under existing leases (see Oil and Gas above). No-surface-occupancy stipulations will be placed on new federal leases.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for the ACEC.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for the ACEC.

Woodlands. Woodcutting is not allowed.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for the ACEC. Vehicle use in this unit is limited to designated roads and trails.

Realty Actions. Realty actions, such as ROWs, are excluded unless associated with valid existing rights. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.13.3 Management Unit 13C: Lookout Mountain

Management Objectives

To protect or enhance remnant plant associations, Colorado BLM sensitive plant species, and scenic qualities.

Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for the ACEC.

Oil and Gas. Public lands are open to oil and gas leasing with avoidance stipulations to protect Colorado BLM sensitive plants. Avoidance stipulations to protect the specific values of the ACEC will be placed on application for permits to drill for new or existing federal leases, consistent with lease rights granted. The avoidance stipulation, when applied, will incorporate wording to the effect that "the habitat of known populations of Colorado BLM sensitive plants, remnant plant associations specifically identified, and scenic values will be protected from human induced activities to the extent such mitigation of impacts to these resources does not preclude the exercise of valid existing rights." For Colorado BLM sensitive plants, the area of protection will include the actual location of the population and, if present, adjacent critical sites that affect their habitat.

Other Minerals. Public lands are open to locatable mineral entry. Where necessary and allowed by law, avoidance stipulations will be placed on development of locatable, saleable, and leasable minerals under existing leases. No-surface-occupancy stipulations will be placed on new federal leases.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for the ACEC.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for the ACEC.

Wild Horses. Habitat condition will be maintained to support a portion of the herd of 130 to 160 wild horses within the Sand Wash Basin and a monitoring program will be established to determine utilization. Wild horse projects and management practices will be designed to be compatible with the management objectives for the ACEC.

Woodlands. Woodcutting is not allowed.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for the ACEC. Vehicle use in this unit is limited to designated roads and trails.

Realty Actions. Realty actions, such as ROWs, are excluded unless associated with valid existing rights. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.13.4 Management Unit 13D: Cross Mountain Canyon

Management Objectives

To enhance or protect Colorado BLM sensitive plant species, threatened and endangered species, and scenic quality.

Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Coal exploration is not allowed.

Oil and Gas. Public lands are open to oil and gas leasing with no-surface-occupancy stipulations on new federal leases if not withdrawn. Avoidance stipulations to protect the specific values of the ACEC will be placed on application for permits to drill for new or existing federal leases, consistent with lease rights granted. The avoidance stipulation, when applied, will incorporate wording to the effect that "the habitat of known populations of Colorado BLM sensitive plants, remnant plant associations specifically identified, and scenic values (VRM Class I) will be protected from human induced activities to the extent such mitigation of impacts to these resources does not preclude the exercise of valid existing rights." For Colorado BLM sensitive plants, the area of protection will include the actual location of the population and, if present, adjacent critical sites that affect their habitat.

Other Minerals. Public lands are open to locatable mineral entry. Where necessary and allowed by law, avoidance stipulations will be placed on development of locatable minerals and leasable minerals under existing leases (see Oil and Gas above). No-surface-occupancy stipulations will be placed on new federal leases. Mineral material sales are not allowed.

Livestock Grazing. Public lands are open to livestock grazing. Management practices or range improvement projects will be permitted and existing range improvements will be maintained consistent with the management objectives for the ACEC.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for the ACEC.

Woodlands. Woodcutting is not allowed.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for the ACEC. The unit is closed to vehicle use.

Realty Actions. Realty actions, such as ROWs, are excluded unless associated with valid existing rights. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.14 Management Unit 14: Middle Mountain

2.3.14.1 Management Objectives

To maintain and improve the quality of the habitat for the elk herd, mule deer, and raptors.

2.3.14.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing. BLM funded rangeland improvement projects or vegetation treatments, or livestock operator-funded projects or treatments will be authorized when compatible with the management objectives for this unit. Livestock operator-funded projects or treatments will be authorized if the proposed project or treatment would have a neutral or beneficial effect on the management objectives of the unit and the operator agrees to share benefits to meet objectives of the unit.

Forest Lands and Woodlands. Public lands are open to harvesting of forest products on forest lands and woodlands consistent with the management objectives for this unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. Vehicle use in this management unit is limited to existing roads and trails.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.15 Management Unit 15: Cross Mountain foothills

2.3.15.1 Management Objectives

To maintain and improve the quality of the habitat for bighorn sheep, elk, and mule deer.

2.3.15.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing. BLM funded rangeland improvement projects or vegetation treatments, or livestock operator-funded projects or treatments will be authorized when compatible with the management objectives for this unit. Livestock operator-funded projects or treatments will be authorized if the proposed project or treatment would have a neutral or beneficial effect

on the management objectives of the unit and the operator agrees to share benefits to meet objectives of the unit.

Forest Lands and Woodlands. Public lands are open to harvesting of forest products on forest lands and woodlands consistent with the management objectives for this unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. Vehicle use in this management unit is limited to existing roads and trails.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.16 Management Unit 16: West Red Wash

2.3.16.1 Management Objectives

To protect and restore this riparian ecosystem.

2.3.16.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing. BLM funded rangeland improvement projects or vegetation treatments, or livestock operator-funded projects or treatments will be authorized when compatible with the management objectives for this unit. Livestock operator-funded projects or treatments will be authorized if the proposed project or treatment would have a neutral or beneficial effect on the management objectives of the unit and the operator agrees to share benefits to meet objectives of the unit.

Wildlife. Public lands are open to wildlife habitat management. Existing wildlife habitat projects will be managed and new projects will be designed to be compatible with the management objectives for the ACEC.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. Vehicle use in this management unit is limited to existing roads and trails.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

2.3.17 Management unit 17: Willow Creek

2.3.17.1 Management Objectives

To maintain and improve critical habitat for greater sandhill crane.

2.3.17.2 Planned Actions (Little Snake Resource Management Plan, 1989)

Coal. Public lands are open to coal exploration consistent with the management objectives for this unit.

Oil and Gas. Public lands are open to oil and gas leasing and development consistent with the management objectives for this unit.

Other Minerals. Public lands are open to leasing of federal minerals and mineral material sales consistent with the management objectives for this unit. Lands are also open to locatable mineral exploration and development.

Livestock Grazing. Public lands are open to livestock grazing. BLM funded rangeland improvement projects or vegetation treatments, or livestock operator-funded projects or treatments will be authorized when compatible with the management objectives for this unit. Livestock operator-funded projects or treatments will be authorized if the proposed project or treatment would have a neutral or beneficial effect on the management objectives of the unit and the operator agrees to share benefits to meet objectives of the unit.

Forest Lands and Woodlands. Public lands are open to harvesting of forest products on forest lands and woodlands consistent with the management objectives for this unit.

Recreation. Public lands are available for dispersed recreation use and developed recreation sites can be established consistent with the management objectives for this unit. Vehicle use in this management unit is limited to existing roads and trails.

Realty Actions. Realty actions, such as ROWs, leases, and permits, can occur consistent with the management objectives for this unit. Land tenure adjustments, primarily through exchanges or the Recreation and Public Purposes Act, can occur where the public interest will be best served.

CHAPTER 3 AREA PROFILE

This chapter addresses those resources and resource uses managed by the BLM LSFO. Resource/resource use sections are separated into subsections containing current conditions and characterization of each resource/resource use. Current conditions describe the existing conditions of the resource/resource use. Characterization of the resource/resource use describes the indicators (used to assess the resource condition); trends (express the direction of change between the present and some point in the past); and forecast (predicts changes in the condition of resources given current management).

3.1 CURRENT RESOURCE CONDITION AND TREND

3.1.1 Public Land Health

3.1.1.1 Background

In response to public concern about management of livestock grazing on western public lands, BLM in 1991 began a review to determine how the BLM could improve rangeland management and began developing new regulations for livestock grazing administration. The regulations in Title 43 Code of Federal Regulations section 4180 (43 CFR 4180) require the State Directors, in consultation with Resource Advisory Councils (RAC), to develop rangeland health standards for lands within their jurisdiction. This includes conducting local-level assessments and evaluations for ascertaining rangeland health status. Interim guidance to implement these regulations was provided in Washington Office IM No. 2000-153 ("Standards Assessment Procedures and Guidance"). The BLM has agreed to work with the RACs to expand these rangeland health standards so that public land health standards are relevant to all ecosystems, not just rangelands, and that they apply to all actions, not just livestock grazing (Manual Handbook H-1601-1 Land Use Planning).

The Secretary of the Interior approved the *Standards for Public Land Health and Guidelines for Livestock Grazing Management* (Standards and Guidelines) for BLM offices within Colorado on February 3, 1997. The *Colorado Standards for Public Land Health* (Standards) (Appendix A) describe conditions needed to sustain public land health, and relate to all uses of the public lands. The Standards are applied on a landscape scale and relate to the potential of the landscape for the following resources:

- Standard 1: Upland Soils
- Standard 2: Riparian/Wetland
- Standard 3: Native Species
- Standard 4: Special Status Species
- Standard 5: Water Quality

The Guidelines for Livestock Grazing Management are the management tools, methods, strategies, and techniques (e.g., best management practices) designed to maintain or achieve healthy public lands as defined by the Standards (above).

3.1.1.2 Little Snake Field Office

Field offices are expected to conduct local assessments based on the Standards and to follow the developed guidelines. Information specific to each BLM field office is used to evaluate whether or not Standards are achieved.

To provide a spatial framework for conducting local assessments, the Little Snake Field Office (LSFO) has divided the Little Snake Resource Management Plan Planning Area (RMPPA) into 16 distinct landscapes (Map 4), within which the Standards are assessed. The landscape boundaries were delineated based on physical features, geographic boundaries, watershed boundaries, and landscape characteristics. The LSFO staff conducts systematic assessments and evaluations on numerous sites within each landscape to determine if the Standards and fundamentals for rangeland health are being achieved within that landscape. The sites are selected so that each grazing allotment within that landscape contains a site, and ideally each range site within an allotment is represented (Map 5). The initial conduct of these assessments was prioritized in conjunction with grazing permit renewals; however, the LSFO has a mandate to complete all assessments once every ten years. These landscape health assessments determine whether areas are meeting the Standards. The LSFO does not intend for these studies to be used for the purpose of monitoring or inventory. The studies are only intended to be qualitative assessments and determinations of site conditions.

Methodology

The field offices are to consider all assessment requirements for the watershed or landscape being assessed and select assessment methods, that will provide information needed to fulfill those requirements. When a field office invests its resources in a landscape health assessment, the end product should substantially meet all assessment needs to avoid conducting multiple assessments for multiple needs.

There is no specific written protocol used by the LSFO to conduct a landscape health assessment; however, the staff uses a methodology similar to the evaluation processes outlined in BLM Handbook 4180. The methodology is an organized, yet flexible process that can be characterized as follows:

- Scoping/ID Team Assembly
    - Announcement of the evaluation process
    - Scoping
    - Invitation for involvement
    - Creation/assembly of the ID team: resource specialists, BLM, local parties, permittees, etc.

- Evaluation Process
    - Determine evaluation areas, identify important or impaired sites to be analyzed
    - Prioritize evaluation areas
    - Select indicators
    - Select evaluation methods

- Conduct Evaluation
    - Data collection/conduct evaluation (2 to7 days of field work)
    - Characterize the landscape: climate, surface water quality/quantity, ground water, watershed function (erosion processes and stream channel characteristics), riparian/wetland areas, soils, geology, vegetation and plant communities, and human influences and uses.
    - Characterize the relative abundance and distribution of Species of Concern
    - Complete upland and PFC data forms via interactive group discussion and consensus-based decisions
    - Synthesize and interpret information/results

- Landscape Health Assessment (LHA) Report
    - The LHA Report summarizes the data collected from various sites within the landscape area assessed. The LSFO generally organizes LHA reports in the following fashion:
        - Executive Summary
        - Assessment Discussion
        - List of the Standards
        - Map of watershed/landscape area
        - Map of geology
        - Map of riparian areas
        - Catalog of USGS quadrangles within landscape
        - Catalog of soil types
        - Listing of range sites
        - Listing of grazing allotments and permittees
        - Summary of sites that meet/do not meet the Standards
        - Field data collection forms
        - Photos

Results of LSFO Landscape Health Assessment (LHA) Reports

Ten of the sixteen landscapes within the RMPPA have been through, or are currently going through the LHA process. The current status of the completed LSFO LHA reports, and whether they meet (M) or do not meet (NM) the Standards is shown in Table 3-1 below. The table also summarizes the condition of the Landscape relative to the factors used in evaluating whether the standard is met and identifies associated concerns.

Table 3-1. — Summary of Landscape Health Assessments

Landscape:	**Axial**	
Status:	*LHA Planned in 2006 Number of Sites To Be Determined (TBD)*	
Landscape:	**Boone Draw (a.k.a. Douglas Draw)**	
Status:	*Completed in 2004—Site Analysis Ongoing*	
Landscape:	**Cold Springs**	
Status:	*Completed in 2000—27 Sites (All Analyzed)*	
Standard 1:	M	Generally meets standard—except for toe slope or bench soils in canyon bottoms along Vermillion, Canyon, and Talamantes Creeks; physical indicators generally intermediate or plus; vegetation indicators generally intermediate.
Standard 2:	NM	Vermillion, Canyon, and Talamantes Creeks were mostly functioning at risk (FAR) and slightly to moderately incised with high sediment loads except where beaver established; Beaver, N.S., and 2 Bar Creeks meeting standards; lentic riparian areas on gentle and moderate slopes not meeting standard due to livestock and elk trampling that results in erosion and rapid runoff.
Standard 3:	M	Most sites have diverse, perennial grass species; production good on 2/3 of sites, but less than desirable on 1/2 of sites; overall plus rating for community composition/structure and weeds/invasive plants; intermediate for plant community age/health, density/production, and vigor, plus cryptogamic crusts; 2 sites dominated by halogeton and greasewood did not meet standard; several sites lacked forbs and had low production; several sites had shrubs lacking in vigor.

Table 3-1. — Summary of Landscape Health Assessments

Standard 4:	M	The majority of the landscape supports a variety of native vegetation and consequently suitable habitat for species of concern; at least 8 of the 28 sensitive plant species in the RMPPA occur here as do 8 documented remnant plant associations; suitable habitat identified for a number of sensitive wildlife species occurring in diverse habitat types; none of the concerns for individual habitat types threaten the existence of these species within the landscape.
Standard 5:	M	No use impairment problems noted, thus water quality is sufficient to support beneficial use classifications, including healthy rangelands; however, elevated sediment and salinity are problems noted in Vermillion, Canyon, and Talamantes Creeks.
Landscape:	**Douglas Mountain**	
Status:	*Completed in 2003—21 Sites (20 Analyzed)*	
Standard 1:	M	No unacceptable accelerated erosion at any site, but 1 site failed the upland soil standard because of substantial flow patterns and insufficient plant cover indicated accelerated erosion was imminent; 21% of sites had slight signs of accelerated erosion in small areas (e.g., flow pattern development, soil movement, diminished surface litter); plant cover and diversity was adequate to maintain and protect soil quality except at 2 sites where dominant plants were sparse and annual, indicating site vulnerability to future erosion.
Standard 2:	NM	Riparian resources are sparse, occur only as lentic systems, and are very important to wildlife; riparian habitat was absent at the 20 sites that were analyzed; however, 10 springs identified in the 1980s and 1 more recently identified spring were evaluated for riparian resources—these springs variously had insufficient flow to support riparian resources, were severely trampled by wildlife, were vegetated by willows, or had insufficient data to evaluate the likely state of their resources; overall these springs appear to be degraded.
Standard 3:	NM	The quality of habitat for native species was insufficient to meet the standard at 6 of the 20 sites evaluated, primarily due to poor species diversity and community structure, as well as dominance of weeds such as cheatgrass and leafy spurge, and one of these sites also failed the standard for productive diverse wildlife habitat; weed dominance was enhanced by a wet spring following a period when forbs and perennial grasses were lost, possibly as a result of drought and historic heavy grazing; elsewhere production, vigor, and plant composition were good with strong leader development on shrubs, abundant perennial grass seedlings, and good forb diversity; a few additional sites or habitat types were below the overall high standard provided by productive resilient wildlife habitat at the majority of sites.
Standard 4:	M	The majority of the landscape supports a variety of native vegetation and consequently suitable habitat for species of concern; suitable habitat was identified for a number of sensitive wildlife species occurring in diverse habitat types; none of the concerns for individual habitat types threaten the existence of these species within the landscape; no federally listed threatened or endangered plant species occur here.
Standard 5:	M	No impairment problems identified and water quality appears sufficient to meet the designated uses for which the various reaches of the Little Snake River have been classified; the sediments that individual tributaries in this watershed contribute to the Little Snake River should be reduced as best management practices mandated by BLM use authorizations are implemented.

Table 3-1. — Summary of Landscape Health Assessments

Landscape:	**Dry Creek**	
Status:	*Completed in 2002—23 Sites (20 Analyzed)*	
Standard 1:	M	Even though drought had resulted in many plants remaining dormant, residual forage, litter, and canopy cover of diverse plant communities protected surface soils from excessive erosion and all sites met the upland soil standard; active rills were observed only at 2 sites where moderately steep slopes were present; 1 site appeared to have a severe die off of Nuttall's saltbush and was identified for monitoring of possible erosion, should plant recovery not occur.
Standard 2:	M/NM	Vermillion Creek, the only lotic system in the landscape, met the standard, and evidenced increased stability in two reaches; present were expanding beaver dams (that serve to control erosion and siltation) in one reach and willow stands that have survived where ground water is available, in spite of the drought. Springs and seeps, the lentic systems in the landscape, were FAR or were considered nonfunctional; 7 of the 8 springs found suffered erosion and shrinking riparian soils and vegetation from hoof action and runoff flow; damage attributed to elk and deer, since they would be most likely to use water sources near the top of a high ridge, as these were; another grouping of springs had continuous riparian soils and supported wetland vegetation in the presence of moderate livestock grazing, but the water sources for these springs were less apparent than previously recorded.
Standard 3:	M	All sites but one were rated as plus or intermediate for community diversity/composition, community structure, community age/health, plant density/production, and plant vigor; the single site was rated a minus for these factors; across the landscape, however, plant vigor in shrub, grass, and forb components and species diversity were diminished as a result of the drought.
Standard 4:	M	The diversity of habitats across this landscape supports a variety of special status species and the standard was met by all sites; a decline in recent use of historic nesting sites (attributed to increased oil and gas and other travel near nesting sites) and the absence of forbs and diminished vigor of shrub species used by sage-grouse (even though grouse numbers and distribution were as expected) were noted as concerns.
Standard 5:	M	The water quality of Vermillion Creek and its tributaries (Dry Creek, Shell Creek, and others) was sufficient to support the use classes assigned to this stream, thereby meeting the standard.
Landscape:	**Great Divide**	
Status:	*LHA Planned in 2006—Number of Sites TBD*	
Landscape:	**Green River**	
Status:	*LHA Planned in 2005—Number of Sites TBD*	
Landscape:	Little Snake Gulch	
Status:	Completed in 1998—18 Sites Analyzed	
Standard 1:	M	
Standard 2:	NM	Lotic system is FAR or nonfunctioning as a result of lateral movement of the stream and resulting excessive bedload movement and unstable stream channel; this activity is not attributed to current livestock management. Most lentic systems meet the standard.

Table 3-1. — Summary of Landscape Health Assessments

Standard 3:	M	
Standard 4:	M	
Standard 5:	M	
Landscape:	**Pole Gulch (a.k.a. Fourmile)**	
Status:	*Completed in 2003—34 Sites (All Analyzed)*	
Standard 1:	M	Overall, the soil standard was met, based on stable erosion conditions, the absence of plant pedestalling, appropriate levels of biological soil crusts, minimal soil erosion, and protective plant cover at most sites; at 8 sites, there were deviations from these favorable conditions, with 5 sites having slight erosion conditions, 4 of these had deficient vegetative cover (especially of perennial grasses), 3 also had plant pedestalling, 1 had disturbed and fragmented biological soil crusts, and 1 exhibited flow patterns; on 3 other sites, although there was little observable soil movement, the sites had high levels of invasive plants or decadent sagebrush canopies, which served to protect the soil surface even though they were undesirable as plant communities.
Standard 2:	M	Larger riparian systems in Fourmile Creek watershed meet the standard are in proper functioning condition (PFC) or FAR with an upward trend; these systems have improved since the early 1990s as a result of limiting livestock presence along streams; some tributaries in Timberlake Creek, East Timberlake Creek, Mud Spring Draw and other Fourmile Creek tributaries have sandy substrates, loss of contact with the water table, headcuts, and incised stream channels that affect their functionality. Many (41%) of the lentic systems are in PFC or FAR with an upward trend, but 31% of the streams were FAR without a discernable trend, and 20% were FAR with a downward trend; a few of the lentic systems evidenced trampling, but many showed a downward trend because they were originally evaluated in an unusually wet year.
Standard 3:	NM	Most sites had high species diversity and good vigor and plant composition, although some sites were lacking in grass species. However, plant communities in 6 sites had poor species diversity and community structure and/or the presence of weeds resulting in failure to meet this standard overall; contributing factors were loss of forbs and perennial grasses due to past grazing practices and recent drought, weed proliferation in the current higher moisture regime, presence or absence of fire—all contributing factors that were addressed with changes in grazing management when permits were renewed on 5 of the 6 sites; for the last site, the contributing factors were not identified.
Standard 4:	M	Habitat conditions for all threatened, endangered, and special status species appear to meet the needs of the respective species for the various life cycle stages for which they are used; continuation of existing management should ensure that this remains the case.
Standard 5:	M	Water quality standards for both surface and ground water are presently being met; no stream segments or tributaries were found to have impaired water quality.

Table 3-1. — Summary of Landscape Health Assessments

Landscape:	**Powder Wash**	
Status:	*Completed in 2003—40 Sites (38 Analyzed)*	
Standard 1:	M	All but 4 of the sites analyzed met the standard, having excellent soil condition, lacking signs of accelerated erosion and having adequate cover and diversity of plant species; the 4 sites with slight signs of accelerated erosion had various combinations of flow pattern development, slight pedestalling, evidence of soil movement, or less than ideal surface litter distribution in a small area; 2 of these sites also were dominated by annual pepperweed, lacked adequate perennial grass in shrub interstices, and were vulnerable to accelerated erosion in the future.
Standard 2:	NM	While 33% of the lotic riparian miles were PFC or FAR with an upward trend, 65% were FAR with no apparent trend and 2% were Not functioning (NF); fluctuating water levels due to drought and agricultural irrigation and over use by livestock and wildlife are the primary causes; changes in livestock grazing management have resulted in some improvement, but do not address all causative factors. Of the 29 lentic systems evaluated, 12 were PFC or FAR with an upward trend, 10 were FAR with no apparent trend, 6 were FAR with a downward trend, and 1 was NF, with the undesirable conditions resulting primarily from heavy livestock use and amenable to improvement with changes in livestock management.
Standard 3:	NM	Majority of sites have strong leader growth on shrubs, abundant perennial grass seedlings, good forb diversity, providing productive, resilient wildlife habitat that can sustain healthy populations, although some sites were trending toward decadent sagebrush, diminished grass density and weediness; poor species diversity and community structure, weed dominance, and loss of resilience in native communities was evidenced in 26% of the sites causing this standard to not be met.
Standard 4:	M	Habitat conditions for all threatened endangered and special status animal species appear to meet the needs of the respective species for the various life cycle stages for which they are used; continuation of existing management should ensure that this remains the case. Sensitive plant species are not known within the watershed.
Standard 5:	M	No use impairment problems have been identified and water quality appears sufficient to support the designated uses classified for the Little Snake and its tributaries; sediments within this watershed will be diminished by the best management practices mandated on BLM managed land.
Landscape:	**Sand Hills**	
Status:	*Completed in 2001—31 Sites (30 Analyzed)*	
Standard 1:	M	All of the sites evaluated met the soil standard, although 2 sites exhibited compaction and 1 of these lacked forbs, contained cheatgrass throughout, and had sagebrush that was overly dense; the occasional plant pedestalling observed was attributed to water erosion and past activities rather than current grazing practices.
Standard 2:	NM	Lotic systems (primarily the Yampa River and Deception and Bob Hughes Creek) exhibited overuse of riparian vegetation in some reaches by deer and cattle, encroachment of tamarisk in coyote willow sites, and limited potential for extensive riparian areas in some reaches due to high stream banks, but were otherwise in fair to good condition. Lentic systems were variable across the landscape, with springs in good condition on the east side of Twelvemile Mesa, dryer or FAR with a downward trend on the west side of Twelvemile Mesa, FAR with a downward trend in Lower Crooked

Table 3-1. — Summary of Landscape Health Assessments

		Wash, and inaccessible to wildlife and livestock but with soils too thin for extensive plant growth on Cross Mountain; identified problems in lentic systems were largely the result of flashy flows in ephemeral stream channels undercutting the rooting depth of riparian plants, trespass cattle, and increasing elk herds.
Standard 3:	M	The majority of sites supported diverse perennial grass species, good plant density and production, adequate canopy and ground cover; were in the plus category for community diversity/composition, community structure, rills, canopy and ground cover, gullies, and litter distribution; and the intermediate category for community age/health, plant density and production, noxious weeds and invasive plants, plant vigor, cryptogamic crusts, plant pedestalling, and crusted soils; identified problems included a lacking forb component, low production, low sagebrush vigor (6 sites), crested wheatgrass presence (2 sites—but these are returning to natives grasses); however, only one site failed to meet the standard because it was burned in 1993 and subsequently dominated by cheatgrass.
Standard 4:	M	Habitat conditions for all threatened, endangered, and special status animal species appear to meet the needs of the respective species for the various life cycle stages for which they are used; continuation of existing management should ensure that this remains the case. The large cottonwood trees along the Yampa River provide important winter roost and potential nest sites for raptors. 3 sensitive plant species have been documented within the watershed.
Standard 5:	M	No use impairment problems have been identified and water quality appears sufficient to support the designated uses classified for the Yampa River and its tributaries and for the 2 tributaries of the White River within the landscape.
Landscape:	**Sandwash**	
Status:	*Completed in 2001—34 Sites (All Analyzed)*	
Standard 1:	M	All sites within the landscape meet the standard; the plant pedestalling rated a minus at one site—the only minus recorded for physical indicators within the landscape; upland soil problems were noted at one site on a slope that exhibited rills, and on steep slopes where OHV activity is causing soil stability problems (soils are eroding off the bedrock shale of the Clay Buttes and north of S.H. 318 on break slopes near the intersection with C.R.67).
Standard 2:	M	The riparian standard is considered to be met, even though not all the riparian systems are in PFC; most streams are not far from their potential, which is constrained by naturally occurring salts that accumulate in swales and floodplains, by water diversions, and by bedload. Lotic systems, primarily reaches of the Little Snake River (most of which flow through private land) are influenced by high flows, terrace banks, infrequent floodplains, annually scoured sandbars, the removal of trees by beaver, and a heavy silt and sand bedload—factors that cannot be managed by BLM; healthier, better vegetated riparian communities occur along Sand Wash and its tributaries. Lentic areas occur frequently along the western and eastern edges of the landscape and on the slopes of Cross Mountain and Douglas Mountain to the south; riparian vegetation is more common in the west; diversity is lacking in riparian vegetation due to the presence of salts; the only lentic area rated as FAR with a downward trend exhibited heavy hoof traffic and salt accumulations.

Table 3-1. — Summary of Landscape Health Assessments

Standard 3:	M	The majority of sites supported diverse, perennial grass species with a good quantity of grasses on 2/3 of the sites, but less than desirable production on 7 sites; most sites were judged intermediate for community age/health, plant density and production, cryptogamic crusts, and plant vigor, but judged to be in the plus category for all the physical indicators; several sites lacked a forb component and had relatively low production, and 3 sites did not meet the minimum standards for vegetation; weed infestations of cheatgrass and halogeton, plus some annual forbs and, at one site, Canada and Russian thistle were present; the area of most concern is around Clay Buttes where heavy OHV use is causing degradation to the vegetation.
Standard 4:	M	Habitat conditions for all threatened, endangered, and special status animal species appear to meet the needs of the respective species for the various life cycle stages for which they are used; continuation of existing management should ensure that this remains the case. No sensitive plant species are known to occur in this landscape.
Standard 5:	M	No use impairment problems have been identified and water quality appears sufficient to support the designated uses classified for the Sand Wash watershed; potential issues with sediment in the Little Snake River are being evaluated and monitored.
Landscape:	**Slater**	
Status:	*Completed in 1999—27 Sites*	
Standard 1:	M	
Standard 2:	NM	All but one reach were determined to be FAR; livestock grazing problems; changes in livestock management and grazing rotation implemented.
Standard 3:	M	
Standard 4:	M	
Standard 5:	M	
Landscape:	**Spring Creek**	
Status:	*Completed in 1998—19 Sites*	
Standard 1:	M	
Standard 2:	M	
Standard 3:	M	
Standard 4:	M	
Standard 5:	M	

Table 3-1. — Summary of Landscape Health Assessments

Landscape:	**Steamboat Lake**
Status:	*Parcels in the Steamboat Lake LHA will be assessed on a case-by-case basis because they are small and dispersed.*
Landscape:	**Williams Fork**
Status:	*LHA Planned in 2007—Number of Sites TBD*

*M=Standard met; NM=Standard not met.

Thus, most of the Standards were met for the landscapes that were assessed. Generally, those landscapes that did not meet all of the five Standards typically failed to meet Standard 2 (riparian systems) and Standard 3 (native species). The LHAs and these standards in particular are part of the resource discussions that follow.

If grazing is at least partially responsible for a landscape failing to meet a standard, BLM, with involvement of the interested parties, is required to prescribe actions that ensure progress toward meeting the standard within one year. This time frame will be extended to two years in 2005. Corrective management actions may be part of an activity plan, management plan or administrative decision in the context of permit renewals. Actions can include changing the amount of grazing, the season of use, and other such adjustments.

If landscapes are not meeting a standard due to activities other than grazing (e.g., OHV, recreation), BLM must use more of a cooperative, collaborative approach, since such activities may not be directly a part of BLM's mandate. Such an effort is typically more geographically and politically challenging. However it can yield beneficial results and help the landscape meet the Standards.

The LHAs provide the foundation of data, along with monitoring data, weather data, information from operators and consultants, as well as professional judgment, that BLM uses to make its management decisions. The degree of specificity provided in these documents for each resource is noted below in more detail.

3.1.2 Air Quality

Clean breathable air, expansive vistas, and minimal acidification of the lands, streams, and lakes are significant values to be pursued in the RMPPA. Some of the activities on BLM-administered lands related to minerals development, recreational use, fire management, and construction could impact those air quality-related values both in the RMPPA and on lands adjacent to the RMPPA. Accordingly, activities on BLM-administered lands must comply with federal air quality regulations. Deterioration of air quality could result in imposed restrictions on those activities.

3.1.2.1 Current Conditions

The region of influence (ROI) for air quality includes both the RMPPA and the area within 100 kilometers (km) of its boundaries. Any impacts to air quality from activities within the RMPPA are not anticipated to extend beyond a 100-kilometer distance from the boundaries. Climate and existing air quality are discussed in this section to describe the setting and current conditions. Appendix B provides additional detail regarding air quality conditions.

Climate

Air quality is directly related to the dynamics of the atmosphere (meteorology and weather). Atmospheric conditions transport air pollutants from the sources to the receptors. Climate is a characterization of the atmosphere over a long period of time, which takes into account temperature, precipitation and wind. The climate in the RMPPA is characterized as desert and semiarid steppe with areas of mid-latitude highland or alpine in mountainous areas (Trewartha and Horn 1980; Martner 1986). Both of these climatic zones have large seasonal variations in temperature and precipitation. The desert and semiarid steppe climate is relatively dry, but precipitation varies annually and is sufficient for the growth of short, sparse grass and shrubs. The mid-latitude highland or alpine climate is characterized by large variations in local climates, depending on elevation and slope exposure, but is generally a similar but cooler version of nearby lowland climate (Trewartha and Horn 1980).

Meteorological data is collected at several weather stations scattered throughout the RMPPA at elevations ranging from 5,230 feet in the western portion of the RMPPA to 7,892 feet in the eastern portion. Mean annual temperatures range from a low of 39 degrees Fahrenheit (˚F) at higher elevations to a high of 47˚F at lower elevations. Mean temperatures vary between 75˚F in the summer and 3˚F in the winter in the eastern portion of the RMPPA to 89˚F in the summer and 12˚F in the winter in the western portion. Temperature extremes recorded in the RMPPA are -61˚F and 106˚F. Mean annual precipitation ranges from 8.5 inches at the lower elevations in the west to 23.3 inches at the higher elevations in the east. Precipitation is generally greater in the spring and fall, except for the higher elevations where 175 to 300 inches of snowfall can be expected between November and April (Western Regional Climatic Center, 2002).

Wind speed and direction are highly variable at the surface throughout the RMPPA because of the topographical differences between the lower elevations in the west to the higher elevations in the east. Topography strongly affects wind direction, particularly at night and under low wind speed conditions. The wind direction in the western portion of the RMPPA tends to blow from the west across the gently rolling landscape. The best long-term record of wind data for the area is found in Craig and Hayden; however, wind rose data are not available for these locations. The average annual wind speed in Craig is 5.5 miles per hour (mph) and 7.5 mph in Hayden (Western Regional Climate Center, 2002), with speeds generally increasing during the spring and summer months. Surface level wind speeds in the RMPPA vary between these two sites and generally increase with elevation. The wind direction at both locations is generally west. Winds typical of higher elevation mountainous locations in the RMPPA are represented by the wind rose for Steamboat Springs in Figure 3-1.

The behavior of a pollutant in the atmosphere varies with vertical and horizontal mixing, referred to as dispersion. The extent of dispersion is related to atmospheric stability, the atmosphere's capacity to disperse pollutants, and mixing height (the distance from the ground to the top of the atmospheric layer in which pollutants can be dispersed). Distributions of these factors are only available for Craig and are representative of other towns in the area. For Craig, stable conditions, which are unfavorable for pollutant dispersion, exist 40 percent of the time, annually. The lowest mixing heights occur in the morning and generally lift to higher elevations in the afternoon.

Sources of Air Pollution

Small towns and communities within the RMPPA generally have similar sources of air pollution, which include particulate emissions from wood burning stoves/fireplaces, sanding of roadways, and wind-blown fugitive dust from open fields and unpaved roads. Manmade particulates are created during the burning of fossil fuels associated with industrial processes or heating. The State of Colorado estimates that approximately 75% of PM_{10} emissions in typical small mountain communities come from street sand,

soil, and road dust sources (Air Quality Control Commission Report 2003-2004). These particulates include fly ash from power plants, carbon black from automobile and diesel engine exhaust, and soot from fireplaces and woodstoves. The PM_{10} particulates from these sources contain a large percentage of organic carbon that affects visibility and public health. Sources of air pollution generated on BLM-administered land are primarily fugitive particulate emissions from OHVs, surface soil disturbances, construction activities, controlled burns, and wildfires.

Coal-fired power plants located in Craig and Hayden, Colorado are the largest sources of criteria pollutants within the RMPPA. The Hayden power plant began service in 1965 and the Craig plant started producing power in 1980. Both power plants are considered major stationary sources regulated by Title V operating permits. These plants are the largest single sources of SO_2 and NO_X emissions within the RMPPA. In 1999, the Hayden power plant emitted more than 7,000 tons of NO_X and over 6,000 tons of SO_2 (CDPHE, Technical review document for Operating Permit 96OPRO132, Public Service Company - Hayden Station).

Existing Air Quality

Elements of air quality addressed in this analysis include ambient air quality concentrations, visibility, and atmospheric deposition. Air quality monitoring data provided by the State of Colorado show that air quality in the RMPPA is considered to be in compliance with the National Ambient Air Quality Standards (NAAQS) (Table 3-2).

Table 3-2. — Summary of Air Quality in the Vicinity of the Little Snake RMPPA

Air Quality Component	Status
Air Pollutant Concentrations	
Criteria Air Pollutants	• Concentrations are in compliance with the NAAQS.
Nitrogen Compounds	• Nitric acid (HNO_3) concentrations in Rocky Mountain National Park are slightly higher than concentrations in other remote areas. • Concentrations of nitrate (NO_3) and ammonium (NH_4) are consistent with other remote areas.
Sulfur Compounds	• Sulfur dioxide (SO_2) and sulfate (SO_4^{-2}) concentrations in Rocky Mountain National Park and Mount Zirkel Wilderness Area are consistent with concentrations in remote areas.
Visibility (Rocky Mountain National Park)	
Visual Range	• Visibility data are typical of the Western U.S: • 20% cleanest: 133–162 miles • Average: 89-109 miles • 20% haziest: 60–73 miles
Atmospheric Deposition	
Precipitation pH	• Precipitation acidification from 1994 through 1998 (pH: 4.7–4.9) • Precipitation near natural 1986 to 1993 and 1999 to 2003 (pH: 4.9–5.4)
Total Deposition	• Total nitrogen deposition in Rocky Mountain National Park has been equal to or lower than the guidelines set for Bridger Wilderness in Wyoming: • Nitrogen deposition from ammonium (NH_4^+) and nitrate (NO_3^-) is less than 5.6 kilograms per hectare year (kg/ha-yr)[1]. • Sulfur deposition from sulfate (SO_4^{-2}) and sulfur dioxide (SO_2) is less than 2.7 kg/ha-yr[2].

[1] Proposed acceptable level of total nitrogen deposition is from 3 to 5 kg/ha-yr (Fox et al. 1989).
[2] Proposed acceptable sulfur deposition is 5 kg/ha/yr (Fox et al. 1989).

Ambient Air Quality Concentrations for Criteria Pollutants

In accordance with the Clean Air Act, both Colorado and the federal government have established ambient air quality standards for criteria pollutants considered harmful to public health and the environment, listed in Table 3-3. Lead (Pb) is also a criteria pollutant; however, since lead is no longer used as a gasoline additive, it is not considered to be a pollutant of concern from any activities in the area. The Colorado Department of Public Health and the Environment (CDPHE) administers the Clean Air Act for Colorado and collects data to establish background air quality levels. CDPHE has adopted the NAAQS; therefore, there are no ambient air quality standards specific to Colorado.

Data gathered from the nearest monitoring stations indicate that current concentrations for criteria pollutants are in compliance with applicable standards as shown in Table 3-3. However, current and complete data on criteria air pollutant concentrations for the RMPPA are not available.

Table 3-3. — Concentrations of Criteria Air Pollutants Within or Adjacent to the Little Snake RMPPA

Pollutant [1]	Averaging Time	Monitored and Modeled Concentration ($\mu g/m^3$)	Percent NAAQS [2]
Carbon Monoxide (CO) [3]	1 hour	2,299	6
	8 hour	1,148	11
Nitrogen Dioxide (NO_2) [4]	Annual	3.4	3
Ozone (O_3) [5]	1 hour	76	63
	8 hour	68	85
Particulate Matter (PM_{10}) [6]	24 hour	119	79
	Annual	25	50
Particulate Matter ($PM_{2.5}$) [7]	24 hour	20.2	31
	Annual	7.5*	50
Sulfur Dioxide (SO_2) [8]	3 hour	132	10
	24 hour	43	11
	Annual	9	11

[1] Lead (Pb) is also a criteria pollutant; however, since lead is no longer used as a gasoline additive, it is not considered to be a pollutant of concern from any activities in the area.
[2] CDPHE has adopted the National ambient air quality standards (NAAQS); therefore, there are no ambient air quality standards specific to Colorado.
[3] Data collected at Rifle and Mack, CO along Interstate 70 in conjunction with proposed oil shale development during the early 1980s (CDPHE, 1996).
[4] Data collected at Green River Basin Visibility Study site, Green River, WY, during January–December 2001 (ARS, 2002).
[5] Highest composite values; data from Mesa Verde National Park (CDPHE, 2004).
[6] Data collected at Steamboat Springs (STMB) air quality monitoring station (CDPHE, 2004).
[7] Data collected at Steamboat Springs (STMB) air quality monitoring station (CDPHE, 2004).
[8] Data collected at LaBarge Study Area at the Northwest Pipeline Craven Creek, Wyoming site, 1982–1983.
[*] Note: Indicates less than 75% data for the year.

Visibility

Visibility impairment in the form of regional haze obscures the clarity, color, texture and form of what can be seen. Regional Haze Regulations were developed to maintain visibility on the least impaired days and improve visibility on the most impaired days in mandatory Federal Class I areas across the United States. Federal Class I areas are defined as certain national parks (greater than 6,000 acres), wilderness areas (greater than 5,000 acres), national memorial parks (greater than 5,000 acres), and international parks that were in existence as of August 1977. There are five Federal Class I areas within 100 km of the

RMPPA, which are listed in Table 3-4 and displayed on Map 6. There are no Federal Class I areas either in Utah or Wyoming within 100 km of the RMPPA.

Table 3-4. — Federal Class I Areas Within or Adjacent to the Little Snake RMPPA

Federal Class I Area	Location	Managing Agency
Mount Zirkel Wilderness	Routt National Forest Routt and Jackson Counties, CO	U.S. Forest Service
Flat Tops Wilderness	Routt and White River National Forests Rio Blanco, Garfield and Eagle Counties, CO	U.S. Forest Service
Eagles Nest Wilderness	Arapaho and White River National Forests Eagle and Summit Counties, CO	U.S. Forest Service
Rawah Wilderness	Roosevelt and Routt National Forests Larimer County, CO	U.S. Forest Service
Rocky Mountain National Park	Rocky Mountain National Park Jackson, Larimer, Grand and Boulder Counties, CO	National Park Service

Perceived changes in visibility are measured in terms of deciviews (dv). One dv is defined as a change in visibility that is just perceptible to an average person, about a 10 percent change in light extinction. Without human-caused visibility impairment, natural visual range is estimated to average about 8 dv (visual range of about 110-115 miles) in the western U.S. (Malm, 1999). Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring stations in Rocky Mountain National Park and Mount Zirkel Wilderness Area record visibility conditions annually. Annual visibility recorded at these monitoring stations is depicted in Figures 3-2 and 3-3. Conditions are reported in three categories ranked from clearest to haziest at each monitoring station (Table 3-5). No significant deterioration of visibility in Rocky Mountain National Park and Mount Zirkel Wilderness is apparent from the data. Another visibility study conducted in 1987-1993 at Craig found that the best visibility occurred in the summer and fall months (BLM, 2002). The recorded visibility conditions are typical of clear skies associated with remote areas in the western U.S. In addition, visibility data were collected using photography in Craig, Colorado (with the target area of Black Mountain) from 1987-1993. The photography monitoring technology was discontinued because new techniques were found to be superior. These data are generally comparable to those for the Mount Zirkel and Rocky Mountain National Park.

Table 3-5. —Recorded Visibility Conditions in the Little Snake RMPPA[1]

Visibility Measurement	Rocky Mountain National Park	Mount Zirkel Wilderness Area	Craig
20 percent clearest [2]	4 – 6 dv (162 – 133 miles)	3 – 5 dv (180 – 147 miles)	0.8 dv (182 miles) [5]
Average [3]	8 – 10 dv (109 – 89miles)	6 – 9 dv (133 – 99 miles)	9 dv (99 miles)
20 percent haziest [4]	12 – 14 dv (73 – 60 miles)	10 –12 dv (84 – 73 miles)	17.2 dv (43 miles) [6]

[1] Deciview numbers are inversely related to visual range (miles)--with the largest visual range being the smallest dv..
[2] Mean visibility for the 20 percent of days with the best visibility
[3] The annual mean visibility.
[4] Mean visibility for the 20 percent of days with the poorest visibility.
[5] Data collected in Craig were for the 10 percent clearest days.
[6] Data collected in Craig were for the 90 percent haziest days.

Atmospheric Deposition

Atmospheric deposition refers to the processes by which air pollutants are removed from the atmosphere and deposited in terrestrial and aquatic ecosystems. Air pollutants are deposited by wet deposition (precipitation) and dry deposition (gravitational settling of particles and adherence of gaseous pollutants to soil, water, and vegetation). Substances deposited include:

- Nitrogen and sulfur compounds (nitrates, nitrites, sulfates and sulfites)
- Acids (sulfuric acid (H_2SO_4) and nitric acid (HNO_3)), also known as acid rain
- Air toxins (such as pesticides, herbicides, and volatile organic compounds (VOC))
- Nutrients (such as nitrate (NO_3^-) and ammonium (NH_4^+).

Estimation of atmospheric deposition is complicated by contribution to deposition of several components: rain, snow, cloud water, particle settling, and gaseous pollutants. Deposition varies with precipitation, which in turn, varies with elevation and time.

Total deposition (the sum of both wet and dry deposition) data from the Clean Air Status and Trends Network (CASTNet) for Rocky Mountain National Park and for the Snowy Range, Wyoming (Centennial Station), is further discussed in this section. Figures 3-4 through 3-7 compare total deposition in Rocky Mountain National Park and in the Snowy Range, Wyoming with the total deposition guidelines, or identified levels of concern (LOC), set for the Bridger Wilderness in Wyoming (Fox et al., 1989). Total nitrogen deposition in Rocky Mountain National Park has been equal to or lower than the Bridger Wilderness from 1986 through 2002, although values exceeded 5 kilograms per hectare year (kg/ha-yr) in 1996 (Figure 3-4). Total sulfur deposition has been well below both the LOC for the same time period (Figure 3-5). Total nitrogen and sulfur deposition for the Snowy Range in Wyoming are higher compared to values in Rocky Mountain National Park. Total nitrogen for the Snowy Range, Wyoming is consistently higher than the LOC and in 1998 approached the red line LOC value (Figure 3-6). Total sulfur deposition has averaged 3.2 kg/ha since 1991, which is well within the LOC (Figure 3-7).

3.1.2.2 Characterization

Indicators and trends of air quality conditions are provided in ambient air quality concentrations for criteria pollutants, visibility, and atmospheric deposition discussed in Section 3.1.2.1. Because of limited available data, it is only possible to trend air quality-related values for a limited number of locations. However, ambient air quality concentrations are below standards, visibility is typical of clear skies associated with remote areas in the western U.S., and there has been improvements in total deposition at Rocky Mountain National Park in recent years.

Future changes to air quality conditions in the 100-km radius of the RMPPA would occur according to the intensity and expansion/reduction of activities that produce air pollutants. However, the use of air pollution mitigation techniques can also minimize air quality impacts and, in some cases, reduce emissions from sources. The BLM will adhere to the smoke management requirements for the State of Colorado to minimize emissions. Therefore, the nature of proposed activities on BLM-administered lands and the mitigation measures planned for those activities must be evaluated on a case-by-case basis to determine if an air quality consequence could occur, and whether the activity would be in compliance with air quality regulations.

At this time, future impacts to air quality within the RMPPA from non-BLM sources (such as power plants and fireplaces) are uncertain; however, it is not anticipated that existing sources would increase

their emissions in the future. In addition, major sources such as power plants are operating under state-administered air permits and are subject to periodic inspections. Future trends for PM_{10} cannot be anticipated at this time because of the high dependency on meteorology.

3.1.3 Soil Resources

Livestock grazing, prime farmlands, wildlife habitat, fisheries, recreation, water quality, and forestry all depend on the presence of suitable quality soils for their successful existence. Therefore, soil attributes and condition is important to BLM management decisions.

3.1.3.1 Current Conditions

The ROI for soils is the RMPPA, which is in the Moffat, Routt, and Rio Blanco Soil Survey areas. The Moffat and Routt surveys, which cover the majority of the RMPPA, are unpublished. The Rio Blanco survey has been published, but it applies to a very small portion of the RMPPA. Soil attributes that are most important to BLM's management decisions are fragility, rangeland soil fertility, and upland soil health. These attributes are discussed below together with the LHA characterization of soils within the RMPPA.

Fragile Soils

Soils are defined as fragile if they are rated highly or severely erodible by wind or water, have slopes greater than or equal to 35 percent, and also have one of the following soil characteristics: (1) a surface texture that is sand, loamy sand, very fine sandy loam, fine sandy loam, silty clay, or clay; (2) a depth to bedrock that is less than 20 inches; (3) an erosion condition that is rated as poor; or (4) a K factor (see glossary) greater than 0.32 (Little Snake ROD; BLM 1989). Problems with fragile soils are compounded when they are close to surface water sources.

When eroded sediments flow directly into stream channels, subsequent increases in sediment and salinity can be dramatic. This is a major concern because increases in salt and sediment can make water unsuitable for beneficial uses, such as irrigation or livestock and wildlife watering, and because the RMPPA is part of the Colorado River System. Through the Colorado River Basin Salinity Control Act of 1974 and the Clean Water Act of 1977, BLM and other federal agencies are charged with developing a comprehensive program for minimizing salt additions to the Colorado River. The actual contribution of salt and sediment to the Colorado River Basin from drainages in the RMPPA is unknown. However, soils derived from Mancos shale or from other saline sedimentary formations (particularly in the western half of the RMPPA) tend to be high in salts. Due to the salt content in these soils, vegetative cover grows sparsely, resulting in soil particles not being "anchored" in place and easily eroded by wind and water. The presence and condition of biological soil crusts is also very important to these soils.

Soil texture contributes to its integrity, as well. Fine textured soils, such as clays or silty clays, have slow infiltration rates and, as a result, often have high runoff rates. In these soils, rills and gullies are easily formed during storm events. Coarse textured soils such as sands, loamy sands, and sandy loams tend to be picked up and carried by winds. This movement often results in the formation of "blow-outs" and sand dunes. Shallow soils that are close to bedrock or other impermeable layers have a low tolerance level for erosion. Once the topsoil is eroded, it cannot be replaced by parent materials below it. Consequently, the soil may become unproductive over a short period of time.

Many of the soils in the western half of the RMPPA exhibit some combination of the above properties. Management Unit 12 (Map 3) contains the largest expanse of fragile soils, but other isolated locations of fragile soils occur throughout the RMPPA. The badland areas in Management Unit 12 (e.g., on the north-

west facing slopes of Vermillion Bluffs) contain some of the most fragile soils in the RMPPA. They are steep, sparsely vegetated, shallow, and often fine textured. Soils along the steep canyons of several creeks, such as Deception, Sand, Vermillion, Canyon, Shell, and Dry Creeks, Conway Draw, and Buffalo Gulch, are extremely erodible because of slope, soil depth, and in some areas, high salt concentrations that result in sparse vegetative cover. Soils along the Little Snake River, Sand Wash, and Yellow Cat Wash are often saline and extremely susceptible to wind and water erosion. In the Milk Creek area, where much of the soils are derived from shales, salinity and erosion have been historically problematic. Existing planning has identified approximately 33,000 acres (about 3% of the RMPPA) of areas with fragile soils.

Important Farmlands

There are four categories of important farmlands meriting federal protection: 1) Prime Farmlands; 2) Unique Farmlands; 3) Additional Farmland of Statewide Importance; and 4) Additional Farmland of Local Importance (Section 1540(c) of the Farmland Protection Policy Act). These categories are used to characterize the soils in individual soil surveys.

The Moffat Soil Survey (which includes the majority of the RMPPA) identifies three categories of prime farmland: Prime farmland if irrigated; Prime farmland if irrigated and reclaimed of excess salts and sodium; and Prime farmland if protected from flooding or not frequently flooded during the growing season. There are 16,200, 2,400, and 17,600 acres, respectively, of these farmlands in the RMPPA. The majority of these acres are located on private lands. The Moffat Soil Survey also identifies 61,800 acres of Additional Farmland of Statewide Importance in the RMPPA, the vast majority of which is on private lands. The survey did not identify any soils of unique or local importance within the RMPPA. Other soil surveys were either not completed or not in a format that allowed such information to be determined.

Landscape Health Assessment of Soil

Upland soils must meet Standard 1 of the Colorado Standards for Public Land Health. All landscape units evaluated to date meet Standard 1, although every site within a landscape may not meet the standard. It should also be noted that because landscapes are evaluated at selected individual sites, the LHAs might not identify all site-specific problems in soil conditions or productivity.

Specific areas of concern were noted in some of the LHAs. In some areas, accelerated, although not unacceptable, erosion and compaction were noted. In some cases, this was observed in highly restricted areas (<100 ft^2) or at a level acceptable and/or expected for the topography and soil type. Usually the increased erosion was in association with toe slopes, moderately steep slopes or bench soils found in the canyon bottoms. Areas with compaction, which was substantial in some places, did not exhibit other substantial site health problems. Some sites that exhibited slight erosion characteristics also had some deficiency regarding the vegetation component present on the site. There were undesirable characteristics, such as high occurrence of invasive plants and decadent sagebrush canopies and a lack of perennial grasses in the shrub interspaces. Some sites within the LHA units did not fully meet Standard 1 due to these deficiencies in the plant community. This resulted from current use by both livestock and wildlife (which had been displaced from nearby areas that had become infested with exotic vegetation species) and from past vegetation conditions that didn't protect the soil surface. In the Sand Wash landscape unit, soil stability issues exist, in part, because of open OHV designations that allow for hill climbing.

3.1.3.2 Characterization

If the Standard 1 indicators for soil resources (Appendix A) are met, the soils should exhibit infiltration and permeability rates that are appropriate for the soil type, climate, landform, and geologic processes. Additionally, adequate soil infiltration and permeability minimize surface runoff and allow for the accumulation of soil moisture necessary for optimal plant growth and vigor.

At a landscape level, the soils within BLM-administered lands of the RMPPA are stable and functioning consistent with the Standard 1 criteria. Compared to determinations from previous planning efforts, this is an improvement. However, individual problem areas still exist.

It is difficult to forecast the future condition of the soils in the RMPPA because many other resources and uses depend on and influence soil quality. Livestock grazing, prime farmlands, wildlife habitat, fisheries, recreation, water quality, and forestry all depend on the presence of suitable quality soils for their successful existence, and the intensity of these uses in turn influences soil condition. Non-fragile soils will likely continue to meet Standard 1, while fragile soils will vary in condition based on site- and time-specific uses and related intensity.

3.1.4 Water Resources

Water resources include surface and ground water sources, which are integral in maintaining healthy plant communities and wildlife habitats and providing drinking water for wildlife and people. Surface water also provides important habitat for aquatic organisms. The water present in the RMPPA must be of sufficient quantity and quality to sustain these uses, and BLM management decisions on both uplands and in drainages influence water quantity and quality.

3.1.4.1 Current Conditions

Groundwater

The RMPPA is underlain by the greater Colorado Plateaus aquifers (Figure 3-8), and specifically by the Mesaverde and the Dakota-Glen Canyon aquifers (Ground Water Atlas of the United States, Arizona, Colorado, New Mexico, Utah, HA 730-C, U.S. Geological Survey, 1995).

The Colorado Plateaus aquifers underlie approximately 110,000 square miles in western Colorado, northwestern New Mexico, northeastern Arizona, and eastern Utah. The distribution of aquifers in the Colorado Plateaus is controlled in part by the structural deformation and erosion that has occurred since deposition of the sediments that compose the aquifers. The principal aquifers in younger rocks are present only in basins, such as the Uinta, Piceance, and San Juan Basins. Although the quantity and chemical quality of water in the Colorado Plateaus aquifers are extremely variable, much of the land in this sparsely populated region is underlain by rocks that contain aquifers capable of yielding usable quantities of water of a quality suitable for most agricultural or domestic use.

In general, the aquifers in the Colorado Plateaus area are composed of permeable, moderately to well-consolidated sedimentary rocks. These rocks range in age from Permian to Tertiary and vary greatly in thickness, lithology, and hydraulic characteristics. The stratigraphic relations and nomenclature of these rocks are complex. The many water-yielding units in the area have been grouped into four principal aquifers for purposes of this discussion. Of these, the Mesaverde and Dakota-Glen Canyon are the principal aquifers in the RMPPA, and these represent the most reliably mapped aquifers within the water division (Colorado Water Division No. 6). Most widespread and productive water-yielding units are included in these aquifers; however, some locally productive water-yielding units also exist. Detailed

data on groundwater quantity within BLM-administered lands of the RMPPA are limited to site-specific areas where typically oil and gas wells have been drilled or evaluated and groundwater quantity analyses have been submitted to BLM.

Surface Water

The RMPPA is located within three basins of the Colorado River Region (Figure 3-9). The majority of the RMPPA is within the White-Yampa River Basin and the Upper Green River Basin. The Yampa River, formed by headwater creeks in the eastern end of the RMPPA, is joined by the Elk River, Elkhead Creek, Fortification Creek, Williams Fork River, Little Snake River, and other more minor tributaries before it joins the Green River at the western end of the RMPPA. The Yampa River serves as the southern boundary of the western portion of the RMPPA (Map 7). There are no major reservoirs or impoundments on BLM-administered land in the RMPPA.

The Colorado River Basin is comprised of smaller watersheds that are identified by Hydrologic Unit Code (HUC) and a descriptive name. The Colorado River Basin is a level one watershed (the largest), while the 31 level five watersheds contained at least partially within the RMPPA (Map 8) are at a scale more commonly used in BLM management decisions. Each of these watersheds contains a number of streams, for a total of 88 documented streams within the RMPPA (Appendix C). The major stream segments within the RMPPA are shown on Map 7.

Generally, surface water in the RMPPA flows in a southwesterly direction from the mountains on the eastern edge of the RMPPA (Map 7). Most of the streams are intermittent and flow only for brief periods during snowmelt and high-intensity thunderstorms. Snowmelt in spring and early summer provides the major source of runoff for perennial streams, with subsurface flow being a contributor during the remainder of the year. Many of the perennial streams and their major tributaries are diverted for irrigation, including the Little Snake, Yampa, and Elk Rivers.

Historic streamflow data are available for two gauging stations on the Yampa River—at Steamboat Springs and downriver near Maybell. At both stations, flow data for 2004 are within the 1909 (Steamboat) and 1916 (Maybell) to 2003 range of mean flows and above the minimum mean flows for this same time period; although June 2004 flows were close to historic minimum flows. 2004 flows at Steamboat Springs ranged from approximately 100 cubic feet per second (cfs) in January to 1,800 cfs in early May. Flows at the station near Maybell ranged from approximately 250 cfs to 6,000 cfs during this same time period. However, as of October 2004, the cumulative departure from mean flows since January 1, 2000 at these two stations was 150 percent (Steamboat Springs) and 170 percent (Maybell).

Water Quality

Current data on groundwater quality within BLM-administered lands of the RMPPA are generally limited to data from site-specific areas where oil and gas wells (or pilot projects) have been drilled and groundwater quality analyses have been completed and submitted to BLM.

Data on surface water quality are available for the Colorado River Basin and sub-basins from the State of Colorado and LSFO LHA reports. Surface water quality in the Colorado River Basin is generally satisfactory, although runoff from agricultural areas, abandoned mines, and naturally occurring saline springs causes localized problems associated with elevated salinity levels. Salinity is a measure of total dissolved solids including all inorganic material in solution. High levels of salinity threaten the multitude of uses supported by Colorado River water.

Water resources within each landscape unit are evaluated against Standard 5 of the Colorado Standards for Public Land Health (Table 3-6). As shown in Table 3-6, water quality is generally good and Standard 5 is being met on all landscapes that have been assessed. Salts, pollutants, and sediment loads increase in downstream segments, as ground cover diminishes, water temperatures increase, pollutants from livestock and wildlife accumulate, and sediments increase from runoff and snowmelt. Although overall surface water quality is good, some streams have elevated levels of sediment loads and salinity. Salinity issues are of particular concern in the RMPPA because it lies within the Colorado River Basin, which is subject to the Colorado River Basin Salinity Control Act (PL 98-569). Section 203(b)(3) of this act directed the Secretary of the Interior to: "...develop a comprehensive program for minimizing salt contributions to the Colorado River from lands administered by the Bureau of Land Management (BLM)…".

Table 3-6. — Status of Water Quality by Landscape Assessment Units/Watershed

Landscape	Status
Axial	Not available
Boone Draw (Douglas Draw)	Not available
Cold Springs	Standard met. No use impairment problems have been identified, and water quality apparently is sufficient to support uses.
Douglas Mountain	Standard met. Runoff waters from rain and snowmelt drain from the landscape into the Yampa River, which is presently supporting classified uses. No stream segments or tributaries are currently listed as having impaired water quality. Although the landscape is sandy and contributes sediments, implementation of best management practices (BMP) will help reduce the overall sediment load carried by individual tributaries to the Yampa River. Ground water quality standards are presently being met. BLM actions and resource conditions are not affecting ground water quality.
Dry Creek	Standard Met. Runoff waters from rain and snowmelt will drain towards Dry Creek, Shell Creek or Vermillion Creek. Water quality of Vermillion Creek and its tributaries and the Green River is sufficient to support the classified uses that are assigned to them.
Pole Gulch (Fourmile)	Standard met. Runoff waters from rain and snowmelt will drain from the watershed into stream segments that are presently supporting classified uses. No stream segments or tributaries are currently listed as having impaired water quality. Ground water quality standards are presently being met. BLM actions and resource conditions are not affecting ground water quality.
Great Divide	Not available
Green River	Not available
Little Snake River	Not available
Powderwash	Standard met. No use impairment problems have been identified and water quality apparently is sufficient to support designated uses. The Little Snake River tributary stream segments are designated use protected; therefore, "higher" use classifications would not be expected for these tributary stream segments in the future. It is apparent that this watershed contributes sediments to associated waterways; however, implementation of BMPs will help to reduce the overall sediment load carried by individual tributaries to the Little Snake River.

Table 3-6 cont'd. — Status of Water Quality by Landscape Assessment Units/Watershed

Landscape	Status
Sandhills	Standard met. The tributary stream segments to the Yampa River are designated use protected; therefore, "higher" use classifications would not be expected for these tributary stream segments in the future. There is no specific listing for any of the Yampa River tributaries below the confluence with the Little Snake River. McAndrews Gulch and Crooked Wash, two tributaries of the White River within the landscape, drain a portion of the HUC 1405000505 watershed. Runoff waters from rain and snowmelt will drain from the Sandhills Landscape into stream segments that are presently supporting classified uses. No stream segments or tributaries are currently listed as having impaired water quality.
Sandwash	Standard met. Runoff waters from rain and snowmelt will drain from the Sandwash watershed into stream segments that are presently supporting classified uses. No stream segments or tributaries are currently listed as having impaired water quality.
Slater	Not available
Spring Creek	Not available
Steamboat Lake	Not available
Williams Fork	Not available

Data to ensure that state water quality standards are being met and collected pursuant to Section 303(d) of the Clean Water Act (as amended) may identify water resources as "water quality limited" if they are not currently achieving or are not expected to achieve those standards. Surface water quality problems are detailed in Colorado's 303(d) list of impaired waters. TMDL's will be developed for all streams listed on the State's 303(d) list for not meeting water quality standards. Several streams within the RMPPA have been identified with water quality impairment problems and listed on the State of Colorado 303(d) list, as hown in
Table 3-7. The Little Snake River was listed as impaired in 1996 on the basis of somewhat qualitative data that were insufficient to support its listing in 1998 when the criteria for listing were more stringent. More data are needed to clarify the status of the Little Snake River with regard to its water quality impairment.

Table 3-7. — Water Bodies within the RMPPA Listed on Colorado's 2004 Section 303(d) List: Water Quality Limited Segments Requiring TMDLs

Water Body Name	Segment Description	Portion	Impairment	Priority
COUCYA02b	Stagecoach Reservoir	All	DO	H (high)
COUCYA13b	Foidel Creek and tributaries, Fish Creek, Middle Creek and tributaries	Middle Creek	pH	L (low)
COUCYA13d	Dry Creek	Below Seneca sample location 8	Se (selenium)	L (low)

Source: Colorado Department of Public Health and Environment (CDPHE), 2004.

State regulations prompt the Water Quality Control Commission to release the Colorado Monitoring and Evaluation (M&E) List in conjunction with the State's 303(d) list (Table 3-8). The M&E List identifies water bodies that are suspected of having water quality problems. This list includes water bodies that are impaired, but the cause of impairment is unclear.

Table 3-8. — Water Bodies within the Little Snake RMPPA Listed on Colorado's Monitoring and Evaluation List (2004)

Water Body Name	Segment Description	Portion	Impairment
COLCLY02	Yampa River, Lay Creek to Green River	All	Sediment
COLCLY16	Little Snake River, Powder Wash to Yampa	All	Sediment Fecal Coliform
COUCYA03	All tributaries to Yampa River except for specific listings, on USFS land	First Creek in Elkhead Watershed	Sediment
COUCYA03	All tributaries to Yampa River except for specific listings	Spronks Creek, Middle Hunt Cr Watershed	Sediment
COUCYA03	All tributaries to Yampa River except for specific listings	S. Fork Slater Creek	Sediment
COUCYA03	All tributaries to Yampa River except for specific listings	Puppy Dog Creek in Fish Creek Watershed	Sediment
COUCYA03	All tributaries to Yampa River except for specific listings	Muddy Ck., Morrison Ck. Watershed	Sediment
COUCYA03	All tributaries to Yampa River except for specific listings	Brush Creek, Morrison Creek Watershed	Sediment
COUCYA03	All tributaries to Yampa River except for specific listings	Beaver Creek	Sediment
COUCYA13b	Foidel Creek and tributaries, Fish Creek, Middle Creek and tributaries	Foidel Creek	E. coli
COUCYA13b	Foidel Creek and tributaries, Fish Creek, Middle Creek and tributaries	Middle Creek	E. coli
COUCYA19	All tributaries to Little Snake River on USFS lands in Routt County	S. Fork Little Snake	Sediment
COUCYA19	All tributaries to Little Snake River on USFS lands in Routt County	Johnson Creek	Sediment
COUCYA19	All tributaries to Little Snake River on USFS lands in Routt County	Oliver Creek	Sediment
COUCYA19	All tributaries to Little Snake River on USFS lands in Routt County	Silver City Creek, Upper Middle Fork, Little Snake Watershed	Sediment

Source: Colorado Department of Public Health and Environment (CDPHE), 2004.

Water Use

Water in the RMPPA is primarily used for irrigation and livestock and wildlife watering. Other water uses include municipal/domestic, commercial, thermoelectric generation, mining, industrial, snowmaking

and golf course maintenance. Because of the scarcity of water in this part of the continent, these uses are strictly controlled by water rights laws. Early settlers in the western U.S. established the fundamental principle that those who made beneficial use of water should be entitled to use in preference to those who came later, a principle known as the "Doctrine of Prior Appropriation." Rights to the use of water were acquired by actual diversion and application of water to beneficial use or by legislative grant under a rule that "first in time is first in right." As stream flows recede, diversions are cut off in order of priorities. BLM obtains water rights for the usage of springs, reservoirs, wells, and for diversions from intermittent and perennial streams. All diversions are applied for through the State of Colorado.

3.1.4.2 Characterization

Larger and more consistent quantities of water and a greater number of water sources are in demand in the RMPPA. Although no trends towards depletion of groundwater resources have been observed as a result of development on BLM-administered lands, additional demands for oil and gas development could impact groundwater quantity. Management actions that continue to protect and maintain present groundwater quantity will reduce future impacts to this water resource.

Surface water flow data, expressed as cfs, acre-feet, or percent of some norm, are the best indicators of surface water quantity. Long-term flow data are available only for the Yampa River. The data on cumulative departure from mean flow (based on the historic data periods noted above) indicate that the RMPPA has been experiencing a drought since early 2000. As a result, BLM may need to take measures, such as improving water temperatures and vegetative cover for impacted streams and/or providing additional water developments in response to the drought situation.

Indicators of water quality are physical, chemical, and/or biological parameters that are set by state and federal regulations for particular stream segments or particular water uses. The trends of water quality in the RMPPA are dependant on uses within both riparian and upland areas. Because water quality trends are influenced by many factors, they are highly variable and often beyond the control of BLM's land management practices[2].

BLM's goal of maintaining or improving water quality within BLM-administered lands of the RMPPA should result in adequate management of surface disturbing activities and maintenance of good water quality. Management strategies that prevent loss of vegetative cover, channelization, bank destabilization, excessive runoff and sedimentation will continue to have beneficial impacts on water quality. Riparian vegetation communities that continue to be managed and improved through PFC goals and objectives will help to maintain water quality and protect downstream beneficial uses of water and riparian habitat. The continuation of water quality studies on BLM-administered lands through the LHA process will help to identify water quality issues that may arise in the future. Additionally, because water sources cross administrative boundaries, coordination with other land management agencies and private parties is necessary to ensure water quality standards continue to be met.

3.1.5 Vegetation

Vegetation serves multiple purposes on the landscape and provides many ecosystem services. Vegetation stabilizes soils, prevents erosion, uses carbon dioxide (CO_2), releases oxygen (O_2), increases species diversity, and provides habitat and food for animals and products for human use. Many of BLM's land management policies are directed toward maintenance of healthy vegetation communities. Vegetation

[2] *Documented water quality trends in the Little Snake RMPPA will be further detailed in Chapter 3 of the Little Snake RMP/Draft EIS.*

can be generally characterized by ecological provinces, and more specifically characterized by plant communities. The plant species discussed below are those that provide the most important land cover across the RMPPA. Special status plant species are discussed in Section 3.1.7 below.

3.1.5.1 Current Conditions

Ecological Provinces

Bailey's (1995) description of North American ecoregions places the RMPPA in three different ecological provinces (Map 9). These include the Intermountain Semi-Desert Province (341 and 342), Nevada-Utah Mountain Semi-Desert-Coniferous Forest-Alpine Meadow Province (M431), and Southern Rocky Mountain Steppe-Open Woodland-Coniferous Forest Province (M331).

The Intermountain Semi-Desert and Desert Province (341 and 342) is contained within the intermountain basins of Wyoming and northern Colorado. The chief vegetation type, sagebrush steppe, is made up of sagebrush, saltbush, and a mixture of grasses and forbs. The Intermountain Semi-Desert Province is sometimes considered a cold desert, as the summers are hot and the winters can be extremely cold. The growing season is short, and the annual precipitation varies between 5 and 12 inches. Winter snow accumulation and runoff provide available moisture for spring plant growth. Snow distribution patterns caused by wind, topography, and existing vegetation develop pockets of highly productive sites within the drier, less productive surrounding areas. This area lies predominantly in the southwestern and northeastern regions of the RMPPA at elevations below 8,000 feet. Forest and alpine areas dissect this vegetation province; therefore, these areas provide winter habitat for many wildlife species. Livestock, wild horse and wildlife grazing are the primary uses of the area.

The Nevada-Utah Mountain Semi-Desert-Coniferous Forbs-Alpine Meadow Province (M431) consists of broken hills, mesas, and lower mountains and occupies the highest elevations of the Colorado Plateau and the Great Basin of Colorado, Utah and eastern Nevada. The lower elevations are dominated by shrubs and bunchgrasses. Where soils are saline, salt tolerant species such as greasewood dominate. Woodland areas consist of pinyon pine and juniper, which give way to aspen, willow and cottonwood in wetter areas (Bailey 1995; Cronquist et al. 1972). The area is typically cold in the winter and warm in the summer. The valleys and basins are generally higher than 5,000 feet and the upper peaks can be as high as 12,000 feet. Precipitation ranges from 5-8 inches/year in the lowest and driest basins to over 25 inches/year in the mountainous areas. These areas provide ideal year-around habitats for many species of wildlife, and are used extensively for livestock grazing.

The Southern Rocky Mountain Steppe-Open Woodland-Coniferous Forest Province (M331) is a transition from grass- and shrub-dominated areas to shrub- and tree-dominated areas. Juniper, shrub and grass communities dominate at elevations between 8,000- to 9,000-feet. The middle elevations of pine and spruce forest lie between 8,500 and 12,000 feet. Alpine tundra occurs only above 10,000 feet where cushion-type forbs and grass communities occur, as well as krummholz patches of spruce and fir. Riparian vegetation varies according to elevation as well; however, willows and water-tolerant grasses, sedges, and rushes often dominate from the foothills to the alpine (Bailey 1995; Knight 1994). The climate of these areas is variable and dynamic due to factors such as elevation, aspect, slope, and topographical change. Eastern and southern slopes are generally drier and warmer than are western and northern slopes. As the elevation rises, the mean temperature decreases and the growing season shortens. Annual precipitation generally rises from 14 inches in the foothills to over 60 inches in the alpine area. Winter mountain snow pack may reach over 200 inches per year and provides a reservoir for lower elevation water users (Martner 1985; Knight 1994). Mountain ranges within the RMPPA considered part of this vegetation province include the Sierra Madre Range and the Middle Mountain, Cold Springs

Mountain and Diamond Peak area. These areas provide summer forage for wildlife and livestock, as well as important habitat for many nongame mammals, birds and fish.

Plant Communities

A plant community is a group of plant populations that coexist in space and time and affect each other's population dynamics directly or indirectly. Distinct plant communities within the RMPPA are influenced by characteristics such as soil depth, texture, and salinity; climate variables, particularly temperature, total and seasonal distribution of precipitation, and wind; and topographic features, most importantly elevation, aspect and slope. The following discussions of plant communities that occur within the RMPPA show the diverse and complex nature of vegetation resources in the area.

Plant communities can be represented by plant cover types that reflect the dominant species present in an area, such as the plant cover types documented by the GAP data. To better reflect the level of community aggregation that is managed by the BLM, the 34 GAP land cover types have been combined into 15 general vegetation cover types (Table 3-9, Map 10), which are discussed below. In the discussion below, these cover types are aggregated into three physiognomic groups: rangelands, forests and woodlands, and riparian areas and wetlands. Table 3-9 shows how the aggregations were prepared, and provides acreages for both the entire RMPPA and BLM-administered lands.

Table 3-9. — Vegetation in the Little Snake RMPPA

Mapped Vegetation Zone	Report Heading	GAP Land Cover Types	Overall Acres	Percent of Total Acreage	BLM Acres	BLM LU Acres
Agricultural Lands	Other cover types		346,720	8.2	6,231	206
		Dryland Crops	272,065	6.4		
		Irrigated Crops	74,656	1.8		
Aspen	Aspen	Aspen Forest	507,529	12.0	23,827	0
Bare Ground/Rock	Other cover types	Strip Mines/Quarries	3,754	0.1	825	0
Coniferous Forest			504,330	12.0	24,670	0
	Mixed conifer	Spruce-Fir	296,170	7.0		
	Mixed conifer	Spruce-Fir - Clearcut/Logged	6,297	0.1		
	Douglas fir	Douglas Fir	7,414	0.2		
	Lodgepole pine	Lodgepole Pine	162,417	3.9		
	Lodgepole pine	Lodgepole Pine – Clearcut/L	2,308	0.1		
	Ponderosa pine	Ponderosa Pine	27,572	0.7		
	Mixed conifer	Mixed Forest - General	2,152	0.1		
Developed Land	Other cover types	Urban or Built-up Land	5,750	0.1	5	0
Grasslands	Grasslands		104,884	2.5	11,804	0
		Midgrass Prairie	38	0.0		
		Foothill/Mountain Grassland	53,022	1.3		
		Subalpine Meadow	51,825	1.2		

Table 3-9 cont'd. — Vegetation in the Little Snake RMPPA

Mapped Vegetation Zone	Report Heading	GAP Land Cover Types	Overall Acres	% of Total Acreage	BLM Acres	BLM LU Acres
Mountain Shrub	Mountain shrub		566,663	13.4	154,375	0
		Mesic Upland Shrub	50,121	1.2		
		Deciduous Oak	349,403	8.3		
		Bitterbrush Shrub	154,246	3.7		
		Xeric Upland Shrub	12,893	0.3		
Pinyon/ Juniper	PJ woodland		382,681	9.1	261,059	0
		Juniper	82,073	1.9		
		Pinyon-Juniper	300,608	7.1		
Riparian Herbaceous	Riparian/wetland	Grass/Forb Dominated Wetland	4,453	0.1	120	0
Riparian Shrub/Tree	Riparian/wetland		14,309	0.3	6705	0
		Forested Wetlands	4,696	0.1		
		Shrub Dominated Wetlands	9,612	0.2		
Sagebrush	Sagebrush		1,193,462	28.3	387,482	31,648
		Mountain Big Sagebrush	28,995	0.7		
		Wyoming Big Sagebrush	110,684	2.6		
		Basin Big Sagebrush	1,053,783.3	25.0		
Salt Desert Shrub	Salt Desert Shrub	Desert Shrub	4,254	0.1	3,955	0
Saltbush	Saltbush	Saltbrush Fans & Flats	557,168	13.2	431,657	4685
Tundra	Other cover types		19,282	0.5	0	0
		Prostrate Shrub Tundra	6,190	0.1		
		Meadow Tundra	2,331	0.1		
		Bare Ground Tundra	705	0.0		
		Mixed Tundra	10,056	0.2		
Water	Other cover types	Open Water - Lakes	3,179	0.1	1	0
TOTALS			4,218,416	100	1,312,716	36,539

Rangelands

Grasslands. The 11,804 acres of grassland managed by BLM occur in the eastern one-third of the RMPPA. On sandier soils, where water is more available and soil, climate or water availability restricts shrub establishment, desert grasslands commonly occur as a variant of shortgrass prairie. Common grass species include thickspike wheatgrass, slender wheatgrass, bluebunch wheatgrass, Indian ricegrass, needle-and-thread, Sandberg bluegrass, and sand dropseed. Other shrubs and forbs growing among the grasses are sand sagewort, phlox, Hooker sandwort, bud sagebrush, fringed sagebrush, Wyoming big sagebrush, rubber rabbitbrush, horsebrush, globemallow and prickly pear cactus (Knight 1994).

Saltgrass meadows occur in shallow depressions or adjacent to playa lakes where ground water is near the desert surface. These areas are characterized by inland saltgrass, alkaligrass, alkali sacaton, and, in wetter areas, alkali cordgrass (Knight 1994). Desert grasslands provide palatable forage and often provide islands of diversity within the desert shrublands.

Crested wheatgrass was planted in areas to mitigate disturbances by roads, well pads, oil and gas production activities and vegetation treatments such as brush beatings and prescribed burns. These plantings were needed to provide ground cover, prevent erosion and reduce the influx of weeds. These areas are now dominated by crested wheatgrass with native plants voluntarily coming in, such as big sagebrush, rabbitbrush, globe mallow, slender wheatgrass, thick spike wheatgrass, bluebunch wheatgrass and needle-and-thread. Native grasses have been used to reseed similarly disturbed areas for the last several years. These grasses include slender wheatgrass, thick spike wheatgrass, Indian ricegrass, and needle and thread.

Shrub Communities. Shrublands dominate the majority of BLM-administered lands in the RMPPA. The 977,469 acres of shrub communities comprise 74 percent of the land managed by BLM and cover vast areas of the RMPPA. These communities are very diverse in plant composition, in the sites where they occur in the RMPPA, and in the habitats and forage they provide to wildlife and livestock. Therefore, this section discusses several shrub community types.

Mountain Shrub. Mountain shrub communities include bitterbrush shrub steppe, mesic upland shrub step, xeric upland shrub steppe and mountain mixed shrub/pinyon-juniper community types. These areas are important wildlife summer and transition ranges, as well as spring, fall and summer livestock ranges. They lie between the high elevation mountain meadow and open park ranges and the low elevation desert rangelands. The four plant communities described below comprise 11.8 percent of the land managed by BLM and occur generally in the eastern one-third of the RMPPA or in the southern half of the western two-thirds of the RMPPA.

Bitterbrush-dominated plant communities exist on sand and sandy loam soils in the 10- to 14-inch annual precipitation zones. Bitterbrush varies in height depending on soil depth, precipitation, and browsing. It may appear as a low spreading shrub about 6 inches tall or as a tall shrub reaching 6 feet in height. Bitterbrush is often a co-dominant with mountain or basin big sagebrush, and may be intermixed with silver sagebrush, basin big sagebrush, and rabbitbrush in deep sandy soils. At higher elevations and higher precipitation levels, it occurs in mixtures with sagebrush, snowberry, serviceberry, mountain mahogany, and an occasional chokecherry. Herbaceous plants associated with bitterbrush include grasses such as needle-and-thread, prairie sandreed, Indian ricegrass, sand dropseed, and thick spike wheatgrass and forbs such as lupine, penstemon, sego lily, wild onion, larkspur, and prickly pear cactus.

Bitterbrush is probably the most important winter browse species for deer and pronghorn, and is used by elk and cattle in the fall and spring. It responds best to sagebrush-killing fires (burns occur in the fall and spring), although it's resprouting response is fair to moderate at best even under such conditions. Hot summer fires will kill bitterbrush.

Kinnikinnik, serviceberry, chokecherry or a combination of these species dominates the mesic upland shrub steppe, often in conjunction with snowberry, currant, skunk bush sumac and wood rose. These shrubs may reach 10 to 15 feet in height, occurring in dense stands or in scattered patches, often adjacent to aspen or willow. Understory grasses include basin wildrye, green needlegrass, Columbia needlegrass, and Kentucky bluegrass; and forbs include bluebell, columbine, aster, violet, elkweed, chickweed, and stinging nettle. This community provides hiding and thermal cover for deer, elk, and other wildlife species. The dominant shrubs provide excellent forage for browsing animals when their softer leaves and

shoots are within reach. These shrubs will reestablish following fire, often in less dense patches, making them more accessible to wildlife and livestock.

True mountain mahogany dominates the xeric upland shrub steppe community in the central and western portions of the RMPPA on dry rocky slopes or in very shallow, undeveloped soils in the 10- to 14-inch precipitation zone. It occurs, as both the dominant shrub or as an understory of juniper, at higher elevations, mixing with bitterbrush, snowberry, serviceberry, green rabbitbrush, broom snakeweed, and Wyoming big sagebrush. Commonly associated herbaceous plants include bluebunch wheatgrass, Indian ricegrass, Sandberg bluegrass, and mat-forming forbs such as phlox, buckwheat, locoweed, Hooker sandwort, goldenweed, and milkvetch. Mountain mahogany is an important wildlife fall and winter forage.

Gamble oak dominates much of the eastern slopes of the RMPPA. This plant community is often intermixed with large aspen colonies in the lower foothills below expansive conifer forests. Other trees and shrubs found in these areas are juniper, mountain mahogany, shrubby cinquefoil and big sagebrush. Herbaceous plants include Indian paintbrush, columbine, bluebunch wheatgrass and green needle grass. These areas are important year-around, transitional and winter habitat for deer and elk. Fire generally lessens the density of these shrub stands, allowing grasses and other herbaceous plants to increase, while still providing wildlife browse. When the shrub cover is removed herbaceous production is significantly increased.

Sagebrush. The GAP coverage of the RMPPA maps sagebrush as Wyoming big sagebrush, mountain big sagebrush, and basin big sagebrush, which are mapped collectively as sagebrush on Map 10. These three categories are broadly described below. Collectively, they comprise 29.6 percent of the BLM-administered lands in the RMPPA and are especially prominent across the central portion of the RMPPA and along its northwestern border, although smaller patches of this community are scattered elsewhere. Other sagebrush types that occur as minor plant communities within other vegetation types include silver sagebrush/grassland, which occurs in riparian habitat along streams above the wet sedge and willow riparian zone, and juniper/sagebrush and juniper/pinyon pine/sagebrush mixed vegetation types found at higher elevation slopes on rockier or shallow soils where precipitation is more abundant and these plants can take advantage of aspect-influenced precipitation and snow accumulation.

Wyoming Big Sagebrush/Grassland. The Wyoming big sagebrush/grassland is a common vegetation cover type in northwest Colorado. It occurs in shallow to moderately deep coarse soil types at lower elevations between 6,000 and 7,500 feet, giving way to basin big sagebrush in deeper and clayier soils and to mountain big sagebrush in areas above 6,500 feet that are within the 9- to16-inch annual precipitation zone (Knight 1994). Shrub height varies from as little as 8 inches on shallow sites to around 30 inches in deeper soils. Canopy cover is not as extensive as for either basin or mountain big sagebrush, usually topping out between 30 and 40 percent.

Wyoming big sagebrush often appears as the dominant plant in mosaic communities intermixed with other shrubs and open grasslands. In shallow, rocky to gravelly soils, Wyoming big sagebrush may be co-dominant with black sagebrush, green rabbitbrush, and sometimes winter fat. Grass and forb species vary depending on soil texture, aspect, and slope. Common grass and grass-like species include bluebunch and thickspike wheatgrass, Sandberg and mutton bluegrass, Indian ricegrass, needle-and-thread, threadleaf sedge, and bottlebrush squirreltail. Common forbs include phlox, Hooker sandwort, buckwheat, penstemon, Indian paintbrush, globemallow, and prickly pear cactus. Wyoming big sagebrush is the most frequently eaten sagebrush and is a staple for pronghorn antelope and greater sage-grouse. It is also one of the dominant species found on antelope and mule deer-crucial winter ranges. Fire is an important component of all sagebrush-dominated plant communities. Depending on the nature of the site, the fire return interval can be between 25 and 100 years (Knight 1994).

Basin Big Sagebrush. Basin big sagebrush is found in moderately deep to deep soils of all soil textures in zones of 10 to 16 inches of annual precipitation (Beetle 1960). It occurs as pockets within Wyoming big sagebrush and Gardner saltbush communities, as the dominant plant type along valley bottoms and canyons, and along isolated ephemeral washes. This subspecies of big sagebrush may reach 12 feet in height, with canopy cover reaching 70 percent.

Basin big sagebrush can intermix with serviceberry, green and rubber rabbitbrush, snowberry, bitterbrush, silver sagebrush, and mountain mahogany, depending on the soil depth, annual precipitation, and elevation. Grasses occurring in these communities include basin wildrye, green needlegrass, Idaho fescue, thickspike wheatgrass, Kentucky and mutton bluegrass, and bottlebrush squirreltail. Common forbs include bluebells, groundsel, wild onion, violet, buttercup, false dandelion, buckwheat, penstemon, Indian paintbrush, globemallow, and prickly pear cactus.

Basin big sagebrush is not a very palatable forage, usually showing little or no use, even in extreme winters when use levels of other plants are severe. It is important, however, as hiding and thermal cover for mule deer and elk and as habitat for other wildlife species. In some areas, it also provides critical winter habitat for greater sage-grouse when snow covers most other shrubs. Basin big sagebrush often increases in density and cover with livestock overgrazing and interruptions in the fire cycle. To increase diversity in basin big sagebrush, prescribed fires and chemical and mechanical treatments are employed, resulting in increases of grasses and other understory plants.

Mountain Big Sagebrush/Grassland. Mountain big sagebrush is located in shallow to moderately deep soils at elevations above 6,500 feet, in 12- to 20-inch annual precipitation zones. Mountain big sagebrush also occurs as smaller plant communities at the lower mountain elevations, and intermixes with aspen and conifer woodlands at the periphery of mountain ranges. Shrub height varies from 10 to 30 inches, with canopy cover reaching 50 to 60 percent.

Mountain big sagebrush is usually the dominant shrub in foothill and mountain sagebrush communities, with bitterbrush, serviceberry, snowberry, and mountain mahogany providing subdominant brush diversity. Grasses include Idaho fescue; king spike fescue; green and Colombian needle grass; Kentucky, mutton, and big bluegrass; elk sedge; and Ross' sedge. Common forbs found in these areas include Indian paintbrush, globemallow, lupine, larkspur, penstemon, and Oregon grape.

Mountain big sagebrush is palatable to wildlife, although browsing is limited during the winter when these habitats become unavailable due to snow. Following fire, mountain big sagebrush reestablishes as the dominant species more quickly than do other sagebrush types, often providing dense canopy cover after only 20 to 30 years. The natural fire recurrence interval in this sagebrush type is 25 to 75 years.

Saltbush. The saltbush vegetation type is perhaps the most arid vegetation type in the intermountain West (Knight 1994). Gardner saltbush dominates the salt desert shrub community type and, in some instances, comprises up to 90 percent of the vegetation cover. These areas are characterized by accumulations of salt in poorly developed deep soils. Soils in these areas usually have a pH of 7.8 to 9, which restricts the uptake of water by all but the most salt-tolerant plants (halophytes). Soil textures can be sandy loam, sandy clay loam, or loam and clay. Salts accumulate around these plants each year with leaf fall. Halophytes function essentially to redistribute salts from the soil depths to the surface, thereby concentrating salts around the perimeter of the plant. This enables the plant to eliminate competition for scarce water and nutrients from other less salt-tolerant plants (Goodin and Mozafar 1972).

Gardner saltbush normally grows no higher that 12 inches and may grow along the ground, forming a mat. Subdominant shrubs include birdfoot sagebrush, bud sagebrush, spiny hopsage, greasewood, broom snakeweed, shadescale, basin big sagebrush, rabbitbrush, and winterfat. Grasses associated with these

sites are Indian ricegrass, bottlebrush squirreltail, Sandberg bluegrass, and western wheatgrass. Forbs found in these areas include wild onion, biscuit-root, woody aster, globemallow, halogeton, and prickly pear cactus.

In the RMPPA, saltbush covers 32.9 percent of the land managed by BLM and is primarily located in the north central portion of the RMPPA. Saltbush shrublands occur at elevations between 6,000 and 7,600 feet within the lowest precipitation areas of the RMPPA. These areas are typically flat or rolling hills. Excellent examples of this vegetation type exist in the Powder Wash area. Gardner saltbush is a valuable forage species on winter and spring ranges. In the spring, Gardner saltbush has higher protein concentrations than does late season alfalfa, and is a preferred livestock forage for lambing sheep and calving cattle.

Salt Desert Shrub. Salt desert shrublands are characterized by drought tolerant shrubs, with few grasses and forbs in the understory. The soils of these areas are shallow saline clays and loams. Typical shrubs in these vegetation types are shadescale, four-wing saltbush, spiny hopsage, greasewood, winterfat, broom snakeweed and bud sagebrush. Big sagebrush and rabbitbrush occur in looser and rockier soils and are much less abundant than in the other desert shrub types. Juniper is occasionally found on the lee side of rocky hills and ridges. Understory vegetation includes globemallow, wild parsley, prickly pear cactus, bluebunch wheatgrass, needle-and-thread and Indian ricegrass.

The topography of these areas is rough with steeply sloped hills, canyons and rock escarpments. These areas are often important winter ranges for wildlife and livestock, as they provide forage that is not buried in snow, and the shrubs and rough topography provide cover from wind and predators. The forage of these areas is excellent in the winter, as these shrubs maintain relatively high levels of protein and carbohydrates. This vegetation cover type occurs on 0.3 percent of the lands managed by BLM and is located along the Wyoming border in the western quarter of the RMPPA.

Forests and Woodlands

Forest and woodland vegetation is primarily comprised of ponderosa pine, Douglas fir, mixed spruce-fir, lodgepole pine, aspen, and pinyon-juniper woodland. Forested areas within the RMPPA are mainly located within 3 mountainous areas: Diamond Peak, Middle Mountains and Douglas Mountain. There are also a number of forested areas located on the fringe of USDA Forest Service boundaries (Map 10). Acreage of forest within the RMPPA is small when compared with the total area. Forested lands managed by the BLM within the RMPPA total 309,556 acres, or 23.6 percent of the land managed by BLM and 33.1 percent of the overall RMPPA (Table 3-9).

Ponderosa Pine. Ponderosa pine occurs on the higher mesas and mountains of the planning area from approximately 6,000 feet to 8,000 feet in elevation. As with lodgepole pine, Ponderosa pine within the RMPPA is currently susceptible to pine beetle infestation.

Douglas fir. This forest type is generally found in association with lodgepole pine on the lower-elevation mountainous areas. Many of these trees are residual trees from prior stands.

Mixed Conifer. The major species component of the mixed conifer type is subalpine fir, with occasional Engelmann spruce. This forest type is even-aged and fairly young, considering the longevity of Engelmann spruce and subalpine fir. Spruce-fir exists as small, isolated stands away from the large acreages of dense lodgepole pine and has the same date of origin as its neighboring stands. Old, remnant lodgepole pine trees are not found within the spruce-fir stands. The occurrence of the spruce-fir forest type is probably a result of less intense wildfire and an available seed source. There is also an established understory (more than 50 trees per acre) of young subalpine fir seedlings and/or saplings in a portion of

the lodgepole pine and aspen forest. These forested areas will convert to subalpine fir forests, but this process may take 100 years or more and will only occur absent wildfires.

Lodgepole Pine. This forest type is the result of past, stand-replacing wildfires, dating from the 1860s to the 1910s. This forest type is generally healthy, but will decline in vigor and productivity as the forest becomes over-mature. In addition, there are some insect and disease concerns that may compromise future health. Infestations of pine beetle and dwarf mistletoe are apparent. Current age class distribution is heavily unbalanced to the mature age class, reflecting the long period since the last fires. Another concern is the present lack of late-successional lodgepole pine forests. Any future wildfire disturbance has the risk of reverting the entire forest type back to early-successional forests.

Aspen. The aspen forest type, like the spruce-fir type, is not well represented in the area. Because aspen are found primarily on steep, rocky slopes or in low wet areas, opportunities for management are limited. In addition, conifer invasion is occurring in most of the aspen stands, which could result in further reductions in aspen presence. Barring any major surface disturbance (e.g., fire, mechanical treatment), the majority of the aspen stands will eventually be replaced by conifers. However, this conversion is not anticipated to occur within the next 20 years. Aspen is a minor component in more than one-third of the lodgepole pine stands. Removal of the conifers would promote aspen regeneration.

Pinyon-Juniper Woodlands. Consisting of approximately 261,000 acres, pinyon and juniper are the climax species within the 6,000 to 8,000 foot zone, with the majority of stands being old growth. This is evidenced by a lack of understory and suppressed reproduction. Many of the woodlands exhibit a greater dominance of juniper than pinyon with many communities entirely dominated by juniper. Juniper has strong allelopathic effects that suppress shrub and grass presence. These effects become greater as the stands age. The more dense woodlands are found mainly at the intermediate elevations where precipitation averages 12 to 14 inches per year. The distribution and character of these woodlands are influenced by fire more than any other factor. As such, areas where old growth stands are to be expected are on steep, rocky slopes that are naturally protected from fire. In many areas, lack of fire has resulted in dense, continuous stands with little diversity that are actively expanding into adjacent shrub and grass lands. Historical evidence suggests that, under natural fire regimes, juniper and pinyon-juniper woodlands on low slopes should contain a variety of age classes, 5 to 20 acre openings within continuous stands, and dynamic boundaries (shifting either way) with neighboring shrub and grass communities. Active management of these communities through fire-use wildfire, prescribed burning, and mechanical treatments can promote increased diversity and resilience within these woodlands as well as in adjacent plant communities.

Riparian Areas and Wetlands

Riparian-wetland areas (Map 10) are the “green zones,” or the links, between aquatic environments and upland, terrestrial ecosystems (Lewis 2003). These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water. Examples of riparian areas include lands along perennially and intermittently flowing rivers and streams and the shores of lakes and reservoirs with stable water levels (Brimson 2001). The numerous springs and seeps throughout the RMPPA also have associated riparian and wetland areas. Even though riparian and wetland areas occupy only a small percentage of land, these areas provide a wide range of functions critical to many different wildlife species, water quality, scenery, and recreation (Brimson 2001). The distribution of riparian areas and wetlands are documented on GAP vegetation maps, National Wetland Inventory maps or on RMPPA-specific maps of lentic and lotic resources. The GAP vegetation cover types associated with riparian and wetlands areas are grass/forb dominated wetland, forested wetlands, and shrub dominated wetlands. These areas are shown on Map 10 as riparian herbaceous and riparian shrub/tree vegetation zones to the

extent they have been documented. The 6,825 acres of riparian and wetland areas managed by the BLM occur primarily in the Vermillion Creek and Little Snake River drainages.

Information on the condition of specific riparian-wetland resources is available as part of the LHAs. In these assessments, riparian vegetation and wetlands within BLM-administered lands of the RMPPA are evaluated against Standard 2 Appendix A) using data collected from PFC assessments. On the basis of hydrology, vegetation, and erosion/deposition (soils) attributes and processes (Prichard et al. 1999), the PFC assessment places the riparian area in one of four categories: Properly Functioning Condition (PFC), Functional-At-Risk (FAR), Non- Functional (NF), or Unknown. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy during high water flows (Prichard et al 1998). Numerous stream reaches throughout the RMPPA have been evaluated against the PFC criteria. Table 3-10 and Map 11 show the most up-to-date results of PFC assessments of streams within BLM-administered lands of the RMPPA. As shown in this table, 91.12 miles (27 percent) of the 337 miles of streams evaluated on BLM-administered lands exhibit PFC; 159.51 miles (47 percent) are functioning at risk,;24.43 miles (7 percent) are not functioning, and 61.93 miles (18 percent) are unknown. Causal factors for not meeting Standard 2 (Table 3-11) include trampling by elk and cattle, encroachment of invasive plant species such as tamarisk, incised streambeds and unstable stream channels. Other causal factors were either not apparent or may be related to the drought that began in 2000 and has continued through 2004. Many of the sites not meeting Standard 2 are considered close to reaching their potential.

Table 3-10. — Little Snake PFC Assessment (as of 2004)

Riparian Name	Assessment Rating (in miles)			
	PFC	FAR	NF	Unknown
Axial Landscape Area				
Box Elder Gulch	2.63	2.95		3.43
Horse Gulch		2.48		1.21
Jesse Gulch	2.37	1.85	0.31	0.12
Maudlin Gulch	2.73	6.98		
Milk Creek		1.88		0.26
Morgan Gulch	4.90	0.56		
Sand Springs Gulch		2.46		
Temple Gulch		3.17		1.99
Yampa River	4.23	4.95	12.72	0.17
Total	**16.86**	**27.28**	**13.03**	**7.18**
Boone Draw Landscape Area				
Vermillion Creek		0.02		

Table 3-10 cont'd. — Little Snake PFC Assessment (as of 2004)

Riparian Name	Assessment Rating (in miles)			
	PFC	FAR	NF	Unknown
Cold Springs Mountain Landscape Area				
Two Bar Creek				0.34
Beaver Creek	5.32	0.33		
Canyon Creek	7.69			
Fisher Creek		0.39		1.23
N.S. Creek	1.08	2.22		
Talamantes Creek		2.19		
Vermillion Creek	14.12	13.07		0.30
Total	28.21	18.20		1.87
Douglas Mountain Landscape Area				
Yampa River		0.12		
Dry Creek Landscape Area				
Dry Creek				22.46
Shell Creek		6.91		7.78
Vermillion Creek	11.86	7.37		0.10
Total	**11.86**	**14.28**		**30.34**
Green River Landscape Area				
Vermillion Creek		3.24		
Great Divide Landscape Area				
Big Gulch				1.09
Little Snake River Landscape Area				
Little Snake River	7.38	6.86	0.51	0.10
Pole Gulch Landscape Area				
East Timberlake Creek	0.68	1.82		
Four Mile Creek	0.40	4.67		0.34
Mud Spring Draw	2.58	1.80		
Pole Gulch	1.52	6.01		2.52
South Fork Four Mile Creek				3.41
Timberlake Creek Tributary		0.51	0.37	
Timberlake Creek	2.80	4.03		
Tributary to Martin Cull Reservoir				0.77
Woodbury Gulch		0.05		
Total	**7.98**	**18.89**	**0.37**	**7.04**

Table 3-10 cont'd. — Little Snake PFC Assessment (as of 2004)

Riparian Name	Assessment Rating (in miles)			
	PFC	FAR	NF	Unknown
Powder Wash Landscape Area				
Big Hole Gulch	1.06	4.86	0.93	2.48
CSU Exclosure (lentic draw)	1.03			
Little Snake River	0.38	7.91		0.07
Scandinavian Gulch			5.32	2.33
Thornburg Gulch		0.70		0.78
Woodbury Gulch		3.99	0.62	
Total	**2.47**	**17.46**	**6.87**	**5.66**
Sand Hills Landscape Area				
Bob Hughes Creek		1.37		
Deception Creek		0.65		
Yampa River	3.48	1.87		1.18
Total	**3.48**	**3.89**		**1.18**
Sand Wash Landscape Area				
Little Snake River	2.93	1.31		0.15
Slater Landscape Area				
Cantling Creek Headwater 1		0.49	0.30	
Cantling Creek Headwater 2		3.45		
Cantling Creek Tributary 1		0.94		
Cantling Creek Tributary 2		1.09	0.14	
Deadman Draw		0.34		
First Creek	0.39	1.06		0.27
Fly Creek		2.67	0.95	
Government Corral Creek		0.65		
Johnson Creek				0.02
Little Snake River	0.49			
Mule Creek		0.22		0.77
Roaring Fork Slater Creek				0.10
South Fork First Creek	0.56	1.11		
Second Creek				0.29

Table 3-10 cont'd. — Little Snake PFC Assessment (as of 2004)

Riparian Name	Assessment Rating (in miles)			
	PFC	FAR	NF	Unknown
Slater Creek		0.87		
South Fork Little Snake River		1.46		
Willow Creek (gold blossom)	0.49	0.22		
Willow Creek (four mile)	3.68	13.05		0.31
Willow Creek Tributary 1		0.72		
Willow Creek Tributary 2	0.33			
Total	**5.94**	**28.34**	**1.39**	**1.76**
Spring Creek Landscape Area				
Browse Spring Draw	0.15			
Chase Spring Draw		0.37		
Sand Creek		5.96		
Spring Creek	0.95	0.77	0.86	
West Fork Sand Creek		1.21	1.01	
Willow Creek				1.37
Yampa River	0.25			0.12
Total	**1.35**	**8.31**	**1.87**	**1.49**
Steamboat Lake Landscape Area				
Beaver Creek		0.43		
Deep Creek				0.03
Red Creek		1.65		0.07
Taylor Canyon	0.93			
Unnamed Tributary to Steamboat Lake			0.39	
Willow Creek		2.74		
Total	**0.93**	**4.82**	**0.39**	**0.10**
Williams Fork Landscape Area				
Berry Gulch		0.91		
Castor Gulch				1.56
Deal Gulch		0.61		
Deer Creek		0.22		
Horse Gulch		1.20		
Jeffway Gulch		0.86		
Long Gulch				1.22

Table 3-10 cont'd. — Little Snake PFC Assessment (as of 2004)

Riparian Name	Assessment Rating (in miles)			
	PFC	FAR	NF	Unknown
Spring Gulch		0.87		
Sulphur Gulch	1.05			
Unnamed Tributary to Williams Fork River				0.80
Ute Gulch				0.27
Williams Fork River				0.12
Total	**1.05**	**4.67**		**3.97**
Total Assessment Ratings				
Total	**91.12**	**159.51**	**24.43**	**61.93**

The PFC assessments supplement existing stream channel and riparian evaluations and assessments. The Riparian-Wetland Initiative for the 1990's (BLM 1991) and the Colorado Standards for Public Land Health (Appendix A) establish goals and objectives for managing riparian-wetland resources. The ecological condition of riparian-wetland vegetation communities is determined by using BLM's ecological site inventory procedures. Ecological Site Inventory (ESI) is a classification tool that includes riparian and wetland areas (Leonard et al. 1992). Using these data and information from earlier evaluations, BLM protects riparian and wetland areas in accordance with RMP objectives, in cooperation with Colorado Natural Area programs and other interested parties.

Stream reaches determined to be not functioning or functioning at risk are managed by BLM to meet or exceed Standard 2. If livestock are determined to be a causative factor, the BLM must implement management changes to improve the stream reach within one year. When other factors such as OHV use or wildlife are compromising PFC, more collaborative approaches must be used. Management of vegetation resources, including riparian and wetland areas, is designed to enhance and maintain sustainable ecological condition within plant communities.

Table 3-11. —Causal Factors Noted in Landscape Assessments

Landscape/Riparian Name	Causal Factor
Cold Springs Mountain Landscape Area	
Vermillion Creek	Incised channel; lack of active floodplain.
Canyon Creek	Incised channel; series of headcuts on Reach 3.
Talamantes Creek	Reach 1—Lack of active floodplain. Reach 2—Narrow leaf cottonwoods on were decadent and not regenerating.
N.S. Creek	Reach 1—Large headcuts and wide streambed in places with insufficient vegetation to protect against erosion. Reach 5—Moderate hoof action, causing soil heaving; some heavy grazing by cattle and elk on the sedges.
Lentic Areas	Hoof action by cattle and/or elk; some soil compaction and frost heaving that allows excessive overland flow that could create channelization.
Douglas Mountain Landscape Area	Severe trampling by elk; insufficient water to support riparian system.
Dry Creek Landscape Area	Marginal and fragmented riparian resources due to stream incisement along lower Dry Creek and in portions of Shell Creek.
Dry Creek	Incised channel along some segments; limited access to floodplain. Cattle trails across floodplain has channelized water and created small headcuts.
Shell Creek	Stream flow begins to collect and channel on the downstream side of the alluvial fans, causing deep headcuts into incised stream channels. If these headcuts continue upstream and cut through the alluvial fans filling the valley, a continuous incised stream channel could develop and lower the ground water table.
Pole Gulch Landscape Area	
Four Mile Creek	Deeply entrenched in alluvium materials within Reaches 2, 3 and 4. Erosion of this alluvium material is excessive from terrace bank sloughing, soil piping and tributary drainage through the alluvium breaks. Reach 2—Lack of diversity and density of streambank vegetation. Trampling of streambanks and point bars by cattle. Reach 4—Lack of access to active floodplain. Reach 3—Sloughing high terrace banks, streambank erosion, sheared point bars and a wide stream channel.
Timberlake Creek	Reach 2—excessive livestock grazing.
East Timberlake Creek	Reach 3, 5, and 7—lack of contact with water table.
Mud Spring Draw	Headcuts and incised channels.
Lentic Areas	Drying trend that has affected riparian vegetation on many sites. These sites show increased susceptibility to overland flows and grazing impacts. Grazing impacts include hoof shear, over utilization, soil compaction, and frost heaving, which inhibits plant growth and streambank stabilization.
Powder Wash Landscape Area	Fluctuating water levels and over utilization by livestock and wildlife.
Little Snake River	Presence of tamarisk; livestock grazing; heavy use by pronghorn, antelope, mule deer, and elk.
Bighole Gulch	Invasion of noxious weeds; over utilization by livestock and elk.
Lentic Areas	Heavy trampling associated with livestock use.

Table 3-11 cont'd. —Causal Factors Noted in Landscape Assessments

Landscape/Riparian Name	Causal Factor
Sand Hills Landscape Area	
Yampa River	Proliferation of tamarisk; heavy wildlife browsing. Reach 1—streambank instability on north side of river.
Crooked Wash	High salt content of the soils and/or the water source that restricts riparian plant growth.
Lentic Areas	Trampling caused by wildlife and livestock in pursuit of water.
Sand Wash Landscape Area	An arid environment lacking free water, sandy channel and streambank materials, and salts originating from geologic materials limit the capability of the watershed to support diverse and extensive riparian systems.
Little Snake River	Reach 1—sheared and scoured streambanks from river flow; presence of weedy species (tamarisk, whitetop, poverty weed and wild licorice). Reach 2—discontinuous active floodplain. Reach 5—sheared streambanks that do not support sufficient hydric species to stabilize them from the receding high water flows. Factors such as water diversions and bedload are out of BLM management control.

3.1.5.2 Characterization

Indicators for rangeland, shrubland, and forest/woodland communities are the degree to which noxious weeds and undesirable species are present; the distribution, density, composition and frequency of native plant species relative to adequate reproductive capability and sustainability; the presence of mixed age classes sufficient to sustain populations in spite of recruitment and mortality fluctuations; evident photosynthetic activity; diversity and density in balance with landscape potential and exhibiting resilience to human activities; the presence of appropriate accumulation and distribution of plant litter, and the presence of several plant communities in various successional stages and patterns. These are the indicators associated with Standard 3. Other indicators for forests and woodlands include mortality rate, insect and disease, forest type conversion and fuel loading. Riparian-wetland areas are subject to Standard 2, which shares many of these same indicators, but also emphasizes the vertical structure of the community. Indicators include a species composition that is indicative of high water tables and able to withstand high streamflow events; the distribution of vegetation relative to point bars, active floodplains, sediment capture and flood energy dissipation; and the presence of woody debris in stream channels.

The density and cover of shrubby vegetation have consistently increased in rangelands throughout the Rocky Mountain West since the onset of wildfire control and livestock grazing in the late 19th century. This is most commonly observed in big sagebrush vegetation types (Beetle and Johnson 1982), and is apparent in much of the RMPPA. Trends in the percentage of desirable species present in the RMPPA rangeland communities are mixed, with many areas in stasis, some areas with increases in desirable species, and other areas with decreases in desirable species and increases in undesirable species. Within the RMPPA, especially in the last ten years, there has been an increase in noxious and invasive weeds, including salt cedar (tamarisk), halogeton, Russian thistle, Canada thistle and cheatgrass. These problems are most evident in the oil and gas production fields and other locations where native vegetation has been disturbed. Trends in rangeland health are managed by adjusting livestock, recreation, wild horse, and wildlife usage, as well as by controlled burns, brush beatings and weed control. These actions manipulate plant composition with the goal of maintaining desirable plant species and communities that, on average, represent mid to upper seral stages of development.

The condition or health of forest stands varies by location. However, the general absence of large fires over the past 80 years has made forests more susceptible to disease such as dwarf mistletoe and mountain pine beetle infestations, as well as newly introduced diseases such as white pine blister rust, which has increased the amount of dead wood on the forest floor. In addition, species such as lodgepole pine have not experienced the natural regenerative properties of fire. Conifers are encroaching on aspen stands, limiting aspen regeneration. The disease known as bleeding rust is currently killing the older mature aspen clones. There has also been a decline in timber harvesting over the past decade, allowing for additional buildup of overall biomass. Forested areas near Dinosaur National Park, some of which are in WSAs, contain ponderosa pine stands with considerable fuel buildup. Three of these WSAs, West Cold Spring, Cross Mountain, and Diamond Break also suffer from pinyon-juniper encroachment.

Riparian and wetland condition in many areas of the RMPPA has been improved through adjustment and implementation of grazing systems. Monitoring data such as utilization, photo-points, and general observations, along with LHAs, indicate that riparian and wetland conditions in many areas is improving and progress is being made in meeting land health standards. However, in some riparian-wetland areas, some issues remain. Wildlife and livestock concentrations and high forage utilization rates have led to the development of small hummocks that eventually alter surface flow patterns. Increased soil compaction of moist soils increases surface runoff and damages the riparian system. Lotic (flowing water) riparian areas with headcuts can lead to excessive drainage out of the system, decreasing the capability of the system. Fluctuating water levels due to climatic conditions and water diversions contribute to these areas in not meeting Standard 2. An arid environment, lacking free water, sandy channel and streambank materials, and salts originating from geologic materials limit the capability of the some watersheds to support diverse and extensive riparian systems.

Because plant communities respond to other environmental influences, such as wildlife and livestock foraging, drought, disease, wildfire and prescribed burns, it is difficult to forecast their health. Where BLM has primary authority to manage livestock grazing, and grazing is the primary activity potentially diminishing vegetation health, BLM will continue to act to restore the health of plant communities through managing for desired plant communities (DPC) and/or adjusting the number and seasonal distribution of AUMs. Where other agencies or private landowners share or have primary authority over factors causing the decline of vegetation health, the forecast is less clear because the situation is more complex. At best, resolution of landscape health issues is likely to progress slowly over the planning period.

3.1.6 Fish and Wildlife Habitat

Animals represent the top of the ecological pyramid. The types of animals present in various plant communities reflect the plant community type and health. Animals are interrelated in a complex food web that is supported at the base level by animals that eat plants (herbivorous). Other animals may eat both plants and meat (omnivorous), or meat exclusively (carnivorous). People participate in this food web as omnivores.

The aquatic and terrestrial animal resources within the RMPPA include fish and wildlife and their habitats. While the U.S. Fish and Wildlife Service (USFWS) and the Colorado Division of Wildlife (CDOW) are directly responsible for the management of fish and wildlife species, BLM is responsible for land management. Therefore, on the lands under their purview, BLM is directly responsible for the management of habitat for fish and wildlife species, and indirectly responsible for the health and well being of fish and wildlife populations that are supported by the habitats that public lands provide. In addition, BLM is mandated to ensure that special status species are protected, by virtue of the Endangered Species Act (ESA) and the BLM's Land Use Planning Handbook (BLM 2004). This goal is furthered through a Memorandum of Agreement (MOA) with the USFWS and the USDA Forest Service.

The fish and wildlife habitats provided by BLM-administered lands have largely been characterized in other chapters of this document through discussions of the air quality, water, soil, and vegetation within the RMPPA. The discussions of aquatic and terrestrial habitat below identify attributes of these resources that are particularly important to their role in providing fish and wildlife habitat.

3.1.6.1 Current Conditions

The discussion of fish and wildlife populations and habitat addresses the entire RMPPA, not just the lands managed by BLM, because fish and wildlife are mobile creatures that, even if not documented on BLM-administered lands, may readily move to such lands from nearby areas within the RMPPA. The species discussed characterize the fish and wildlife resources of the RMPPA, but emphasize those taxa that are of most importance to BLM in their land management, either because they are game species, are species that occur in concentrated areas where they might be vulnerable to impacts, or because they are special status species (Table 3-12). The special status species listed in Table 3-12 are discussed in Section 3.1.7 below.

Table 3-12. — Fish and Wildlife Species of Primary Interest in BLM's Environmental Planning

Species	Rationale for Key Designation
Fish	
bonytail chub	Federal Endangered Species[\1]
cold water gamefish	Recreational value
Colorado River cutthroat trout	State Species of Concern; BLM Sensitive Species[\1]
Colorado roundtail chub	State Species of Concern; BLM Sensitive Species[\1]
humpback chub	Federal Endangered Species[\1]
mountain sucker	State Species of Concern; BLM Sensitive Species[\1]
pike minnow	Federal Endangered Species[\1]
razorback sucker	Federal Endangered Species[\1]
warm water gamefish	Recreational value
Amphibians	
boreal toad	Federal Candidate Species[\1]
Great Basin spadefoot	State Species of Concern; BLM Sensitive Species[\1]
northern leopard frog	State Species of Concern; BLM Sensitive Species[\1]
Reptiles	
midget faded rattlesnake	State Species of Concern; BLM Sensitive Species[\1]
Birds	
American white pelican	BLM Sensitive Species[\1]; utilizes concentrated nesting and foraging areas
bald eagle	Federal Threatened Species; State Threatened Species[\1]
Barrow's goldeneye	BLM Sensitive Species[\1]
black tern	BLM Sensitive Species[\1]
burrowing owl	State Threatened Species[\1]
Columbian sharp-tailed grouse	State Species of Concern; BLM Sensitive Species[\1]
ferruginous hawk	State Species of Concern; BLM Sensitive Species[\1]
geese	High economic and recreational value
golden eagle	High interest; protected by law; high similarity to immature bald eagles, which are Federally listed

Table 3-12 cont'd. — Fish and Wildlife Species of Primary Interest in BLM's Environmental Planning

Species	Rationale for Key Designation
great blue heron	Utilizes concentrated nesting areas
greater sage-grouse	State Species of Concern[1]; BLM Sensitive Species[1]; high interest
long-billed curlew	State Species of Concern; BLM Sensitive Species[1]
Mexican spotted owl	Federal Threatened Species; State Threatened Species[1]
mountain plover	State Species of Concern; BLM Sensitive Species[1]
northern goshawk	State Species of Concern; BLM Sensitive Species[1]
other raptors, including osprey, prairie falcon, Cooper's hawk, Swainson's hawk	High interest; top of food chain species
peregrine falcon	State Species of Concern[1]; high interest; protected by law; recently delisted
sandhill crane	State Species of Concern[1]; Utilizes concentrated nesting and foraging areas; may be associated with Federally listed whooping crane
turkey	High recreational value
white-faced ibis	BLM Sensitive Species[1]
yellow-billed cuckoo	Federal Candidate Species; State Species of Concern; BLM Sensitive Species[1]
Mammals	
bighorn	High economic and recreational value
black bear	High interest; economic and recreational value
black-footed ferret	Federal Endangered Species; State Endangered Species[1]
elk	High economic and recreational value
gray wolf	Federal Endangered Species; State Endangered Species[1]
kit fox	State Endangered Species[1]
Canada lynx	Federal Threatened Species; State Threatened Species[1]
moose	High interest; economic and recreational value
mountain lion	High interest; economic and recreational value; top of food chain species
mule deer	High economic and recreational value
pronghorn	High economic and recreational value
river otter	State Threatened Species[1]
swift fox	State Species of Concern[1]
Townsend's big-eared bat	State Species of Concern; BLM Sensitive Species[1]
white-tailed prairie dog	High interest; association with Federally listed black-footed ferret
wolverine	State Endangered Species[1]

[1] These species are discussed in Section 3.1.7 on special status species.

Fish and wildlife habitat within the RMPPA consists of 3,844,006 acres of terrestrial uplands and 18,761 acres of riparian/wetland systems. Of these, 1,299,654 acres of uplands and 6,825 acres of riparian/wetlands are managed by BLM. Within these areas, the presence and interspersion of many habitat types support a large number of wildlife species. The extreme northwest corner of the RMPPA, including Cross Mountain, Douglas Mountain, Diamond Breaks, Cold Spring Mountain, Diamond Peak, and Middle Mountain, remains relatively undisturbed and supports a highly diverse ecosystem. Elk, mule deer, pronghorn, bighorn sheep, mountain lion, raptors, and many nongame species, including migratory birds, are in abundance. The diversity and populations of fish and wildlife throughout the RMPPA provide considerable recreational opportunity and economic benefit. A minimum of 68 species of mammals, 189 species of birds, 22 species of amphibians and reptiles, and 22 species of fish occur

regularly in the RMPPA (BLM 1989). Most of the discussion that follows is based on BLM GIS data, CDOW GIS data, and BLM LHAs.

Aquatic Resources

Aquatic Habitat

Aquatic habitats in the RMPPA include both lentic (still, as in ponds and lakes) and lotic (moving, as in streams and rivers) resources. However, these are not abundant and are widely dispersed. Among the planned actions stated in the 1989 Little Snake ROD was the completion of aquatic surveys on 3,400 acres of known aquatic wildlife habitat (3,000 acres of riparian and 400 acres of wetland).

While some of the major lentic habitats in the RMPPA have been mapped and digitized, much of the area to be surveyed remains yet to be addressed. To date, less than 0.02 percent of the RMPPA has been mapped as lentic habitat. As of 2004, the 294 acres of lentic habitat mapped within the RMPPA were found primarily on BLM or BLM/LU managed land. Most of the areas mapped lie in the center and western end of the northern half of the RMPPA. Only 33 percent of the mapped lentic habitats exceed 0.5 acres in size and are likely to retain sufficient water to support aquatic species. The RMPPA has not yet been addressed by the National Wetlands Inventory.

Many of the lotic habitats within the RMPPA have been mapped. The numerous reaches of the Beaver Creek, Bighole Gulch, Boxelder Gulch, Canyon Creek, Dry Creek, Horse Gulch, Little Snake River, Maudlin Gulch, Morgan Gulch, Pole Gulch, Sand Creek, Scandinavian Gulch, Shell Creek, Vermillion Creek, Willow Creek, and Yampa River systems comprise 66 percent (274 miles) of the 372 river/stream miles mapped to date in the RMPPA. Not all of these reaches provide perennial aquatic habitats, however. CDOW has identified stream reaches that provide habitat for native fish species and are perennial within the RMPPA. These reaches in the central and western portion of the RMPPA include parts of the following streams: Bear Creek, Beaver Creek, Deer Creek, Elkhead Creek (#1, #2, #3), Fortification Creek, Fourmile Creek, Good Spring Creek, Green River, Indian Run, Jokodowski Creek, Little Snake River, Milk Creek, Morapos Creek, Poose Creek (#1), Slater Creek (#1, #2), Stinking Gulch, Torso Creek, Vermillion Creek, Williams Fork, Willow Creek, and Yampa River. In the eastern portion of the RMPPA, creeks containing perennial reaches and native habitat are more numerous, but most are updrainage of lands managed by BLM. The reaches with perennial, aquatic habitats on BLM land that are limited to relatively short stretches of rivers and streams, including the Little Snake, Williams Fork, and Yampa Rivers; and Beaver, Talamantes, Vermillion, and Willow Creeks (BLM 1989).

Comments in the LHAs regarding aquatic habitat provide the following characterizations:

- Cold Springs
  - Moose are found in the willow stream bottoms.
  - Beaver occupy stream systems at high and low elevations.
  - Changes associated with overgrazing (poor plant composition, overabundance of weedy forb species, lack of herbaceous riparian vegetation, and an increase in upland vegetation species) reduce habitat quality for wildlife, such as brood rearing habitat essential for greater sage-grouse.

- Douglas Mountain
  - Riparian habitats are present but provide little aquatic wildlife habitat.
  - Only Yampa and Little Snake Rivers provide fish habitat.
  - Lentic riparian resources are sparse and highly important to wildlife.

- Some springs are dry; others show signs of severe trampling by elk, particularly where they provide isolated sources of water.

- Dry Creek
  - Vermillion Creek, Dry Creek, and Shell Creek all provide an oasis of important riparian and aquatic habitat for wildlife species in the eastern and northern end of the landscape
  - Riparian areas protect stream banks and fisheries and provide habitat for numerous wildlife species.
  - The beaver dams on Vermillion Creek from the confluence with Shell Creek upstream to the Wyoming State line aid in the retention of water throughout the year.

- Pole Gulch (Fourmile)
  - Timberlake Creek, East Timberlake Creek, Four Mile Creek, Little Snake River, and Mud Spring Draw provide important riparian and aquatic habitat for wildlife species in the eastern and northern end of the landscape.
  - The beaver dams on Timberlake Creek aid in water retention throughout the year.

- Powderwash
  - Over utilization by livestock and wildlife is one of the primary factors that limit lotic riparian health within this watershed.
  - Livestock exclosures likely would not exclude all wildlife use.
  - A decrease in deer and elk numbers would likely have a positive influence on riparian systems by reducing pressure on riparian vegetation.

- Sandhills
  - Wildlife habitat quality is limited by excessive browsing by deer and by high terrace banks along the river in some reaches.
  - Many of the spring sites associated with Cross Mountain are fairly inaccessible to wildlife.
  - Many of the small riparian areas associated with springs show impacts caused by wildlife and livestock in pursuit of water.

- Sandwash
  - No forage utilization problems have been documented in areas vegetated with Baltic rush and inland saltgrass, since these species are not particularly palatable to wildlife and livestock.
  - Most of the hoof disturbance appears to be from wildlife in their pursuit of water.
  - Restricting use of aquatic systems by big game animals may allow the systems to improve the quantity and quality of riparian plants, which may provide benefits to other wildlife species.

Many of these assessments mention locations where overuse of streamside vegetation occurs by terrestrial animals in search of drinking water and succulent forage, but do not provide information on the condition of the habitat used by aquatic organisms such as fish and amphibians. However, it can be inferred that, if vegetation is trampled, cover for aquatic organisms is degraded or removed and water quality is diminished by siltation, elevated organic compounds, and consequent diminished oxygen levels.

Key Aquatic Species

The primary species found in aquatic habitats are invertebrates, fish, and amphibians, although most terrestrial species come to aquatic habitats to drink and/or to use the adjacent riparian habitat.

Invertebrates and aquatic plants provide the foundation of the aquatic food chain in which fish and amphibians, as well as some species of invertebrates, are herbaceous or carnivorous predators. The primary data on aquatic species throughout the RMPPA are collected during PFC surveys, which evaluate whether aquatic organisms and plants appropriate for the site are present, whether invertebrate species are present and what water quality they reflect, and whether fish and algae are also present as part of the evaluation of Standard 5 (water quality). For all 10 landscapes with available data, Standard 5 was met, indicating healthy invertebrate populations and a good aquatic food chain foundation. However, over half of these landscapes do not meet Standard 2 (riparian), which could indicate that improvement in invertebrate habitats is also needed, but do not provide data on particular aquatic species. Game fish are limited primarily to the Yampa River, which supports catfish, pike, and brown trout as well as several species discussed in Section 3.1.7. The Yampa River ranges from poor to average in fisheries quality in the RMPPA, according to the CDOW stream rating (Sealing 1981). Based on CDOW data, brook trout, northern pike, rainbow trout, Colorado cutthroat trout, and suckers occur in Routt County streams and ponds, while rainbow trout, brook trout, and plains killifish occur in Moffat County.

At least 10 species of amphibians occur in or near aquatic and riparian habitats within the RMPPA. CDOW data document the presence of northern chorus frogs and tiger salamanders in both the western and the eastern portion of the RMPPA and woodhouse's toad in the western portion of the RMPPA, and as well as species discussed in Section 3.1.7. These observations are confined to the Green River Drainage, along the Yampa River, and in the Elkhead Drainage.

Terrestrial Resources

Terrestrial Habitats

Terrestrial species use all 15 of the vegetation types discussed in Section 3.1.5 and, except for extreme specialists, tend to respond to the aspect and character of a habitat, or the way it looks (i.e., its physiognomy). Large expanses of the RMPPA support diverse shrub habitats, which are distributed primarily in response to soil type, topography, and moisture. Forest/woodland habitats are comprised of pinyon/juniper woodlands, which occur primarily on south-facing slopes in the western portion of the RMPPA; of aspen on slopes, especially in the eastern end of the RMPPA, but also in small patches on Cold Spring Mountain and Middle Mountain; and of coniferous forests at the higher elevations, especially in the eastern end of the RMPPA, but also on Douglas Mountain. Within the RMPPA boundary, 31 percent of the land is managed by BLM, and of that, 75 percent is shrubland, 2 percent is aspen, and 21 percent is coniferous forest, almost all of which is comprised of pinyon/juniper woodlands.

Key observations made in the LHAs with regard to wildlife habitat and its condition include the following[3]:

- Cold Springs
  - The variety of habitat types is shaped by vegetation, topography, precipitation, and elevation, which ranges from 5,300 feet along the Green River to 9,500 feet at Diamond Peak.
  - Some habitat is fragmented (on a small scale for the size of the landscape) as a result of wildland fires, suppression and restoration efforts on those fires, powerlines, small

[3] *LHAs have not yet been completed on the Axial, Great Divide, Green River, and Williams Fork landscapes; LHA data on Boone Draw have been collected but site analysis is still ongoing; detailed data on Little Snake Gulch, Slater, and Spring Creek LHAs .are not currently available, but all of these LHAs meet the standard for healthy, productive plant and animal communities; a LHA will not be done for the Steamboat Lake landscape because BLM managed parcels there are small and dispersed.*

agricultural fields, oil and gas development, small recreation developments, and a few historic crested wheatgrass seedings.
- Additional habitat fragmentation has resulted from the 352 miles of roads (ranging from 2 lane highways to faint two track routes); increased oil and gas activity in the northwest quarter of the landscape; increased OHV use, especially in the southeast area near Vermillion Creek and the badlands; and increased hunting and other forms of motorized recreation, especially along Cold Springs, Diamond Peak and Middle Mountains.
- Areas with favored browse species, such as mahogany, serviceberry and winterfat, or that are in important big game winter range, had heavier use levels and/or poorer vigor shrubs than areas where these features were lacking or inaccessible due to steep slopes or snow depths.
- In some areas, vegetation has been impacted by wildlife and/or livestock use; taller shrubs on top of Cold Springs Mountain are highlined from past use; aspen regeneration is impacted by elk and livestock grazing; sagebrush in some areas of deer winter range has poor vigor due to consistent heavy use; historic heavy grazing has reduced plant composition, increased weedy forb species, and diminished herbaceous riparian vegetation.
- Cold Springs, Diamond Peak, Skeltzer Draw, Galloway Individual, Three Corners and Beaver Basin Allotments all include significant habitats at higher elevations, including coniferous forest interfaced with areas of aspen, shrubs and meadows.
- Generally, this landscape supports a wide variety of habitats for numerous wildlife species. The trend in potential habitat condition varies across the landscape. Although habitat concerns have been documented at isolated sites, or in individual habitat types, the vast majority of the landscape is providing productive wildlife habitat. This landscape is currently meeting the standard for maintaining productive wildlife communities.

- Douglas Mountain
  - The variety of wildlife habitats includes sagebrush grasslands, sagebrush mixed shrub, mountain shrub, pinyon-juniper, and aspen forests.
  - Wildland fires play an important role in succession and the creation of diverse wildlife habitats.
  - Primary threats to wildlife habitat within this landscape appear to be encroachment of tree species, especially juniper into sagebrush habitats; invasive and noxious weed species, including cheatgrass and leafy spurge; and insect pests, such as the Mormon cricket.
  - The landscape provides diverse habitats for a variety of small mammal species. Rocky slopes with ponderosa pine and juniper provide high quality habitat for several ground and tree squirrel species. Standing dead trees throughout the landscape provide quality habitat for cavity nesting mammals and avian species.
  - This landscape is currently not meeting the standard for healthy plant and animal communities. Although productive resilient wildlife habitat is present at a majority of sites, a few sites or habitat types were below this standard and in addition, the quality of habitat for native plant species was insufficient to meet the standard at 30 percent of the sites evaluated. Failure to meet the standard was primarily due to poor species diversity and community structure, as well as dominance of weeds such as cheatgrass and leafy spurge. One of these sites also failed the criteria for productive diverse wildlife habitat.

- Dry Creek
  - The variety of habitat types is shaped by vegetation, topography, precipitation, and elevation that ranges from 6,500 feet along the Vermillion Creek to 8,100 feet at Lookout

Mountain. Lower elevation habitats range from semi-arid salt desert shrub communities, badlands and greasewood flats, to sagebrush/grass and pinyon/juniper communities.

- The impact of drought, and possibly longer grazing seasons, on grass quantity and production and on shrub vigor and health, especially at lower elevations, has impacted the quality of wildlife habitat. Areas with high quality browse species that are inaccessible due to steep slopes or snow depth are in excellent condition.
- Cheatgrass was recorded on all of the stops during the assessment, but not in any significant amount.
- Wildlife habitat has been impacted by wildland fire, suppression and restoration efforts on those fires, power lines, oil and gas development, small recreation developments, roads, heavy road use and off-road travel, increased hunting, crested wheatgrass seedings, and invasion of cheatgrass and juniper in some areas. These factors have reduced the diversity and extent of native plant species and fragmented existing habitat, but on a small scale relative to the size of the landscape.
- Generally, this landscape supports a wide variety of habitats for numerous wildlife species. In addition, these habitats occur in a variety of successional stages and current resource conditions over the area. Trend in potential habitat condition varies across the landscape. Although habitat concerns have been documented at isolated stops during the land health assessments, the vast majority of the landscape is providing productive wildlife habitat. This landscape is currently meeting the standard for maintaining productive wildlife communities.

- Pole Gulch (Fourmile)
  - Lower elevation habitats range from semi-arid salt desert shrub communities, badlands, and greasewood flats, to sagebrush/grass, pinyon/juniper and sub-alpine communities.
  - The quality and spatial integrity of wildlife habitat have been affected by wildland fire, suppression and restoration efforts on those fires, power lines, oil and gas development, recreation developments, roads, brush beating, crested wheatgrass seedings, and juniper encroachment in sagebrush habitat. The scale of these effects is small relative to the size of the landscape.
  - The health, vigor, and production of perennial grasses and shrubs were generally average to good, resulting in average to good wildlife habitat. Some habitats were in poorer condition than expected due to drought and winter use by mule deer, while other areas were in excellent condition. Those areas in excellent condition contained high quality browse species, but were generally inaccessible due to steep slopes or snow depth.
  - The standard for healthy productive plant and animal communities is not met in this landscape. Even among the majority of sites that had high species diversity, good vigor, and plant composition, some were lacking in grass species. Further, plant communities in six sites had poor species diversity and community structure and/or the presence of weeds. In areas that failed to meet the standard, identified contributing factors were addressed with changes in grazing management when permits were renewed.

- Powderwash
  - The dominant habitat type within the Powderwash landscape is sagebrush/grassland. Other habitat types that are found within the Powderwash landscape include sagebrush mixed shrub, Juniper woodlands, greasewood and riparian.
  - To a limited extent within the landscape, habitat diversity has been increased through use of fire to control encroaching juniper and diversify old even-aged sagebrush stands.
  - A majority of sites had strong leader growth on shrubs, abundant perennial grass seedlings, and good forb diversity, providing productive and resilient wildlife habitat that can sustain healthy populations; although some were trending toward decadent

sagebrush, diminished grass density and weediness. However, poor species diversity and community structure, weed dominance, and loss of resilience in native communities was evidenced in 26% of the sites, causing the standard for healthy productive plant and animal communities to not be met.
- Suitable nesting habitat exists for a variety of nesting songbirds throughout the landscape. All sites visited showed evidence of use by songbirds.

- Sandhills
  - The primary habitat types within this landscape are sagebrush/grass, sagebrush/mixed shrub, and bitterbrush, as well as pinyon/juniper, and mountain shrub.
  - Several decades ago, fire altered the shrub composition of this habitat, reducing bitterbrush, a preferred forage, by over 80 percent in nearly the entire 20 percent of the landscape where it occurred. This habitat impact is still reflected in overuse of the small quantities of bitterbrush that remain.
  - Habitats comprised primarily of sagebrush, forbs, and grasses are generally in good to intermediate condition, but nearly half have been invaded by cheatgrass.
  - Overall, the landscape provides the necessary habitat components to support a diversity of wildlife species with populations within the ecological capability of the habitat types. Problems identified in the landscape included forb absence, low production, low sagebrush vigor, and crested wheatgrass presence—but even so, only one site failed to meet the standard and the landscape overall meets the standard for healthy productive plant and animal communities.
  - The pinyon/juniper and mountain shrub components provide important habitat for neo-tropical migratory birds.

- Sandwash
  - The dominant habitat within the Sandwash landscape is sagebrush/grassland. Pinyon/juniper, sagebrush mixed shrub, greasewood and badlands habitats also occur. Most of these areas provide good habitat for a variety of wildlife species.
  - Where it has occurred on a small scale, fire has been beneficial in turning over older aged juniper and sagebrush habitats, whereas in habitats where fire has been absent juniper has encroached and old even-aged stands of sagebrush have become decadent.
  - Habitats and their use have been impacted by increased OHV use, especially in the Clay Buttes area during the fall hunting season.
  - The shrub, forb, and grass components of these habitats were about half in good and half in marginal condition, with cheatgrass present in significant amounts in over half of the sampled locations. The depressed habitat conditions were attributed to heavy use by livestock and wildlife, drought, and fire suppression.
  - The vast majority of the landscape is providing productive wildlife habitat. This landscape is currently meeting the standard for maintaining productive wildlife communities.

Key Terrestrial Wildlife

The key terrestrial wildlife are primarily reptiles, birds, and mammals (Table 3-12). Adequate populations of terrestrial invertebrates are assumed when populations of the vertebrate groups that prey on invertebrates are healthy. Both the LHAs and GIS data maintained by CDOW provide information on terrestrial wildlife distribution in the RMPPA. In addition, CDOW maintains statistics on big game harvests, recreational use days, and population trends.

Reptiles
At least 12 species of reptiles occur within the resource area. Principal species are the short-horned lizard, northern sagebrush lizard, and prairie rattlesnake. Population numbers are not known. The majority of reptiles occur in lower elevations and in dryer habitats such as sagebrush, greasewood, and pinyon/ juniper (DEIS 1989).

Birds
The key bird species for which habitat is provided in the RMPPA can be separated into four groups: water birds, raptors, grouse and turkeys, and other key bird species. Each of these groups is discussed below.

Water Birds. The key water bird species include white pelicans, great blue herons, and geese. Several additional water bird species are discussed in Section 3.1.7. Use areas within the RMPPA are tracked by CDOW. White pelicans forage in a reach of the upper Yampa River that is south of Steamboat Springs, but do not breed in the RMPPA. Great blue heron foraging areas are especially along the Yampa River, both in its headwaters above Craig and near its confluence with the Little Snake River. Known nesting areas are scattered within these reaches of the Yampa River, and also northwest of Maybell and southwest of Hamilton. The habitat supporting these use areas is primarily, but not exclusively, agricultural land. Canada geese and a few other species winter along the Little Snake River, the Yampa River between Maybell and Dinosaur National Monument, and along the Green River, north of the Canyon of Lodore and in Brown's Park National Wildlife Refuge. Important foraging areas have been identified on the south side of the Yampa River, downstream from Maybell, as well as along reaches of both the Yampa and Little Snake Rivers in this vicinity. Important production areas extend along much of the Yampa, Little Snake, and Green Rivers, with brood concentration areas reflecting the location of the important foraging areas. Molting has been documented along a lower reach of the Little Snake River as well as along the Green River in the same area where the birds winter. With the exception of the agricultural lands surrounding Craig and extending east, most of these streams are flanked by shrublands and, in localized areas, by pinyon/juniper woodland.

Raptors. Raptors in the RMPPA include eagles, falcons, hawks, and owls. Because they are at the top of food chains and therefore present in fewer numbers than their prey, they serve as important indicators of overall ecosystem health. Data are maintained by CDOW on observations of most raptor species and several species are tracked individually.

Of particular note with regard to BLM habitat management policies are the concentrations of raptors (particularly golden eagles) in the Yampa River valley and adjacent uplands between Craig and Maybell, as well as north of Trinchero Creek. Another area frequently used by golden eagles is between the Yampa River and the Williams Fork Mountains, west-southwest of Steamboat Springs.

Accipiters, such as the Cooper's hawk, which are more likely to be found in wooded areas, have been documented primarily in the eastern portion of the RMPPA. Prairie falcon sightings are scattered throughout the RMPPA—in the uplands of the Vermillion Creek, Little Snake River, upper Little Snake River, and Williams Fork drainages. Swainson's hawks have been documented on the broad south slopes of the Vermillion Bluffs, in other locations above the Little Snake River drainage, and in the Elkhead Creek drainage. Active osprey nests have been recorded along the Green River in Browns Park National Wildlife Refuge and an inactive nest is known along the Yampa River in the vicinity of Hayden. The refuge provides the only CDOW documented osprey foraging area in the RMPPA. The habitat supporting these use areas is primarily shrublands, especially the broad expanses of sagebrush and saltbush, as well as the agricultural lands surrounding and extending east from Craig.

The following LHA comments on various raptor species, which include species discussed in Section 3.1.7, confirm the suitability of habitat for raptors:

- Cold Springs—High elevation forested zones provide habitat for nesting raptors, including owls. Badlands country to the northeast and Irish Canyon provide suitable lower elevation raptor nesting habitat. Oil and gas operations have probably affected use of these areas by nesting raptors due to increased human traffic during critical periods over the last 10 years.
- Douglas Mountain—The entire landscape provides nesting and other habitat for a variety of raptor species including golden eagle, Cooper's hawk, northern goshawk, sharp-shinned hawk, red-tailed hawk, and the American kestrel. BLM's database documents few raptor nests and does not reflect the actual number of nests in the landscape. The Yampa River corridor provides winter roosting habitat for bald eagles and feeding territory for peregrine falcon.
- Dry Creek—CDOW census data on raptors documents golden eagle, red-tailed hawk, ferruginous hawk, and prairie falcon nests; raptor nest surveys conducted by BLM wildlife biologists in the last several years show a decline in use of historic nest sites in the northwestern portion of the landscape, likely in response to increased oil and gas activity during critical periods over the last 10 years.
- Pole Gulch (Fourmile)—CDOW records document golden eagle, bald eagle, red-tailed hawk, ferruginous hawk, and Swainson's hawk nests.
- Powderwash—There is suitable nesting habitat for a variety of raptor species including golden eagle, bald eagle, prairie falcon, ferruginous hawk, red-tailed hawk, northern harrier and American kestrel. The primary nesting habitat for these species is along the Little Snake River and in sandstone cliffs throughout the watershed. Secondary nesting habitat can be found in juniper woodlands associated with steep slopes. There is also suitable habitat for the burrowing owl.
- Sandhills—Raptor feeding occurs in all habitat types, and nesting is most prevalent in the pinyon/juniper type.
- Sandwash—Potential nesting habitat for raptor species, including burrowing owls and ferruginous hawks, is widespread although most raptor nest locations (except for golden eagles) are not well documented.

Grouse and Turkeys. The blue grouse, turkey, and two grouse species discussed in Section 3.1.7 occur in the RMPPA. High elevation forested zones in the Cold Springs Landscape provide habitat for nesting blue grouse. An area just outside Dinosaur National Monument on the north slopes of Douglas Mountain has been identified as overall range for turkeys since their release by CDOW in the area. These birds use this entire range during summer and use the northernmost (and lower elevation) portion in winter. Two roost sites have been recorded by CDOW along the boundary of the winter range. The habitat supporting the turkey use areas is pinyon/juniper woodland.

Other Important Bird Species. Various species of migratory birds summer, winter, and/or migrate through the RMPPA. The habitat diversity provided by the broad expanses of sagebrush and saltbush vegetation zones (interspersed with patches of salt desert shrubs, coniferous forest, aspen, and riparian/wetland areas) support numerous species of birds. The most characteristic species include mourning doves, common nighthawks, dusky flycatchers, horned larks, plain titmice, house wrens, sage thrashers, loggerhead shrikes, green-tailed towhees, Brewer's sparrows, and sage sparrows. Species such as killdeer, black-crowned night herons, and yellow warblers breed where habitat is available.

Mammals

The distributions of key mammal species and the locations they use within the RMPPA are also documented by BLM LHA data and CDOW GIS data. The CDOW databases track population trends for selected species, as well. This information is presented below for big game species and other key mammal species.

Big Game Species

The three primary big game species in the RMPPA are elk, mule deer, and pronghorn. Moose and bighorn sheep occur in more limited numbers.

Elk. The overall range of elk occupies the entire RMPPA, except for areas on the east side of Cold Spring and Middle Mountains, which together with the areas east toward Hiawatha and east of the Little Snake River along the Wyoming border are designated as limited use areas. Summer range is found in the higher elevations of Routt National Forest to the east and south within the RMPPA, and in the Vermillion Creek drainage, Dinosaur National Monument, and headwaters of the Little Snake River. Summer concentration areas occupy a portion of the summer range. Production occurs in the best habitats within summer concentration areas, which are especially located on the south side of Cold Spring Mountain, in the drainages of the Little Snake River and, further east, in the drainages of Elk and Elkhead Creeks. These areas are illustrated in Map 12. The major migration corridor shown in this map stretches from the vicinity of Black Mountain to the north of Craig almost to the Little Snake River headwaters.

Nearly all the rest of the RMPPA serves as winter range for elk, with severe winter range extending north from Craig along the lower slopes of the Elkhead Mountains and broadly west from Craig to Dinosaur National Monument. Scattered severe winter range areas are also found east and southeast of Craig and along Douglas Draw in the western portion of the RMPPA. Winter concentration areas occupy portions of severe winter range, but may also extend beyond severe winter range. These winter use areas are illustrated on Map 13. These overall concentration areas are reflected in the highways where elk crossings are noted (Map 12). These are especially along U.S. 40 from east of Craig west to the RMPPA boundary, along SH 13 that travels north and south from Craig, and along SH 318 that trends northwest from Maybell.

The habitat supporting these elk use areas is quite varied. Both forested and shrublands, especially mountain shrub, are used, with summer habitats tending to be more forested areas, and winter habitats tending to be more in shrublands. Production areas are found in both forested areas and shrublands, with cover sometimes provided by trees and sometimes by topography.

Three elk data management units (DAU E-1, E-2, and E-6) represent most of the RMPPA. DAUs E-1 and E-2 are wholly within the RMPPA, with E-1 being north of the Yampa River and west of the Little Snake River (except for the area west of the Green River) and E-2 north of the Yampa River and east of the Little Snake River. DAU E-6 is south of the Yampa River and covers most of the remainder of the RMPPA[4]. As Figure 3-10 shows, elk populations since 1990 have doubled in both DAU E-1 and E-2.

The comments on habitat impacts within many of the Little Snake RMPPA landscapes reflect these extremely high elk populations, as evidenced by the following:

- Cold Springs—Elk numbers in 1990 were about twice the herd objective, but increased hunting has since reduced elk numbers to desired levels that have been stable over the last several years. Cold Springs, Diamond Peak, Skeltzer Draw, Galloway Individual, Three Corners and Beaver

[4] *Population trend data was requested from CDOW for DAU E-6 but not received at the time of publication.*

Basin Allotments include significant habitats at higher elevations where large patches of coniferous forest (including limber pine, subalpine fir, Douglas fir and lodgepole pine) interfaced with areas of aspen, mountain shrubs, high elevation sagebrush steppe, and wet and dry meadows provide excellent habitat for big game species, especially elk and deer, during the spring, summer and fall. Corridors along the Green River and CR 10 usually have less snow pack and provide severe winter range for elk, mule deer, and or pronghorn that is essential for big game during winters with extreme cold or deep snow levels. Changes in big game use patterns, and possibly livestock grazing during critical growth periods, have put pressure on these limited resources in areas north of the Green River in the Spitzie Draw Allotment where important herbaceous vegetation is lacking. Important elk calving areas are associated with aspen stands along Cold Springs, Diamond Peak and Middle Mountains. Both elk and livestock grazing appear to impact young aspen sprouts.

- Douglas Mountain—The landscape provides habitat for elk, mule deer, and pronghorn, with some areas providing habitat for elk throughout the year. BLM manages lands in various parts of the landscape that elk use during mild and average winters. Two areas managed by BLM and mapped by CDOW as elk production areas are critical for elk calving between April 16 and June 30. Severe winter range for elk is located on lands managed by other agencies.
- Dry Creek—The entire landscape provides habitat for elk, mule deer, and/or pronghorn year around, including mild or moderate winters. Sagebrush is in poor vigor due to continuing drought and consistent heavy use by wintering elk and deer, which are increasing to near or above carrying capacity.
- Pole Gulch (Fourmile)—The entire landscape provides habitat for elk, mule deer, and/or pronghorn year around, including mild or moderate winters. Elk and mule deer are increasing and currently are near or above carrying capacity, which is reflected in heavy utilization of shrubs and poor habitat condition.
- Powderwash—Much of the landscape provides habitat for elk in mild winters. High numbers of elk throughout the landscape, especially during winter months, may be having a negative impact on big game habitat.
- Sandhills—Available habitats provide critical winter ranges for elk, mule deer, and pronghorn. Because the bitterbrush habitats have been converted primarily to grasses, large numbers of elk have replaced deer and pronghorn during the winter.
- Sandwash—Increases in numbers of elk in the Seven Mile Ridge area, historically an import area for mule deer and antelope, have severely reduced the quality of severe winter range habitat for both elk and mule deer. Changes in big game use patterns, increases in elk numbers, and possibly livestock grazing during critical growth periods have put more pressure on the limited resources in such areas, where the more shallow snow depths are essential for big game during winters with extreme cold or deep snow levels.

Mule Deer. The overall range of mule deer extends throughout the RMPPA, and nearly all of this range, except a limited use area on the south slopes of Lookout Mountain and the upper Vermillion Creek drainage, serves as summer range (Map 14).

Winter range is primarily west of SH 13, extending south into the Danforth Hills, and to Lone Mountain, with severe winter areas on the west facing slopes just east of SH 13, in the Danforth Hills, and west along and between SH 313 and US 40 (except for Twelvemile Mesa), as well as in the Brown's Park NWR and the Vermillion/Trinchero Creek drainage (Map 15). Winter concentration areas are generally similar, but less extensive, and avoid some of the sagebrush habitat just west of Craig and on the west side of SH 13. Year-round concentration areas, which include rough break country, riparian areas, small

drainages, and large areas of irrigated cropland, are on the south facing slopes of Diamond Peak, Cold Spring Mountain, in the vicinity of Maybell, in the rough country between Baxter Peak and Long Mountain, and on the slopes along the Yampa River northeast and southwest of Craig, as well as east and west of Fortification Creek. Mule deer highway crossing areas are generally the same as those used by elk. Additional short migration corridors have been identified in the Williams Fork River Drainage, above and below Hamilton along SH 789.

Essentially all of the habitats found in the RMPPA are used by mule deer at one time or another. The Canyon of Lodore, the only area in the RMPPA not used by mule deer in any season is vegetated by pinyon/juniper, mountain shrub, and juniper, but topography makes much of this habitat unusable. The areas avoided during summer in the upper reaches of Vermillion Creek and on the southeast side of Vermillion Bluffs are sagebrush or saltbush habitats that are used elsewhere in the RMPPA; these areas are used to a limited extent during winter. Winter habitat extends throughout all of the shrublands in the RMPPA, reaching into some of the pinyon/juniper woodlands that provide available forage. Severe winter areas are in these same habitats, but are at lower elevations. Winter concentration areas tend to be in those severe winter areas having the most accessible and best forage (especially mountain shrub communities) and topography that allows for the best thermal balance.

The primary CDOW data management units for mule deer within the RMPPA are D-1, D-2, and D-7. D-1 and D-2 have the same boundaries as E-1 and E-2 mentioned above for elk (except D-1 includes the area west of the Green River). D-7's boundaries are the same as the boundaries for E-6. Figure 3-11 shows that mule deer populations have declined by about 50 percent in both DAUs D-1 and D-2. In DAU D-7, populations declined by over 50 percent between 1987 and 1993, but have since rebounded to about 70 percent of their 1987 value.

The comments on habitat impacts within many of the RMPPA landscapes reflect the lower mule deer populations, as evidenced by the following[5]:

- Cold Springs—Deer numbers, which were drastically low in the early 1990s, have been stable or increased slightly since then in response to CDOW's restriction on hunting beginning in 1994. Wintering deer numbers are also down for the area, with fewer animals coming in from Utah than what historically occurred. The important south Green River deer winter range sagebrush is in poor vigor due to consistent heavy use by wintering deer.
- Douglas Mountain—Mule deer use portions of the landscape throughout the year. The eastern half of the landscape is used by mule deer during average winters, while the entire landscape may be used by mule deer during the spring, summer and fall. Severe winter range for mule deer is found within the landscape on lands managed by others. Upland soils at all but one of the sites evaluated in this LHA are stable and vegetation at 74 percent of the sites visited met production, vigor, and composition standards, indicating that good habitat is available for mule deer in most locales, although some areas have invasions of weeds and low species diversity.
- Powderwash—Mule deer use the landscape throughout the year. In addition, there is approximately 35,000 acres of severe winter habitat for mule deer within this landscape.
- Sandhills—A fire that occurred several decades ago reduced the bitterbrush by over 80 percent in nearly the entire 20 percent of the landscape where it occurred. Bitterbrush once provided significant winter forage for a large population of mule deer and pronghorn.

[5] *The comments on elk in Cold Springs, Douglas Mountain, Dry Creek, Pole Gulch, Sandhills, and Sandwash also address mule deer.*

Pronghorn. The overall range for pronghorn is somewhat similar to the winter range used by mule deer (Map 16), extending primarily west of SH13. However, overall pronghorn range does not extend as close to stream valleys and avoids the Dry Mountain and Lookout Mountain areas and the south end of Godiva Rim. Generally, the interior of these areas is used in winter, except for the extreme eastern and northwestern areas, Godiva Rim, the southeast side of the Vermillion Bluffs, and the Vermillion Creek drainage. There is a small limited use area northwest of Steamboat Springs. The most important areas for pronghorn in the RMPPA are used by resident populations, and as winter concentration areas and severe winter areas. These areas are on the northeast, east, and southeast slopes of Cold Spring Mountain, the flats north of Douglas Mountain, the lower slopes on the southeast side of Lookout Mountain, the uplands on the east side of the Little Snake River and extending broadly into the flats north of Fortification, and on either side of SH13.

The habitat supporting these use areas is exclusively shrubland and grassland. Areas mentioned above as those not used by pronghorn have these same habitat characteristics but are not used because of topography. Concentration areas, including those used during winter, are found especially in saltbush, but also in sagebrush and mountain shrub habitats. Again, topography is an important determinant of the specific locations that are used within these habitats, since topography determines the locations where wind is able to blow snow off the ground to expose forage. Further, topography also determines the locations where snow is melted most rapidly and pronghorn can maintain the best balance between energy use and intake.

The four CDOW DAUs that represent most of the RMPPA are A-11 (contiguous with D-1), A-9 (largely contiguous with D-2, but including the area between the Yampa River and SH 317), and A-10 and A-34 (which occupy the portions of D-7 that are west and east of CR 57, respectively). As shown in Figure 3-12, between 1993 and 2003 or 2004, the Sand Wash population in A-11 declined about 85 percent, the Great Divide population in A-9 declined by nearly 40 percent, the population in A-10 declined by just over 50 percent, and the population in A-34 declined by just under 50 percent. These are startling numbers for a species that is the only species in its taxonomic family and found nowhere in the world but western North America.

The following comments from the LHAs reflect these low population numbers and provide some information on their causes[6]:

- Cold Springs—Pronghorn numbers are currently lower than those documented in the mid to late 1980s; they have been stable in the area since 1993. Pronghorn use of Cold Springs Mountain has increased slightly over the past few years. Winterfat, saltbush and sagebrush along CR 10 have reduced in vigor due to continuous grazing pressure by both antelope and cattle. Weather events often play a huge role in antelope movement into this area from Wyoming.
- Douglas Mountain—Much of this landscape does not provide suitable habitat for pronghorn, but they use sagebrush grasslands along the lower elevations of this watershed. Pronghorn may use some areas of the watershed during mild or average winters, but there is no severe winter habitat within this landscape for pronghorn.
- Powderwash—Pronghorn use much of the landscape throughout the year. The Little Snake River corridor provides severe winter range habitat for pronghorn. Migration routes between summer and winter habitats are important, and woven wire sheep fence, which is common throughout the landscape, can present a barrier to pronghorn migration.

6 *The comments on elk in Cold Springs, Douglas Mountain, Dry Creek, Pole Gulch, Sandhills, and Sandwash also address pronghorn.*

- Sandhills—A fire that occurred several decades ago destroyed most of the bitterbrush, which once provided significant winter forage for a large population of pronghorn and mule deer.

Moose. Moose occur in both the east and western ends of the Little Snake RMPPA. In the east, they especially occupy Routt National Forest, moving to higher elevations in the summer. However, moose also move from these areas downstream along the Yampa River and up Elkhead Creek, whose headwaters have been designated as a moose concentration area. In the western portion of the RMPPA, moose primarily occupy the area surrounding Cold Spring Mountain. Moose are known to use the Green River, Vermillion Creek, Talamantes Creek and Beaver Creek drainages. Because this is a disjunct population, it remains in largely the same area, during both summer and winter. In the Vermillion Creek/Trinchero Creek drainage, and along the Green River in Browns Park National Wildlife Refuge portion of this use area, concentrations of moose occur.

The habitat supporting moose in the western end of the RMPPA includes sagebrush, saltbush, and mountain shrub shrublands, as well as some willow, pinyon/juniper woodlands, and aspen forests. As mapped, this area is associated more with the road corridors of CR 10N and SH 318 than with the habitats present, which may be an artifact of observer distribution rather than moose distribution.

Bighorn Sheep. Bighorn sheep in the RMPPA occur primarily in the Yampa Canyon, the Canyon of Lodore within Dinosaur National Monument, and in the vicinity of Vermillion Creek and the Green River. Other smaller areas of use have been documented at the periphery of the RMPPA in the Flat Tops to the south and Park Range and Gore Range to the northwest. The bighorn sheep found within the Douglas Mountain Landscape, are limited to lands managed by others. The herd of bighorn sheep which once occupied Cross Mountain Canyon, suffered a complete die off. There are no plans to reestablish a population of bighorn sheep in Cross Mountain Canyon at this time.

The habitat supporting use areas is primarily pinyon/juniper woodlands and adjacent sagebrush and mountain shrub habitat, topography plays the most important role in the locations used within these habitats.

Other Key Mammal Species

Several other key mammal species are found within the RMPPA. These include the black bear, mountain lion, and white-tailed prairie dog, as well as several other species discussed in Section 3.1.7. CDOW GIS data for many of these species are sketchy.

The documented overall range of black bears is primarily in the eastern portion of the RMPPA, east and south of the Yampa River, with summer and fall concentration areas in the headwaters of the Little Snake River near Shield Mountain and east of Steamboat Springs. However, the documented overall range also includes substantial areas in the western portion of the RMPPA, including the north side of the Yampa River (including Dinosaur National Monument and Douglas Mountain), the west side of the Canyon of Lodore, Cold Spring Mountain, and the vicinity of Middle Mountain and Diamond Peak. These areas are managed by the BLM, with the exception of a portion of the north side of the Yampa River, which is in Dinosaur National Monument. The habitats supporting these black bear use areas are primarily pinyon/juniper woodland, and aspen and coniferous forests.

The overall range of the mountain lion is mapped as the entire RMPPA, with the exception of the area north of Middle Mountain along the Colorado State line, and the southeast side of the Vermillion Bluffs. Areas of human conflict with mountain lions have been recorded in the vicinity of Dinosaur National Monument and east of Hamilton. In the case of the Monument, these conflicts probably reflect the

density of people in the area more than the density of mountain lions. Within the RMPPA, all habitats provide habitat for mountain lions. The areas avoided by mountain lion have habitat characteristics that are similar to those used elsewhere, and are thus not avoided on the basis of habitat alone.

White-tailed prairie dog towns, which provide potential habitat for black-footed ferrets are most abundant in the portion of the RMPPA west of SH 13 and north of SH 318 (Map 17). This species is found primarily on lands that contain salt desert shrub habitats. Populations in this area have been kept low due to repeated outbreaks of campestral (sylvatic) plague. White-tailed prairie dog towns create unique vegetative conditions that provide potential habitat for the mountain plovers, black-footed ferrets, and burrowing owls (sensitive species discussed in Section 3.1.7), while reducing the habitat suitability for other species. Many of the prairie dog towns that were active in the early 1990's are no longer active as a result of campestral plague. Such comments are found in the LHAs for Cold Spring, Douglas Mountain, Dry Creek, Powderwash, Sandhills, and Sandwash. White-tailed prairie dog towns are confined to shrublands, and almost exclusively to saltbush habitats, although a few colonies have been mapped in sagebrush or mountain shrub habitats.

3.1.6.2 Characterization

The primary indicators of health of aquatic animals and their habitats on BLM-administered lands are Standards 2 and 5 of the Colorado Standards for Public Land Health, as discussed above. The most detailed information in the 10 available landscape health assessments addresses Standard 2. For the 60 percent of these landscapes that did not meet the standard when assessed, the trends were variable. For some, trend could not be determined, some had an upward trend and some a downward trend. Few were nonfunctioning. The forecast is for an increasing number of upward trends in those stream reaches where livestock use is the causative factor and can be controlled. However, in many stream reaches, wildlife or physical parameters that are beyond BLM's management control are the causative factors. As stated in the Sandwash landscape health assessment: "An arid environment lacking free water, sandy channel and streambank materials, and salts originating from geologic materials limit the capability of the watershed to support diverse and extensive riparian systems…There are factors…such as water diversions and bed load that are out of BLM management control." In these areas the forecast may be for no change or a downward trend.

Primary indicators of health of terrestrial animals are their population numbers, the condition of the individuals that comprise these populations, the age structure represented within the population, and the population's distribution relative to its historic range. These are the types of information that are tracked by CDOW for species of game animals and, increasingly, for key species of non-game animals. BLM, in managing the habitat used by these populations, uses a different set of metrics, such as the condition of shrubs, forbs, and grasses that comprise the habitat used by key animal species. Indicators of condition include estimates of overall vegetative cover, in absolute terms, or using a relative comparison between portions of the habitat that are available and unavailable to foraging animals. The vigor and production of individual plants, and various plant indicators may also be evaluated. In evaluating plant indicators, species composition is assessed (do the species that provide forage or the species that indicate overgrazing predominate?), as is the form of forage plants (do they branch freely or is their growth form clubbed and indicative of heavy feeding by herbivores?). These are the sorts of information that are reflected in the discussions of terrestrial habitat condition. The assessment of Standard 3 considers the presence of noxious weeds and other undesirable species, species composition, species and successional stage diversity, age and spatial distribution, and habitat connectivity and fragmentation for native plant and animal communities.

The current trends exhibited by wildlife habitat have a solid foundation in the LHAs that are being completed for nearly all of the landscapes on BLM-administered land within the RMPPA. Earlier studies

were less comprehensive and much of the current information is qualitative; therefore, trends must be assessed qualitatively as well. Of the 10 landscapes that have been evaluated against Standard 3, seven met the standard guidelines, and three (Douglas Mountain, Pole Gulch [Fourmile], and Powderwash) did not. The reasons for failure to meet this standard, include the following:

- Douglas Mountain—30 percent of sites failed mainly because of over abundance of cheatgrass, presence of leafy spurge, poor grass cover, poor perennial grass diversity and poor sagebrush vigor, and problems with season long grazing use in combination with persistent drought.
- Pole Gulch (Fourmile)—18 percent of sites failed mainly because of poor species diversity/community structure, presence of weeds, loss of vigor in the native plants, fire, and 5 of 6 sites have had grazing management changes within the last permit renewal.
- Powderwash— 26 percent of sites failed mainly because of poor species diversity, high weed dominance and productivity, and low resilience of community due to loss of forbs and perennial grass reflecting past overgrazing exacerbated by drought.

In addition to these specific comparisons against Standard 3, other trends are of significance. Some of these trends can be directly influenced by BLM's management practices, and others can only be indirectly and incompletely influenced by BLM's management of fish and wildlife habitat. The trends of concern include:

- Noxious weeds, particularly leafy spurge and cheatgrass are spreading into the RMPPA
- Only selected raptor species have been monitored with any intensity and currency; many of these upper food chain species are not well documented.
- Elk populations are at extreme highs and are having negative impacts on habitat as well as on other big game herbivores, especially pronghorn and mule deer
- Pronghorn populations are at extreme lows
- White-tailed prairie dog populations are low, primarily due to campestral (sylvatic) plague
- The fragility of the habitats throughout the RMPPA is evidenced by the extremely long recovery required after historic overgrazing and after fires that occurred decades ago. The effects of these actions are still evident within the RMPPA landscapes and are likely exacerbated by drought.
- BLM's land management practices are becoming more consistent, more focused, and more effective, as evidenced by the good information available in the LHA, the National Sage-Grouse Habitat Conservation Strategy, and the Northwest Colorado Greater Sage-Grouse Conservation Plan (developed as a cooperative effort between community members, landowners, local industry, conservation groups, and county, state, and federal agency personnel known collectively as the Northwest Colorado Greater Sage-Grouse Working Group).

Without marked interagency cooperation and adequate funding, the above trends, which are more negative than positive, are likely to continue. To some degree, these trends are a result of natural factors such as drought and disease, which are beyond management or regulatory control. They can, however, be better understood and potentially aided by better data on population trends, better understanding of epidemiology and antidotes, continually improving cooperation among responsible agencies, and increasing engagement of the public. By continuing to collect data in response to the Standards and Guidelines, control livestock use of allotments to sustain habitat health, include protective stipulations in leases and permits for development uses of BLM-administered land, and persistently identify animal

population problems with the appropriate managing agency, BLM can contribute importantly toward improving the trends discussed above.

3.1.7 Special Status Species

Special status species are those plants and animals species having populations that have suffered significant declines. These declines may result from habitat loss, habitat modification, and from changes in competition, predation, or disease. Habitat loss and modification from human activities are the primary causes of declining populations, particularly of species that are highly adapted to specific ecological niches. Such species may or may not be legally protected by federal or state agencies. BLM land management practices are intended to sustain and promote species that are legally protected and prevent species that are not yet legally protected from needing such protection.

3.1.7.1 Current Conditions

Special status species are those species with populations that have declined to the point of substantial federal or state agency concern. Species discussed in this section have been listed by the USFWS, the State of Colorado, and/or placed on the Colorado BLM State Director's Sensitive Species List (Table 3-12). Federal threatened and endangered species and designated critical habitat crucial to species viability are managed by the USFWS in cooperation with other federal agencies to support recovery. For listed species that have not had critical habitat identified and designated, BLM cooperates with the USFWS to determine and manage habitats to support the species. Candidate species are managed to maintain viable populations, thereby preventing federal listing from occurring. Species identified by the State of Colorado and Colorado BLM are treated similarly. BLM, USFWS, and the State of Colorado have developed formal and informal agreements to provide guidance on the management of species within the RMPPA. Consultation is required on any action proposed by the BLM or another federal agency that affects a listed species or results in jeopardy or modifications of critical habitat.

There are 11 federally listed species in the RMPPA, including the two species that are candidates for federal listing. These species may also be listed by the BLM or the State of Colorado. Other species, listed only by the BLM and/or the State of Colorado are also discussed below. Within the RMPPA, the distribution of most of the special status species is generally known from LHA comments, CDOW GIS data and other information. Inventories have been completed for some of the listed and candidate plant, fish and wildlife species. Specific management direction to influence habitat components, leading to species recovery, is integrated into BLM management plans. Critical habitat has been designated for only one species.

Plants

Five plants are identified as special status species associated with the RMPPA:

- Ute ladies'-tresses—Threatened
- Dudley bluffs twinpod—Threatened
- Dudley bluffs bladderpod—Threatened
- Graham beardtongue—Candidate for Listing
- White River beardtongue—Candidate for Listing

Ute ladies'-tresses occurs just west of the RMPPA in Utah, along the Green River in Browns Park in Daggett County and in the Cub Creek drainage in Dinosaur National Monument in Uintah County. The species is endemic to relatively low elevation mesic or wet riparian meadows. This species has not been documented in the RMPPA. The remaining four species have all been identified near the southwest corner of the RMPPA, but have not been located within it. The area associated with all four species is low elevation habitat typified by soils derived from decomposed shales and barren shale slopes. Population levels of the four plant species are likely declining due to loss of habitat and impacts associated with disturbance.

In addition, 20 plant species on the Colorado BLM State Director's Sensitive Species List are known to occur within the RMPPA. These are cushion, debris, Duchesne, starvling, and Nelson milkvetch; Ownbey's and Rocky Mountain thistle; tufted cryptanth; Uinta Basin spring-parsley; single-stemmed wild, woodside, and Duchesne buckwheat; Nuttall sandwort; matted fiddleleaf; narrowleaf evening primrose; ligulate feverfew; Gibbin's penstemon; rock-tansey; strigose easter-daisy; and mountain clover. The distribution of these species within the RMPPA is not known.

Animals

Aquatic Species

Fish. Four federally listed fish species that have historically occupied the Green and Yampa Rivers occur within the RMPPA (Table 3-12):

- Colorado pikeminnow—Endangered (designated critical habitat)
- Bonytail chub—Endangered (designated critical habitat)
- Humpback chub—Endangered (designated critical habitat)
- Razorback sucker—Endangered (designated critical habitat)

The aquatic habitat for the four listed Colorado River fish species is the mainstem Green, Yampa, and White Rivers and their low elevation drainages. Low elevation drainages are used by foraging individuals when water levels are high. These fish species have not been known to migrate into higher elevation tributaries. All four Colorado River fish species are endangered, with numbers continuing to decline throughout the Colorado River Basin. The identified critical habitat includes the majority of the mainstem and primary tributary habitat throughout the Colorado River basin including the lower portions of the Green, Yampa and White Rivers. In Colorado, river miles of critical habitat are 217 for the razorback sucker, 362 for the Colorado pikeminnow, 59 for the humpback chub, and 59 for the bonytail chub. For the razorback sucker and Colorado pikeminnow, the lateral boundary of critical habitat is the 100-year floodplain so that productive areas adjacent to the rivers, including the mouths of smaller tributaries and other habitats are encompassed.

In the Upper Basin, critical habitat for the razorback sucker and Colorado pikeminnow includes reaches of the Green, Yampa, Duchesne, Colorado, White, Gunnison, and San Juan Rivers; for the humpback and bonytail chubs, reaches of the Colorado, Green and Yampa Rivers are included. All four of these species evolved in the Colorado River and are adapted to its natural seasonal and annual fluctuations of flow. Generally, these species spawn over rocky runs and gravel bars when water rises in the spring and temperatures increase. Young fish appear to remain in shallow littoral zones then disperse to deeper water and are transported downstream, but are poorly known because of their scarcity. Non-breeding adults occupy a variety of habitats (impounded and riverine areas, eddies, backwaters, gravel pits, flooded

bottoms and the flooded mouths of tributaries, slow runs, sandy riffles, etc., with areas having deeper water used in summer). The critical habitat for these species generally overlaps. The primary basis for the different lengths of critical habitat among the four species is the preference of the chubs for canyon waters and the sucker and pikeminnow for the mainstem river, while using its eddies and backwaters for feeding and loafing. Critical habitat for the bonytail and humpback chub occurs only in Dinosaur National Monument and does not include any lands managed by BLM. Critical habitat for the Colorado pikeminnow and the razorback sucker includes lands managed by the BLM, with the longest stretch of such lands occupying about 4 miles along the Yampa River upstream of County Road 123, which leads to Dinosaur National Monument.

In addition, the flannelmouth sucker, mountain sucker, Colorado River cutthroat trout, and Colorado roundtail chub are species of state concern that are on the Colorado BLM Director's Sensitive Species List and/or the CDOW Listing of Endangered, Threatened and Wildlife Species of Special Concern (Table 3-12). The Colorado River cutthroat trout has been documented in Beaver Creek and several other creeks in the Routt County portion of the RMPPA, as well as in Johnson and Oliver Creeks, which are east of Shield Mountain and on USFS managed land, and in the Beaver Creek that is part of the Green River drainage in the far western portion of the RMPPA. Beaver Creek is considered to be in above average condition and has been stocked with Colorado river cutthroat trout. The flannelmouth sucker, mountain sucker, and Colorado roundtail chub, are found primarily in the Yampa River and lower reaches of the Little Snake River.

Amphibians. Among amphibians in the RMPPA, the boreal toad, a federal Candidate (Table 3-12), is the only federally listed species. It is found primarily in the vicinity of wetlands, wet meadows, streams, beaver ponds, glacial kettle ponds, and lakes interspersed in subalpine forest (lodgepole pine, Englemann spruce, subalpine fir, and aspen). Within the RMPPA, this includes habitats at elevations ranging from 7,000 to 12,000 feet. CDOW data document the presence of boreal toads in Rio Blanco County, Routt County in the Elkhead Mountains, near Pilot Knob, and further east on private and USFS land. Population levels of boreal toad are declining throughout the West. This is due to loss of habitat, non-native species predation, and the impact of diseases. Population viability within the RMPPA has decreased over the past several years.

In addition to the boreal toad, the Great Basin spadefoot and northern leopard frog are species of state concern and on the Colorado BLM Director's Sensitive Species List and/or the CDOW Listing of Endangered, Threatened and Wildlife Species of Special Concern. The Great Basin spadefoot occur primarily in the western, more desert-like portion of the RMPPA and has a significant distribution in this area (Petch, pers. comm. 2004). CDOW GIS data document the presence of northern leopard frogs, in both the western and the eastern portion of the RMPPA. Most of the observations of northern leopard frogs have been on USFS lands in the eastern end of the RMPPA, but there are also a few records from sites along the Yampa River, Lay Creek, and Beaver Creek near Brown's Park NWR. Population numbers are not known.

Terrestrial Species

Terrestrial special status species found in the RMPPA occupy habitats from the high to low elevation. Terrestrial habitats that are known to exist in the RMPPA include low- and mid-elevation grasslands, mid-elevation shrubland, sagebrush, forests, woodlands at mid to high elevation, riparian areas located along river and stream corridors, agricultural lands, and bare ground and rocky areas.

Reptiles. There are no federally listed reptile species in the RMPPA. The midget faded rattlesnake, which occurs in the RMPPA, is a species of state concern and on the Colorado BLM Director's Sensitive

Species List and the CDOW Listing of Endangered, Threatened and Wildlife Species of Special Concern. Specific locations have not been documented for this species.

Birds. Three federally listed bird species have been found or are likely to occur within the RMPPA:

- Bald eagle—Threatened
- Mexican spotted owl—Threatened
- Yellow-billed cuckoo—Candidate for Listing

The bald eagle utilizes nesting and roosting habitat located along rivers, reservoirs and ponds in the RMPPA. The known bald eagle nest sites within the RMPPA occur primarily along the Little Snake, Yampa, and Four Mile Creek drainages. Roost sites that have been identified are numerous along these two rivers. Summer foraging areas are concentrated along the upper reaches of the Yampa River, even above Steamboat Springs, and throughout the Danforth Hills area. Overall winter range for this species extends broadly across the central portion of the RMPPA, extending to the east up the Yampa River and to the west up the Green River. A winter concentration area has been documented along the Yampa River above and below Craig, with winter foraging recorded especially in the Danforth Hills, east of Craig along the Yampa River, and on the slopes of the Williams Fork Mountains. Within the RMPPA, winter range for bald eagles is largely contiguous with shrublands, irrespective of community, and agricultural lands. Bald eagle nesting and roosting sites have been located in the midst of saltbush, agricultural areas, and pinyon/juniper woodlands. The key to suitable nesting and roosting areas is the presence of a stream that provides large trees to support nests or serve as perches, except in the case of pinyon/juniper woodlands, which provide these resources themselves. Winter foraging areas include these same habitats in specific locations in uplands that are likely determined by topography and prey availability in the uplands adjacent to the Yampa River. Winter concentration areas are in a reach of the Yampa River that flows through agricultural lands near Craig.

Mexican spotted owls typically occupy narrow canyons and river corridors on the Colorado Plateau. No known nesting or roosting areas have been documented in the RMPPA, although there has been an unconfirmed identification of an owl call as this species in the Dinosaur National Monument.

Yellow-billed cuckoos occupy lowland riparian forests with tall trees, and are often associated with cottonwood bosques having an open understory. This species has one confirmed nesting observation within the RMPPA along the Yampa River near Hayden (Federal Register Vol 66. No. 143 pg 38615) and is also a documented breeder south of the RMPPA. Yellow-billed cuckoos are also likely to be seasonal migrants in the RMPPA.

In addition to these three species, three additional species have recently been under federal consideration and are still listed by the Colorado BLM and/or the State of Colorado: peregrine falcon, mountain plover, and greater sage-grouse.

Peregrine falcon (Delisted and still protected). Peregrine falcons utilize cliff and canyon habitats for breeding. Foraging areas include riparian zones and near shore environments where waterfowl and obligate riparian birds may be found. Populations within the RMPPA are stable and seasonal. Numerous nesting areas and potential nest sites are found along the Yampa River in Dinosaur National Monument and on Cold Spring Mountain. Additional nesting areas have been identified on Signal Butte, in Cross Mountain Canyon, and near the eastern edge of the RMPPA near Gore Mountain.

Mountain Plover (Proposed Threatened; Proposal Withdrawn [September 2003]). Mountain plovers typically utilize sparsely vegetated upland areas for breeding. The species is primarily found in upland areas between Vermillion Bluffs and the northwest corner of the RMPPA. It is often associated with white-tailed prairie dog towns, as prairie dogs keep the plant cover sparse.

Greater sage-grouse (BLM sensitive). Greater sage-grouse utilize semi-desert lowland to subalpine meadow sagebrush communities that are predominantly defined by big sagebrush, which occupies broad expanses, especially across the central portion and northwest corner of the RMPPA.

The greater sage-grouse, once abundant throughout the upland sagebrush habitats of the West, have been declining. The RMPPA covers the largest greater sage-grouse population in the State of Colorado. Considerable attention has focused on this species since the 1980's as evidence by the National Sage-Grouse Habitat Conservation Strategy released by the BLM in November 2004. This conservation strategy provides national sage-grouse habitat conservation guidance in BLM land use plans. In addition, a Northwest Colorado Greater Sage-Grouse Conservation Plan is being prepared and should be released in 2005. This document establishes seven management zones and several subzones within which conservation planning, habitat management and evaluation will be managed. These seven zones extend across the RMPPA, except in the higher elevations in the east and southeast where Routt National Forest occurs. Greater sage-grouse habitat on BLM lands in South Routt County are covered under the existing Northern-Eagle and Southern Routt County Greater Sage-Grouse Conservation Plan, which was finalized in September of 2004.

The Northern-Eagle and Southern Routt County Greater Sage-Grouse Conservation Plan and the Northwest Colorado Greater Sage-Grouse Conservation Plan identify potential conservation actions that might be implemented in order to maintain and enhance greater sage-grouse populations and habitat. The BLM intends to cooperate with these sage-grouse working groups to conserve sage-grouse habitat.

Due to the varied nature of sage grouse performance, habitat capability, and conservation threats between management zones, each zone will be evaluated and managed independently toward reaching and maintaining its own internal population goal and the broader area-wide population goal. Conservation strategies applied in each zone will focus on meeting the desired condition for greater sage-grouse habitat and population performance on a sufficient portion of the zone to meet population goals. Conservation activities may proceed at different rates and in different directions in each management zone based on the needs of the zone, its priority in meeting overall goals, and the availability of resources. To be successful, greater sage-grouse conservation in each zone will require a mix of landscape level analysis and application of conservation actions on a site-specific basis (GSGWG 2004).

Within the RMPPA, essentially all of the land west of SH13 (except the area on the south side of Cold Spring Mountain and the lands closest to the Yampa and Green River drainages) are within the overall range of the greater sage-grouse. The central portion of this area—north, west, and southeast of Maybell—as well as a broad area along the northern boundary of the RMPPA from Middle Mountain near the northwest corner of Colorado to Baker Peak east of SH13, provides winter range.

Identified brood areas are in smaller drainages associated with the Vermillion Creek, Little Snake River, and Yampa River watersheds, where moist conditions in late spring and early summer produce the succulent forbs and insects on which broods feed. Map 18 shows these use areas as well as the leks that have been identified within the RMPPA. Production areas, traditionally mapped as a two-mile buffer around leks and believed to contain 80 percent of the nests associated with grouse displaying at the lek, have recently been expanded. It has been found that no more than 75 percent of greater sage-grouse nests associated with a lek are found within a four mile radius of a lek, making the prior production area size insufficient to protect the majority of nests (Petch, personal communication, 2004).

Greater sage-grouse use areas are all located in shrublands. Sagebrush is the primary habitat used, and areas of sagebrush along streams where forbs and insects are abundant are used for brood rearing. Some production areas have also been identified in areas that have been mapped as saltbush and mountain shrub. Since approximately half of all remaining greater sage-grouse habitat in the nation is managed by the BLM, the management of this habitat is an extremely critical tool in halting the decline of the greater sage-grouse in the western U.S. In the National Sage-grouse Management Plan, each State Director is required to develop by April 2005 a process and schedule to update deficient land use plans to adequately address greater sage-grouse and sagebrush conservation needs. Issues and alternatives evaluated in the NEPA process for land use plan updates, amendments or revisions must analyze threats identified in the Western Association of Fish and Wildlife Agencies (BLM, 2004). Moffat County, which comprises much of the RMPPA, was described in 1964 as having the largest population and the highest density of greater sage-grouse of any county in the state, with the highest density of greater sage-grouse, although very localized, in the Beaver Basin area of Cold Springs Mountain (GSGWG 2004).

A number of comments in the LHAs focus on greater sage-grouse populations and habitat. The following comments characterize the attention given to this species:

- Cold Springs—The large expanses of sagebrush steppe intermixed with wet meadows provides important sage-grouse nesting and brood rearing habitats; sage-grouse numbers are up since the early 1990s, with lek counts remaining stable over the last three years. However, sage-grouse are only at 50 to 60 percent of their historic population numbers for the area.
- Douglas Mountain—Sagebrush grasslands and sagebrush mixed shrub habitat types have the potential to support greater sage-grouse within this landscape. There are no known grouse leks within the landscape; however, efforts to locate breeding sage-grouse in the landscape have been minimal.
- Dry Creek—The large expanses of sagebrush steppe intermixed with wet meadows provides important sage-grouse nesting and brood rearing habitats along Vermillion Creek, although there are no known sage-grouse leks within this watershed. Heavy historic grazing, especially in mesic areas at the higher elevations, has reduced the quality of brood rearing habitat essential for sage-grouse in the area.
- Pole Gulch (Fourmile)—The entire landscape is considered a sage-grouse production area, although the quality of sage-grouse brood rearing habitat has been reduced by heavy historic grazing, especially in mesic areas at the higher elevations. The large expanses of sagebrush steppe intermixed with wet meadows provide important sage-grouse nesting and brood rearing habitats along Timberlake Creek. 14 sage-grouse leks have been identified and brood rearing habitats have been documented.
- Powderwash—This is an important area for greater sage-grouse breeding, nesting and brood rearing, containing 10 known leks and approximately 2,400 acres of sage-grouse winter range.
- Sandhills—Available habitats provide winter range, nesting, and brood rearing for sage-grouse.
- Sandwash—This is an import production area for sage-grouse nesting and winter range. The numerous historic leks on Seven Mile Ridge are no longer active.

Several additional special status bird species are listed by the Colorado BLM or the State of Colorado, although they are not federally listed (Table 3-12): Columbian sharp-tailed grouse, American white pelican, ferruginous hawk, burrowing owl, sandhill crane, and long-billed curlew. The overall range of the Columbian sharp-tailed grouse is primarily in the lower elevations of the eastern half of the RMPPA.

It extends west to the Danforth Hills, and south to the lowlands near Tonponas and between the Flat Tops and the Gore Range. Winter range occupies the central portion of the overall range, and concentrations of known lek locations are scattered throughout winter range, with production areas where nesting and brood rearing occur defined as a 1.24-mile buffer around leks. The habitats supporting these use areas are sagebrush and mountain shrubs. In the Pole Gulch (Fourmile) Landscape, two Columbian sharp-tailed grouse leks have been identified on private land and sharp-tailed production areas have been identified on the Cull Reservoir, Upper Four Mile, and East Fortification Allotments. White pelicans do not breed in the RMPPA, but forage in a reach of the upper Yampa River that is south of Steamboat Springs. Ferruginous hawk sightings are particularly abundant north of Trinchero Creek, in the Little Snake River headwaters north of Fortification, and in the uplands between Maybell, Craig, and Great Divide. CDOW GIS data on the burrowing owl are spotty, but there is appropriate habitat within the RMPPA for burrowing owls, which are likely to be co-located with white-tailed prairie dogs. Other key bird species in the RMPPA include the sandhill crane and long-billed curlew. Important and heavily used overall range for the sandhill crane occurs east of SH 13. This species, as well as the occasional whooping crane that may be within their flocks, may be transient further west in the RMPPA. In addition, breeding pairs of sandhill cranes are beginning to be observed in wetland areas surrounded by sagebrush. This species has the potential to expand into additional wetland habitats on lands managed by BLM (Petch 2004, personal communication). Sandhill cranes have also been observed along Fourmile Creek. Potential habitat for long-billed curlews occurs in the irrigated hayfields found along some of the rivers within the RMPPA. Although data have not been recorded on this species, it is expected to occur in the RMPPA (Petch, pers. comm. 2004).

Mammals. Three federally listed mammal species have been found or are likely to occur within the Little Snake RMPPA:

- Black-footed ferret —Endangered, Experimental Non-essential Population
- Canada lynx—Threatened
- Gray wolf—Endangered

Black-footed ferrets occur in shortgrass and midgrass prairie to semidesert shrublands and are typically associated with colonial mammals such as the white-tailed prairie dogs that occur in colonies within the RMPPA. Black-footed ferrets are believed to have occurred historically in the RMPPA. Currently within the RMPPA, there is a breeding facility for captive black-footed ferrets and conditioning pens used to ready captive ferrets for release. A viable relocation habitat exists in the Vermillion Creek area. At one time, this area was to be used as a ferret release site, but campestral (sylvatic) plague reduced the white-tailed prairie dog colonies to a level insufficient to support a ferret population. Thus, free ranging black-footed ferrets do not presently occur in the RMPPA. Should it be determined that the ferrets could be reintroduced into the RMPPA on BLM-administered lands, no adverse impacts to other uses would occur by reintroduction of the ferrets.

Canada lynx typically utilize coniferous forests of uneven-aged stands with relatively open canopies and well developed understories. Lynx have historically occurred in the RMPPA, but are now primarily restricted to higher elevations in the central portion of Colorado. Lynx reintroductions have occurred in the San Juan Mountains in southwestern Colorado, and these lynx or perhaps others have been known to move through the RMPPA as they disperse.

Gray wolves were historically spread across the North American continent, including Colorado and the RMPPA, in areas where prey density was sufficient, irrespective of habitat type. Gray wolfs reintroduced

in Yellowstone National Park provide the closest source of dispersing individuals. Evidence indicates that individuals from the Yellowstone population have moved through the RMPPA.

Several other special status mammal species are found within the RMPPA. These include the Townsend's big-eared bat, wolverine, river otter, and kit fox[7]. The CDOW GIS data for many of these species are sketchy and the LHAs do not mention them. Specific use areas for bats have been most intensively investigated in the vicinity of Dinosaur National Park, where potential and active roost areas such as abandoned mines and caves have been trapped for bats. While bats were trapped in these areas, no specific data are available on the Townsend's big-eared bat. Habitat occurs for the wolverine within the RMPPA, although the most recent sightings of this species in the area were about 15 years ago and were unconfirmed (Petch, pers. comm. 2004). The overall range of the river otter is designated by CDOW as the Yampa River from just east of Cross Mountain and the Green River to the Colorado state line. There have also been reports of occurrence of either the kit fox or the swift fox within the RMPPA, but the species was not confirmed and an attempt to trap an individual for taxonomic confirmation failed (Petch, pers. comm. 2004).

3.1.7.2 Characterization

Primary indicators for special status species are their population numbers, population viability and habitat stability. For most of the special status species, habitat loss and fragmentation have been and remain the primary cause of their imperiled status. Some of these species have also suffered from historic efforts to extirpate them and some suffer competition or predation from species that have expanded their range or that have been introduced. By definition, the populations of all special status species have historically suffered downward trends. Management efforts by the BLM, USFWS, CDOW and others have reversed the downward trend for a number of these populations, but none of the populations are near their historic levels and most remain at levels that are biologically insecure, regardless of their legal status. In addition to continued threats from habitat loss and fragmentation, variability in habitat condition is an ongoing factor in the distribution and density of these special status species. For example, population viability for special status plant, fish, and amphibian species varies with hydrologic conditions. Soil conditions further influence the populations of plants. The recent drought has reduced the amount or quality of habitat in some areas, further stressing populations of these species.

Because of the intense focus on the greater sage-grouse through the National Sage-Grouse Habitat Conservation Strategy and the Northwest Colorado Greater Sage-Grouse Conservation Plan, past data on this species have been collected and new data are being collected. The potential causes of population declines have been categorized as reduced habitat quality, habitat loss and fragmentation, predation, hunting, physical disturbance, disease and genetics. Information on their relative importance and mechanisms of action is still being collected and evaluated. Recent data on greater sage-grouse populations within the Northwest Colorado Management Zones (Map 19) are provided in Table 3-13.

[7] *Note that the genetic separation of kit foxes and swift foxes is still in question, but traditionally the name swift fox has been most often applied to individuals occupying the eastern plains.*

Table 3-13. — Greater Sage-grouse Trends in Population and Lek Numbers Within the Northwest Colorado Management Zones[1]

Zone No.	Count 1999	Count 2000	Count 2001	Count 2002	Count 2003
1	241 (12 leks)	165 (11 leks)	133 (7 leks)	117 (7 leks)	137 (6 leks)
2	54 (4 leks)	41 (4 leks)	18 (4 leks)	25 (3 leks)	37 (3 leks)
3a	222 (8 leks)	628 (13 leks)	503 (12 leks)	459 (13 leks)	433 (15 leks)
3b	282 (12 leks)	424 (19 leks)	744 (25 leks)	774 (24 leks)	650 (23 leks)
3c	13 (2 leks)	74 (3 leks)	109 (2 leks)	170 (4 leks)	118 (3 leks)
4a	45 (2 leks)	20 (2 leks)	143 (4 leks)	54 (2 leks)	64 (2 leks)
4b	62 (2 leks)	0 (0 leks)	37 (2 leks)	31 (2 leks)	41 (2 leks)
4c[2]					
5	389 (21 leks)	451 (22 leks)	289 (19 leks)	226 (19 leks)	322 (17 leks)
6	479 (7 leks)	429 (9 leks)	349 (8 leks)	337 (8 leks)	321 (9 leks)

[1] The Management Zones established by the Northwest Colorado Greater Sage-Grouse Conservation Plan are entirely within Moffat County and hence entirely within the Little Snake RMPPA.
[2] Data not available.

The future of most of the special status species is dependent on the degree to which their habitat can be maximized and kept in good condition and their populations can be protected from competition and predation that exceed the levels with which these species evolved. Further, more complete information on the location of special status species within the RMPPA and monitoring of these populations will facilitate timely and focused management responses to factors that impact them.

3.1.8 Wild Horses

Wild horse management within BLM-administered lands of the RMPPA follows the Wild Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195) and 43 CFR 4700 – Protection, Management and Control of Wild and Free-Roaming Horses and Burros. The Sand Wash Basin Herd Management Area (HMA) Plan was signed in May of 1982; however, the existing Little Snake RMP (1989 RMP) has been the principal planning document for management of wild horses in the RMPPA. Wild horses within the HMA are also managed to maintain or improve rangeland conditions and remain compliant with the Standards and Guidelines that became effective in 1996.

3.1.8.1 Current Conditions

One wild horse herd is managed on BLM-administered lands within the RMPPA, although wild horses from the Rawlins Field Office Planning Area drift into the RMPPA during the winter months. The Sand Wash wild horse herd resides in the fenced Sand Wash Herd HMA, which provides sufficient water, forage and habitat to maintain a self-sustaining wild horse population in balance with the other uses of the area. The Sand Wash HMA lies approximately 45 miles west of Craig, Colorado, in the Sand Wash Basin (Map 20). The boundary of the HMA is fenced, except along State Highway 318, generally

preventing wild horses from entering or leaving the HMA. There are no fences within the HMA, allowing horses to roam freely within the confines of the basin.

The Sand Wash HMA includes 154,940 acres of public land, 1,960 acres of private land and 840 acres of state school section lands, for a total of 157,730 acres (BLM 1982). Sand Wash Basin is surrounded by ridges and mesas. Lookout Mountain on the northwest boundary is the highest point in the HMA at 8,120 feet, and the lowest point is where Sand Wash exits the HMA at an elevation of 5,800 feet. The Sand Wash Basin receives 7 to 12 inches of annual precipitation and the climate is typical of the cold deserts of the Rocky Mountain Region, with warm summers and very cold winters. Vegetation types within the HMA include sagebrush/bunchgrass, saltbush, and pinyon-juniper woodlands. These vegetation types are described in detail in Section 3.1.5 (Vegetation). Six livestock allotments, grazed by both cattle and sheep, occur within the HMA boundary, although there are no pasture or allotment fences. Monitoring within the HMA includes actual use and utilization estimates for livestock, wildlife and wild horses.

Wild horse herds are typically characterized by color, genetics, and population size. The most common colors of the horse herd are grey and sorrel, although most colors and color patterns of horse can be found in the HMA, including buckskins, duns and paints. There has been an increase in unique colors and paint horses since color data were originally collected in 1988. Genetic analysis indicates the highest similarity for the herd was to the Iberian derived Spanish breeds, followed by Gaited breeds, North American breeds and Arabian breeds.

The original population of horses within the HMA in 1971 was 65 head. The managed population range recommended in 1986 was changed to a maximum of 217 horses in 1995, and again in 2001 to a management range of 163 to 363 horses. The existing horse population has been managed to the most current of these numbers through horse gathers in 1989, 1995, 1998 and 2001. In years prior to the gathers, the wild horse herd has exceeded these population recommendations. The herd had a population high of 455 head in 1998. To maintain populations at a sustainable level, the herd was gathered five times between 1988 and 2001 using helicopters to drive the horses into traps. This has resulted in the removal of 855 horses to date from the HMA. The current wild horse population on the HMA is estimated to be within the current management range. The mare/stud ratio is maintained at approximately 50/50, which enables them to sustain smaller bands of 10 to 15 head during the foaling period from March through May. In the fall and winter, band sizes increase to around 60 head (BLM 1982, BLM 2001, Dobrich 2002).

Despite the ability of the Sand Wash herd to rapidly increase its population, there are factors that affect the herd's habitat, such as increasing recreation, wildlife winter range use and livestock grazing. Within the last 10 years, late winter recreational OHV use has been increasing in the HMA, especially during the April and May foaling period, because the area typically has less snow and becomes accessible and hospitable earlier in the year than other areas in the RMPPA. The increase in numbers of elk in the Sand Wash Basin has increased competition for winter forage, and more recently for summer forage as well. The horses from the Adobe Town HMA in Wyoming exacerbate this situation by consuming forage allotted for livestock and wildlife outside the fenced Sand Wash HMA. The Adobe Town herd, as well as domestic horses from an adjacent allotment and perhaps elsewhere, have an opportunity to alter the genetic composition of the Sand Wash herd whenever gates are left open or fences are down.

3.1.8.2 Characterization

The population of the Sand Wash wild horse herd is maintained at sustainable levels through gathers that occur approximately every four to five years. A number of factors currently affecting the Sand Wash horse herd habitat could be exacerbated, and habitat might be lost, degraded or fragmented if the oil and gas leases within the HMA were activated. Existing leases cover approximately 98 percent of the HMA.

The population of the Sand Wash wild horse herd after foaling in 2005 is forecast to be 361 horses. This estimate is based on the horse population before the 2001 gather of 335 horses and removal of 168 horses, for an after gather population of 167 horses (Dobrich 2002). The annual herd increase of approximately 22 percent from recruitment of foals would result in the projected population of 361 horses (BLM 2001). A horse gather planned in the Sand Wash HMA for the summer of 2005 will bring the wild horse population within the management population range of 163 to 363 horses for the next four to five years.

3.1.9 Fire

Fire is an inherent component of ecosystems and historically has had an important role in the promotion of plant succession and the development of plant community character. Control of fires during the last century has changed plant communities, and resulted in conditions that may sustain large-scale fires when natural ignition of vegetation occurs. BLM's management practices include the control of naturally occurring fires in some areas, the management of vegetation so that fires are controllable in areas where this activity is appropriate, and the use of fire to manage plant succession and community character in selected locations.

3.1.9.1 Current Conditions

Fires within the RMPPA are both naturally occurring and used as a management tool. Naturally occurring fires are widely distributed in terms of frequency and severity. Large acreage fires burned in the area in the last half of the 19th century and the beginning of the 20th century. Historically, the area has displayed a moderate to high frequency of fires, averaging 251 fires and burning an average of 8,500 acres per year. During the 12-year period of 1993-2004, the RMPPA averaged 270 fires per year, burning 12,307 acres annually. The central and eastern portions of the RMPPA average 20 fires per year. A majority of information contained in this section was adapted from the 2004 Northwest Colorado Fire Program Area Fire Management Plan (BLM, 2004).

Sources of Fire

The weather and fuel structure in the RMPPA provide an opportunity for ignitions from frequent summer storms. In the western portion of the RMPPA, lightning accounts for 88 percent of all starts and approximately one-half of the acres burned. In the eastern portion of the RMPPA, where BLM- and USFS-managed lands intermingle, approximately 40 percent of the fires are human caused. Careless smoking, vehicle exhaust, escaped agricultural burning, and unattended campfires account for the majority of the human caused starts. Equipment usage is also responsible for starting some fires.

Types of Vegetation Susceptible to Fire

The wide variety of vegetation across the RMPPA varies in its susceptibility to fire. The following generalizations on the susceptibility of specific plant cover types are based on research by Romme and others in western Colorado:

- Fire intervals in spruce/fir forests are variable, ranging from decades to hundreds of years, with the longer intervals being more typical. Due to the long fire return interval, wildland fire suppression activities in this vegetation type have not significantly changed the composition, structure, and function of these forests. In timbered areas within the RMPPA, the high elevation fir-spruce are exhibiting fuel accumulations, stocking levels, canopy closures, and insect activity that suggest they are nearing the time in their cycle that stand replacement events may occur.

- Historically, in ponderosa pine forests, low-intensity fire was relatively frequent, with natural fire return intervals of about 10-20 years. These fires played a major role in shaping the composition, structure and function of these forests, and had a big effect on the abundance and distribution of overstory and understory plant species. The periodic low-intensity ground fire naturally thinned the vegetation and kept understory species in check. Timber harvest, fire suppression, and livestock grazing activities have had a significant impact on the composition, structure, and function of these forests. The naturally cool, moist environment of these forests makes them relatively fire resistant. However, under very dry conditions, fire is usually of high intensity due to the naturally high density of trees and the high fuel loading found on the forest floor.
- Historically, in warm, dry mixed-conifer forest, median fire return intervals were about 20-30 years, and fire played a similar role to that described for the ponderosa pine forests. The current condition of many of the warm, dry mixed-conifer forests is also similar to that described for ponderosa pine forests, as past timber harvest, fire suppression, and livestock grazing activities have had similar effects. Timber harvest of old growth ponderosa pine and Douglas fir has changed the abundance and distribution of these species, and has created opportunities for white fir to become more dominant.
- Current fire research on the aspen forests in the southwestern part of Colorado indicates historical mean fire intervals of 18 to 48 years. Other studies indicate that substantial uncertainty remains with regard to fire intervals and fire intensities in aspen forests. The naturally cool, moist environment associated with these forests makes them relatively fire resistant; thus most fires quickly subside. Under very dry conditions, high-intensity fires occur, particularly in stands with high amounts of ground fuels and a heavy conifer component.
- Infrequent, light surface fires characterize pinyon/juniper woodlands with fire return intervals greater than 25 years. Unpublished research of pinyon/juniper sites in Mesa Verde National Park located in Southwest Colorado indicates long fire return intervals for stand-replacing events, and indicates that when these events occur the fires tend to be large and very intense.
- Fire history and effects in closed-canopy oak shrublands are speculative because fires rarely leave visible evidence (i.e., fire scars). Given that the area has an annual period of hot, dry weather, an abundance of ignition sources exist in these shrublands, and frequent fires occur in adjacent communities, it seems unlikely that fires were rare. Gamble oak and other brush species will sprout from root collars after a stand-replacing event.

Range of Potential Fire Behavior

Fires are typically categorized on the basis of period of occurrence, size class, regime, and condition class. The fire season for the RMPPA normally extends from late April to early November. The most critical fire conditions for the RMPPA begin as early as mid-June and can last until widespread fall moisture occurs.

Over the past decade, the large majority of wildfires in the RMPPA have been less than 300 acres in size. From 1993 to 2004, 98.4 percent of the wildfires that occurred within the RMPPA were Size Class A (0.25 acres), B (0.25-10 acres), C (10-99 acres), and D (100-299 acres) incidents (Table 3-14). Only 1.6 percent of the wildfires were representative of the other three size classes (E, 300-999 acres; F, 1000-4000 acres; G, 5000+ acres).

Table 3-14. — Fire Occurrence (Size and Acreage), 1993 – 2004

Size Class	A	B	C	D	E	F	G
# Fires	977	332	50	9	15	6	1
# Acres	117	547	1,486	1,568	6,151	13,094	73,121

The five fire regime classes (Table 3-15) reflect the frequency and severity of burns. Historically, the most prolific fire spread events have been wind driven, especially in the brush plant cover types. Plume dominated fires have occurred particularly during very dry years in the older stands of pinyon/juniper and the mixed conifer stands. Rates of fire spread through the canopies of sagebrush can exceed 3 miles per hour, while spread through mixed conifer and pinyon/juniper stands of one-half mile per hour are not uncommon. Years with better than average moisture tend to keep the light fuels (i.e., grasses) green, which helps to curtail fire spread. The incursion of annual grasses, like cheatgrass, are changing the fire environment. Light fuels available to burn through the height of the fire season are becoming more abundant by way of the species morphology. Much of the timbered lands of the RMPPA experience long return intervals between fire events. Burn severity in these communities tends to be moderate to severe resulting in stand replacement of the dominant species. Examples of these vegetation types are: high elevation sub-alpine fir and spruce, lodgepole pine, mid to lower elevation lodgepole pine, and some pinyon/juniper stands in the western portion of the RMPPA. Examples of a more moderate to frequent return interval would be sage/grasslands in the western portion of the RMPPA and the lower elevation shrub communities in the eastern portions.

Table 3-15. — Fire Regimes within the RMPPA

Fire Regime	Acres	Percent
I (0-35 year frequency and low to mixed severity-surface fires most common)	33,430	0.4
II (0-35 year frequency and high severity-stand replacement fires)	0	0.0
III (35-100+ year frequency and mixed severity)	888,041	11.0
IV (35-100+ year frequency and high severity-stand replacement fires)	5,921,403	72.0
V (200+ year frequency and high severity-stand replacement fires)	1,232,809	15.0
Unclassified	134,346	1.6

Table 3-16 shows the acreages within the RMPPA for condition classes defined in terms of the relative risk of losing one or more key components that define an ecological system based on five ecosystem attributes: disturbance regimes (patterns and frequency of insect, disease, fire, etc.), disturbance agents, smoke production, hydrologic function (sedimentation, stream flow, etc.), and vegetation attributes (composition, structure, and resilience to disturbance agents).

Table 3-16. — Condition Class Definitions and Acreages

Condition Class	Fire Regime Example Management Options
Condition Class 1 Acres: 915,461 11 percent of RMPPA	Fire regimes are within an historical range and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range. Where appropriate, these areas can be maintained within the historical fire regime by treatments such as fire use.
Condition Class 2 Acres: 6,319,804 77 percent of RMPPA	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range. Where appropriate, these areas may need moderate levels of restoration treatments, such as fire use and hand or mechanical treatments, to be restored to the historical fire regime.
Condition Class 3 Acres: 840,418 10 percent of RMPPA	Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range. Where appropriate, these areas may need high levels of restoration treatments, such as hand or mechanical treatments, before fire can be used to restore the historical fire regime.

3.1.9.2 Characterization

The fuel structure in the RMPPA is gradually changing due to management practices and incursion of non-native annual grasses, primarily cheatgrass (*Bromus tectorum*). In addition, in the central and eastern portions of the RMPPA the fire environment is changing due to the Routt/Divide blowdown within the Routt National Forest, which has resulted in a spruce bark beetle epidemic in adjacent areas. In areas where fuels are continuous, fires spread readily and rapidly during the height of the average fire season. Much of this area is grouped typically in fire regime 2 and 3 (sagebrush), but many of the pinyon and juniper stands have much older stand characteristics, which often have heavier fuel accumulations and burn with stand replacement fire behavior. Many areas exist where sparse fuels and other natural barriers limit fire spread; most are dry sites where the vegetation is of a moderate to old age class distribution. Cheatgrass has significantly increased from historically inhabiting scattered pockets to becoming a dominant fine fuel component intermixed with sagebrush and pinyon/juniper stands. Areas of large blocks of infestation include Brown's Park and Greystone. Cheatgrass has recently been found at higher elevations on the Routt National Forest.

The moderate to long return fire interval, fire exclusion and other management practices, and increased human use and incursion into these areas have rendered many of the forested areas in peril of large severe wildland fires. These forests have achieved a level of vegetation stocking and dead and down fuel loads to exacerbate large fire spread through the dry seasons of the year. Recent insect and wind episodes have increased fuel loadings in localized areas to critical levels.

The hazard component varies across the RMPPA from very low to very high. Mature stands of oak brush inhabit much of the steeper slopes above 6,500 feet. Decadent stands of continuous bitterbrush/sagebrush are common to the Great Divide. Insect-killed Douglas fir also contributes to high hazard areas.

High risk, high hazard, and high value areas include Steamboat Springs and Meeker interface, Douglas Mountain, Greystone, Elk River, Steamboat Lake, Stagecoach/Morrison Creek and Catamount. Areas of high hazard and high value with low to moderate risk include the Upper White River, Breeze Basin, Wilderness Ranch, and Great Divide timber stands designated for management purposes, and motorized trail corridors.

3.1.10 Cultural and Heritage Resources[8]

Cultural resources are recognized as fragile, irreplaceable resources with potential public and scientific uses, representing an important and integral part of our Nation's heritage. Cultural resources are contained within a definite location of human activity, occupation, or use identifiable through field inventories (i.e., surveys), historical documentation, or oral evidence (BLM-M-8110). Archaeological resources, a subset of cultural resources, means any material remains of human life or activities that are at least 100 years of age, and that are of archaeological interest as further defined at 43 CFR 7.3. The term "cultural resource" also includes historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (i.e., sites or places) of traditional cultural or religious importance to specified social and/or cultural groups (see Glossary: Traditional Cultural Property). Cultural resources are concrete, material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and utilizing for public benefit.

3.1.10.1 Current Conditions

The ROI for cultural resources is comprised of the RMPPA. A variety of cultural resource site types attributed to a range of culturally distinct chronological periods ranging from over 10,000 years ago to present have been discovered in the RMPPA; and there is a potential for additional resources to be found. Archaeological investigations have occurred as early as 1922 (La Point, 1987), but only approximately 63,000 acres have been intensively inventoried in the RMPPA. Historically, inventories have been implemented to support site-specific surface disturbing projects, such as mineral and energy development, to comply with the requirements of Section 106 of the National Historic Preservation Act and other cultural resource preservation laws. Additionally, academic institutions have performed some research excavations, although such scientific investigations have been limited. Implemented in this manner, previous cultural resource inventories have not resulted in the investigation of the variety of environmental and ecological ranges present in the RMPPA. As a result, known cultural resource sites may not fully represent the cultural resources present.

A total of 1,538[9] cultural resource sites have been identified to date, the earliest of which dates to around 9,000 B.C. Cultural resources are classified into site types based on similar physical or cultural characteristics. At the broadest level, cultural resource sites are categorized as either prehistoric or historic types. Because geographic locations desirable for human use at one time could be desirable for human use at other times, the number of sites (whether historic/prehistoric or within prehistoric cultural affiliations) is not aggregate, as cultural material from one site may be attributable to several time periods. Prehistoric sites can be associated with one or more of four cultural traditions: Paleo-Indian, Archaic,

8 *The cultural resource databases maintained by the LSFO and the Colorado SHPO for the Little Snake RMPPA are currently in the process of being reconciled and completion is anticipated in mid- to late-2005. Until the reconciliation is complete, accurate and complete reflection of known cultural resources in the Little Snake RMPPA is not possible. Therefore, this section uses information from the previous RMP EIS, which may be partially inaccurate. When the data reconciliation is complete, cultural resource information will be updated and used in the current RMP/EIS process.*

9 *The figures used in this section are from the previous RMP EIS, and are inaccurate as they fail to account for cultural resource management activities that have occurred over the last 16 years. When the data reconciliation discussed above is complete, cultural resource information will be updated and used in the current RMP/EIS process.*

Formative (Fremont or Ancestral Puebloan), and Proto-historic. There are approximately 1,420 prehistoric sites in the RMPPA, with sites from each cultural tradition. Some of the prehistoric site types (defined in Appendix E) include the following: lithic scatter, campsite, quarry, kill site, rock shelter, rock art, burial, tipi ring, wickiup, granary, and rock walls. Historic sites are cultural resources with a period of significance following 1,860 A.D. and are organized either chronologically or functionally. There are approximately 120 identified historic sites in the RMPPA. Appendix E contains lists and definitions of the prehistoric and historic site types in the RMPPA, as well as some frequency information by site type. Table 3-17 displays the cultural chronology represented in the RMPPA. Further information on site types in the RMPPA is provided in the Class I Overview of Prehistoric Cultural Resources (La Point, 1987). Additionally, a Class I inventory completed in association with this planning effort will address advances in cultural resource knowledge over the past 16 years.

Table 3-17. — Cultural Time Periods Represented in the Little Snake RMPPA

Cultural Time Period	Timeframe	Known Sites[1]	Characteristics
Paleo-Indian	Before 7,000 B.C.		Big-game subsistence patterns. No dated sites from this period, although projectile points from this period have been recovered. Paleo-Indian sites are significant due to scarcity.
Archaic	7,000 B.C. – A.D. 900		Nomadic lifestyle with small game hunting, seed, and nut-gathering subsistence patterns. Projectile points and camps have been found and further discoveries are possible. Archaic sites are scientifically important because of the differences between Colorado Plateau/Great Basin Archaic cultures and Northwestern Plains Archaic cultures in the RMPPA.
Formative	A.D. 900 – A.D. 1,150		Increased use of bow and arrow, ceramics, rock art, and farming with associated sedentary lifestyle and population growth. As a result, more permanent settlements and associated cultural resources remain from these cultures. Scientific uncertainty still remains concerning their origin and disappearance. Identification of additional sites would be scientifically beneficial.
Proto-Historic	A.D. 1,150 – A.D. 1,880		Nomadic lifestyle with hunting-gathering traditions while retaining use of ceramics and small unnotched or side-notched projectile points. Later traits also include equestrian rock art motifs, European trade goods, wickiups, and a possible increase in the use of obsidian. Identification of additional sites would be beneficial to further research.
Historic	After ca. 1860		Euro-American settlement patterns associated with agriculture, homesteading, limited ranching and hay farming, minerals development, and transportation.

[1] Numbers not available until database reconciliation is complete.
Sources: BLM, 2003, La Point, 1987, Miller 2002, Spath, 1999, and Tipps, 1988.

Prehistoric or historic cultural resource sites, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) are managed as directed by 36 CFR 800, *Protection of Historic and Cultural Properties.* Additionally, those sites where data is insufficient to make an eligibility determination are treated as though they were eligible until supporting information shows otherwise. Of the known sites within the RMPPA in 1986[10], very few have been formally determined for the NRHP. Nine sites are listed on the NRHP and nearly 11 percent of recorded sites (approximately 170 sites) are eligible for the NRHP. Of the sites not listed on or eligible for the NRHP, 27 percent of known sites need additional data to make an NRHP determination, 51 percent are not eligible and approximately 11 percent have not been evaluated.

In compliance with the American Indian Religious Freedom Act of 1978, National Historic Preservation Act of 1966, Archaeological Resources Protection Act of 1979, Native American Graves Protection and Repatriation Act of 1990, as well as other Executive and Secretarial Orders, BLM has initiated consultation with Native American Tribes. This consultation is to assist BLM in identifying and designing management for significant religious or cultural locations or properties (traditional cultural properties); to understand tribal concerns; to identify public land places, resources, uses, and values that are important to the tribes and/or tribal members (including traditional values and traditional use areas); and to identify land management procedures that conflict with Native Americans' religious observances. On October 14, 2004, BLM sent letters to the Shoshone Tribal Council, Ute Mountain Tribal Council, Uintah and Ouray Tribal Council, and Southern Ute Indian Tribe to initiate consultation. BLM received a negative response from the Southern Ute Indian Tribe; there has been no response from the other Tribes. To date, Native American entities have not identified traditional use areas or traditional cultural properties in the planning area. The BLM will continue to consult with the tribes, as directed by BLM Manual 8120, Tribal Consultation Under Cultural Resources, and BLM Handbook 8120, General Procedural Guidance for Native American Consultation.

3.1.10.2 Characterization

Indicators of cultural resources include the presence and condition of cultural sites, landscapes, or places of traditional use. The trend and forecast of cultural resources in the RMPPA varies considerably as a result of the diversity of terrain, geomorphology, access, visibility, and past and current land use patterns. Adherence to Section 106 of the National Historic Preservation Act (NHPA) and the BLM policy of avoiding cultural resources provides for the continued identification and preservation of cultural resource sites. However, the absence of research-based inventories has led to an understanding of the RMPPA's cultural resources based only on where disturbance has previously occurred, rather than where sites are likely to occur. Because recorded sites are manifested by discovery of exposed artifacts, features, and/or structures, they are easily disturbed by natural elements such as wind and water erosion, natural deterioration and decay, animal and human intrusion, and development and maintenance activities. Due to limited site monitoring and associated stabilization activities, site conditions in the RMPPA are considered to be declining. Indications of active vandalism or collecting (unauthorized digging and "pothunting") have been observed in limited instances in the past, which is a legal offense under the Archaeological Resources Protection Act (ARPA). Archaeological and historic sites are known to be deteriorating from a variety of causes. Collectively, these agents have adversely affected many known cultural resources.

10 *The cultural resource databases maintained by the LSFO and the Colorado SHPO for the Little Snake RMPPA are currently in the process of being reconciled and completion is anticipated in mid- to late-2005. Until the reconciliation is complete, accurate and complete reflection of known cultural resources in the Little Snake RMPPA is not possible. Therefore, the figures used in this section are from the previous RMP EIS, and are inaccurate as they fail to account for cultural resource management activities that have occurred over the last 16 years. When the data reconciliation is complete, cultural resource information will be updated and used in the current RMP/EIS process.*

3.1.11 Paleontological Resources

Paleontological resources constitute a fragile and non-renewable scientific record of the history of life on earth. BLM policy is to manage paleontological resources for scientific, educational and recreational values, and protect or mitigate these resources from adverse impacts. To accomplish this goal, paleontological resources must be professionally identified and evaluated, considering paleontological data as early as possible in the decision making process. Paleontological resources will be managed according to the BLM 8270 Handbook and BLM Manual for the Management of Paleontological Resources.

3.1.11.1 Current Conditions

The ROI for paleontological resources is comprised of the RMPPA. Paleontological resources are integrally associated with the geologic rock units (i.e., formations) in which they are located. Detail of these associations is provided in Appendix F. If extensive excavation on a certain formation in one geographic area results in significant paleontological resources, there is a potential that excavations throughout the extent of the formation may produce fossil material as well. The geographic extent of the RMPPA contains 128 named formations at the surface, 78 of which are known to be fossiliferous (Armstrong & Wolney 1989). However, these formations have differing potentials to contain significant fossils. Caution must be exercised when comparing fossils to rock units in as much that Appendix F only reflects the amount of paleontological work conducted in certain areas; other areas may also contain fossils, but have not been examined and evaluated (Armstrong & Wolney 1989). The potential for paleontological resources is currently noted through the use of the following five class definitions (depicted in Table 3-18 and Map 21):

- Class Ia—Fossils of scientific significance are known to be abundant in the formation within the area.
- Class I—Fossils of scientific significance are frequently found in the formation within the area.
- Class II—Fossils of scientific significance are occasionally found in the formation within the area.
- Class III—Fossils of some significance (usually due to fragmentary or poor preservation) are found in the formation within the area; **or** scientifically significant fossils are found in the formation outside the area; **or** fossils are not reported from this formation but the likelihood of fossils, based on sediment description and/or environment of deposition, remains.
- Class IV—Fossils are not known for this geologic unit and there is little likelihood of their occurrence.

Table 3-18. — Paleontological Resource Potential Classification Acreage

Class	Acres Within BLM-Administered Lands	Percent of Total Acres
Ia	398,900	29.6
I	104,700	7.8
II	605,300	44.9
III	232,700	17.2
IV	8,000	0.6

Paleontological localities are areas of known paleontological resources with defined boundaries, usually associated with excavation and data recovery efforts. Although a comprehensive paleontological inventory has not been carried out for the RMPPA, government, academic, and private industry personnel have studied paleontological resources in various contexts, but principally in relation to surface disturbing development activities. At least 40 groups and institutions from the 1850s to present have collected fossils in the RMPPA (Armstrong & Wolney 1989). In that time, over 1,000 paleontological localities have been documented for the region. Fossils recovered from these localities represent a diverse array of plants, invertebrates, and vertebrates. However, no paleontological localities have been identified on BLM-administered land within the RMPPA over the past six years during development-related surface disturbance. Scientific activity has occurred during the past six years and there are currently active paleontological use permits issued for the BLM-administered land within the RMPPA.

3.1.11.2 Characterization

Paleontological resources are indicated by both the presence of and potential for these resources. The current trend of paleontological resource use permits and scientific activity would likely continue or increase slightly in the future. Clearances and monitoring of surface disturbing activities are anticipated to be the primary means of identifying paleontological localities.

3.1.12 Special Management Designations

3.1.12.1 Wilderness Study Areas

WSAs contain wilderness characteristics and are managed to preserve those values until Congress either designates them as wilderness or releases them for other uses. This applies to the 7 WSAs in the RMPPA. A discussion of the current resource values and uses found in each WSA, established in 1980 under the authority of Section 603 (c) of FLPMA, can be found in the Colorado BLM Statewide Wilderness Study Report.

In 1964, Congress passed the Wilderness Act, thereby establishing a national system of lands for the purpose of preserving a representative sample of ecosystems in a natural condition for the benefit of future generations. Until 1976, most land considered for, and designated as, wilderness was managed by the National Park Service (NPS) and USFS. With the passage of FLPMA in 1976, Congress directed the BLM to inventory, study, and recommend which public lands under its administration should be designated wilderness. Through this process, two areas in the RMPPA (Cross Mountain WSA and Diamond Breaks WSA) were recommended for wilderness designation; the West Cold Springs, Ant Hills, Chew Winter Camp, Peterson Draw, and Vale of Tears WSAs were not recommended for wilderness designation.

Current Conditions

In 1980, BLM completed the wilderness inventory of BLM-administered lands within the RMPPA, finding eight areas that possess wilderness character. Following completion of the inventory in 1980, BLM designated eight WSAs; however, Tepee Draw WSA was dropped from further wilderness recommendation and removed from wilderness study in the 1989 Little Snake ROD. The remaining seven WSAs totaling approximately 78,249 acres are shown on Map 22. The seven WSAs are listed in Table 3-19 as follows:

Table 3-19. — Wilderness Study Areas in the Little Snake RMPPA

Proposal Name	Area (in acres)*	Recommend for Wilderness?
Cross Mountain	14,273	Yes
Diamond Breaks	31,807	Yes
West Cold Springs	14,661	No
Ant Hills	4,226	No
Chew Winter Camp	1,216	No
Peterson Draw	5,022	No
Vale of Tears	7,044	No
Total	78,249	

Source: Wilderness Study Report, Volume One, Craig District Study Areas, BLM, October 1991

These WSAs, established under the authority of Section 603(c) of FLPMA, are being managed to preserve their wilderness values according to the interim management policy (IMP), and will continue to be managed in that manner until Congress either designates them as wilderness or releases them for other uses. Should any of these WSAs be released from wilderness consideration by Congress and subsequently released from management under the IMP, subsequent planning documents will prescribe how these lands will be managed. There are no congressionally designated wilderness areas within the RMPPA.

Management of WSAs is similar but generally less restrictive than management of designated wilderness. Examples of some of the activities that are allowed in WSAs include hunting, fishing, camping, hiking and horseback riding, livestock grazing, and travel with motorized vehicles on existing routes. Activities that would impair wilderness suitability are prohibited in WSAs.

There are six primary provisions of FLPMA with regard to interim management of WSAs:

- WSAs must be managed so as not to impair their suitability for preservation as wilderness.
- Activities that are permitted in WSAs must be temporary uses that create no new surface disturbance, nor involve permanent placement of structures.
- Grazing, mining, and mineral leasing uses that existed on October 21, 1976 may continue in the same manner and degree as on that date, even if this would impair wilderness suitability of the WSAs.
- WSAs may not be closed to appropriation under the mining laws to preserve their wilderness character.
- Valid existing rights must be recognized.
- WSAs must be managed to prevent unnecessary or undue degradation.

Only Congress can designate the WSAs established under Section 603 of FLPMA as wilderness or release them for other uses. The status of the existing WSAs will not change as a result of the LSFO resource management planning process and revision of the RMP. A discussion of the current resource values and uses in each WSA can be found in the Colorado BLM Wilderness Study Report, Volume One, Pages 1-168, Craig District Study Areas. The following is a brief description of each WSA.

Cross Mountain. The Cross Mountain WSA is located in Moffat County approximately 15 miles west of Maybell, Colorado. Two sections of undeveloped Colorado state lands adjoin the WSA on the eastern

edge and northwest corner. The WSA is bordered on the south by undeveloped BLM land, on the north and east by undeveloped private and state lands and county and BLM system roads, and on the west by undeveloped private land and county and BLM system roads. Cross Mountain is an oblong, flat-topped land mass rising over 2,200 feet above the floodplain of the Yampa and Little Snake Rivers. The Yampa River has cut a 1,000-foot gorge through the mountain, which provides spectacular geologic features representing approximately 1 billion years of geologic history. Erosion of the east and west flanks of the mountain has exposed colorful, rocky rims, side canyons, and rock outcrops. Vegetation consists of pinyon and juniper woodlands with sagebrush communities scattered throughout the area. Pockets of aspen and mountain brush are found on the east flank of the mountain and a relic stand of ponderosa pine set in red sandstone slick rock adds to the interest of the area. The plant *Cirsium ownbeyi* (Owneby's thistle) is a candidate for federal listing and the area is also habitat for two rare endemic plants: Yampa beardtongue and Watson's pricklygalia.

The area provides habitat to a diversity of wildlife and threatened and endangered species. Elk, mule deer, pronghorn, coyote, mountain lion, fox, and occasional black bear inhabit the mountain. The Yampa River provides habitat for the endangered Colorado pikeminnow, bonytail chub, humpback chub, and razorback sucker. Peregrine falcon and bald eagles inhabit the WSA as well as many other species of mammals, birds, amphibians, reptiles, and fish.

Diamond Breaks. The Diamond Breaks WSA is located in Moffat County, Colorado and Daggett County, Utah, approximately 65 miles northwest of Maybell, Colorado. The WSA is bounded on the north by the Browns Park National Wildlife Refuge and on the west by Dinosaur National Monument. The area consists of the Diamond Mountains, part of the eastern extension of the Uinta Range. A dominant feature of the WSA is a series of northeast-southwest trending mountain peaks with ridges, steep draws, and canyons draining north and south to southwest. This series of colorful, rugged, red sandstone ridges provide a dramatic and scenic background as viewed from Browns Park and along the Green River.

The Diamond Breaks WSA contains a diverse mixture of vegetation including sagebrush, pinyon and juniper woodlands, aspen, mountain brush, Douglas fir, limber pine, and ponderosa pine. It also maintains a diversity of wildlife including elk, mule deer, black bear, mountain lion, coyote, and other mammals and reptiles. A large portion of the WSA provides winter range for deer and elk. Golden eagle and other birds of prey nest within the WSA due to the availability of good cliff and woodland nesting habitat.

West Cold Springs. West Cold Springs WSA is located in Moffat County, Colorado and Daggett County, Utah, approximately 65 miles northwest of Maybell, Colorado. The WSA consists primarily of the western portion of the rugged, south-facing slopes of Cold Spring Mountain. The area is characterized by deep draws and canyons that have been cut through the O-Wi-Yu-Kuts-Plateau, forming a series of plateaus and ridges along the northern margins of Browns Park. The WSA appears to be in a transition zone between the Wyoming Basin Province ecoregion to the north and Rocky Mountain Forest Province ecoregion to the south. Diverse vegetation communities cover the area, consisting of sagebrush steppe and saltbrush/greasewood in the low elevations, dense pinyon and juniper woodlands that dominate the area, and large old growth mountain mahogany and oak scrub communities mixed with limber pine, lodgepole pine, Douglas fir, and aspen. Dense riparian vegetation is found in Beaver Creek Canyon and Spitze Draw.

The area provides habitat for diverse wildlife species including elk, deer, antelope, bighorn sheep, mountain lion, coyote, beaver, raptors, and numerous other birds, mammals, reptiles, and amphibians. The area is managed as part of the Colorado Division of Wildlife's Cold Spring Quality Elk Management Area. Beaver Creek is Class II High Priority Fishery Resource with documented past occurrence and

probable current occurrence of state or federal threatened species. Yellowstone cutthroat trout, brook trout, and brown trout are presently found in Beaver Creek. The aquatic and riparian habitat was documented to be in above average condition in the 1991 BLM Wilderness Study Report (BLM Wilderness Study Report, October 1991, Volume One, Pages 1-168, Craig District Study Areas).

Ant Hills. The Ant Hills WSA is located in Moffat County approximately 50 miles west of Maybell, Colorado. The WSA is bordered on the west and south by Dinosaur National Monument, on the north by a road, and on the east by undeveloped BLM-administered lands in Big Joe Draw with the Chew Winter Camp WSA in the southeast corner. The area is remote and consists of hills and valleys on the southern slopes of Douglas Mountain. The Ant Hills consist of several hills rising 400 to 500 feet above the draws in the southeastern part of the WSA. The area is an extension of the landforms and drainages found in Dinosaur National Monument, and the WSA is dependant upon the Monument for outstanding wilderness values. Vegetation consists mainly of pinyon and juniper woodlands, sagebrush, and native grass communities.

Chew Winter Camp. The Chew Winter Camp WSA is located in Moffat County approximately 50 miles west of Maybell, Colorado. The WSA is bordered on the south by Dinosaur National Monument, on the north by a primitive way on undeveloped BLM land, on the east by the Peterson Draw WSA, and on the west by the Ant Hills WSA. The area is remote and consists of ridgetops and portions of intervening drainages on the southern slopes of Douglas Mountain. The area is an extension of the landforms and drainages found in Dinosaur National Monument, and the WSA is dependant upon the Monument for outstanding wilderness values. Vegetation consists mainly of pinyon and juniper woodlands, sagebrush, and native grass communities.

Peterson Draw. The Peterson Draw WSA is located in Moffat County approximately 45 miles west of Maybell, Colorado. The WSA is bordered on the south by Dinosaur National Monument, on the north by a road and private land surrounding the abandoned K-T mine, on the east by a primitive jeep trail on undeveloped BLM-administered lands in Bower Draw, and on the west by the Chew Winter Camp WSA and a primitive jeep trail. The area consists of rocky ridges, peaks, and gently rolling hills. The area is an extension of the landforms and drainages found in Dinosaur National Monument, and the WSA is dependant upon the Monument for outstanding wilderness values. Vegetation consists mainly of ponderosa pine forest along the northern boundary, pinyon and juniper woodlands, sagebrush, and native grass communities.

Vale of Tears. The Vale of Tears WSA is located in Moffat County approximately 25 miles west of Maybell, Colorado. The WSA is bordered on the south by Dinosaur National Monument, on the north by undeveloped private land and a dirt road through BLM land, and on the east and west by a primitive way through undeveloped BLM land. The area is remote and is located on the southern slopes of the southwestern end of Douglas Mountain within one-half mile of the Yampa River in Dinosaur National Monument. The Vale of Tears drainage in the southern part of the WSA has the appearance of colorful badlands with banded multicolored soil. The rugged Sawmill Canyon cuts through the eastern part of the WSA. The remainder of the area consists of ridges, peaks, and draws that promote the ruggedness of the area. The WSA is an extension of the landforms found in Dinosaur National Monument. Vegetation consists of dense pinyon and juniper woodlands with sagebrush and saltbrush/greasewood communities at lower elevations. The area provides habitat for mule deer, elk, birds of prey and numerous other birds, mammals, and reptiles.

Characterization

During the interim period between the inventory that identifies suitable and eligible areas appropriate for wilderness designation and the actual congressional designation of a wilderness (which can be many

years), designated WSAs require special management practices to preserve the wilderness characteristics that make an area appropriate for designation.

Current management of the seven WSAs listed above will continue as described in Section 2.1.11.1 of this document. Increased use of these areas will continue, which could require additional restrictions to be determined through this planning process in order to preserve the wilderness characteristics of each area. According to WSA monitoring reports since 1999, no major impairment has occurred to either the Cross Mountain or Diamond Breaks WSAs. Minimal vehicle traffic and fire suppression activities were noted. Based on this information, current management is successfully protecting the wilderness characteristics found within these two WSAs as well as non-recommended WSAs.

The seven designated WSAs in the RMPPA will continue to be managed to preserve the wilderness characteristics. In 1996, the State of Utah, Utah School Institutional Trust Land Administration, and the Utah Association of Counties (collectively Plaintiffs) filed suit challenging BLM's authority to re-inventory lands for possible wilderness study area designation in Utah. A settlement to this suit, as amended, was reached in April 2003 between the Department of the Interior and the Plaintiffs. Consistent with BLM policies for the identification, management and protection of multiple uses, terms of the settlement will be applied Bureau-wide. This settlement states that any land use plans completed after April 14, 2003 will not designate any new WSAs, nor manage any additional lands under the Section 603 non-impairment standard.

However, areas with wilderness character can be identified by BLM as a part of managing the public lands or through external nominations by the public. Both methods require the same type of review to determine whether the area has wilderness characteristics. Information provided by the public concerning resources and other values will be considered along with all other resource information in the planning process. New information may be considered in the NEPA process as appropriate. BLM will continue to manage public lands according to existing land use plans while new information (e.g., in the form of new resource assessments, wilderness inventory areas or "citizens proposals") is being considered in a land use planning effort.

In 1994, Colorado conservationists presented to BLM a bound volume entitled "*Conservationists' Wilderness Proposal for BLM Lands*" that included the compilation of numerous citizen wilderness inventories and the area-by-area justification for the statewide Citizens' Wilderness Proposal (CWP). The 1994 CWP included seven areas within the Little Snake RMPPA: Cold Spring Mountain, Cross Mountain, Diamond Breaks, Dinosaur Adjacent (which includes 6 units, also referred to as Dinosaur Wilderness Additions), Pinyon Ridge, Vermillion Basin and Yampa River. In 2001, based on new citizen inventories, the CWP was expanded to include new areas found to be eligible for wilderness protection around the state, including additional acreage added to the existing CWP areas in the Little Snake RMPPA (Map 23). Table 3-20 identifies the seven proposed wilderness areas and acreages within the Little Snake RMPPA.

Table 3-20. — Non-WSA Lands Proposed for Wilderness by the Public

Proposal Name	Area (in acres)[1]
Cold Springs Mountain	54,010
Cross Mountain	18,030
Diamond Breaks	42,960
Dinosaur Adjacent (includes 6 units)	57,200
Pinyon Ridge	20,850
Vermillion Basin	86,570
Yampa River	12,410
Total	292,030

[1] Acreage figures are approximate and do not reflect only those portions of the CWP that fall within the Little Snake RMPPA.

In November 1995, the Colorado BLM issued BLM Instruction Memorandum (IM-CO-96-010) requesting that field managers review certain CWP areas to determine if further analysis is needed for wilderness values. In December 1995, BLM field office response indicates portions of Vermillion may warrant additional wilderness evaluation. In May and June of 1997, respectively, Colorado BLM released policy (IM CO-97-044) to address CWP areas and hold discretionary irreversible or irretrievable actions in temporary abeyance until wilderness issues raised by the Colorado Environmental Coalition could be resolved through the BLM planning process, and released CO policy (IM-CO-97-051) Colorado Wilderness Review Procedures to be used in conjunction with IM-CO-97-044. Pursuant to these policies, BLM began a multi-step process of reviewing six CWP areas on Colorado's western slope. The LSFO inventoried Vermillion Basin and Yampa River CWP areas. The White River Field Office (WRFO) inventoried Pinyon Ridge, which lies within the boundaries of both field offices.

The BLM found the majority of all three CWP areas in the RMPPA to be roadless, but concluded that only Vermillion Basin warranted additional review. Specifically, the BLM concluded that Yampa River was eligible for wilderness consideration, but was already protected well enough in the interim by its SRMA designation. In a contested decision, the WRFO found that Pinyon Ridge was indeed roadless, but concluded that it failed to meet other criteria for wilderness.

In a letter to the BLM dated January 10, 2001, Moffat County disputed the results of the Vermillion Basin Wilderness Characteristics Inventory. In the letter, Moffat County listed ways and man-made structures that were not included in the 2000 BLM Wilderness Character Inventory. A detailed map of these ways and structures was included with the letter. Moffat County claimed that because several roads bisect the area into less than 5,000 acre pieces of land, the area does not meet wilderness criteria. Additionally, Moffat County urged the BLM to "acknowledge the subjective evolution and biases which concluded the Inventory Area contained significant naturalness and solitude or primitive and unconfined type of recreation opportunities." Finally, the letter requested that the BLM offer Moffat County the opportunity to participate in regards to multiple use issues, grazing management, and mineral exploration issues that would arise if future consideration is given to the wilderness designation of the area.

In June 2001, the LSFO released its Final Wilderness Character Inventory for the Vermillion Basin, concluding that 77,067 acres out of 81,028 inventoried roadless acres in the Vermillion Basin Area have wilderness character, and stated that this finding warranted a land use plan amendment. BLM has suspended oil and gas leasing decisions within the Vermillion Basin pending an RMP review of the existing uses and values. The majority of the Vermillion Basin is currently designated as "Open" to OHV use.

In November 2004 and January 2005, during this planning process, the Colorado Wilderness Network re-submitted information to BLM on the seven CWP units within the Planning Area. In accordance with BLM policy, an interdisciplinary team of BLM specialists will evaluate each public proposal for wilderness to determine 1) if it is new and significantly different from information considered in prior wilderness inventories conducted by the BLM, and 2) whether there is a reasonable probability that the areas (or significant portions thereof) may have wilderness character. From that evaluation, the BLM will determine which areas have wilderness character. Non-WSA lands *evaluated* by BLM and found likely to have wilderness characteristics (i.e., those non-WSA lands that have been *inventoried* by BLM and have been determined to possess wilderness characteristics) are managed according to the management prescriptions of existing land use plans.

3.1.12.2 Areas of Critical Environmental Concern (ACECs)

An ACEC is defined in FLPMA, Public Law 94-579, Section 103(a) as an area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards. BLM prepared regulations for implementing the ACEC provisions of FLPMA. These regulations are found at 43 CFR 1610.7-2(b).

Current Conditions

There are currently four ACECs within BLM-administered lands of the RMPPA, totaling 20,915 acres (Map 24). The size of each area and the values it is designed to protect are listed in Table 3-21. The values for which these four ACECs were designated are still present and require continued management attention.

Table 3-21. — Areas of Critical Environmental Concern

ACEC	Area (in acres)	Values
Limestone Ridge (also designated as an RNA)	1,399	Remnant (Relict) vegetation, sensitive plant species, and scenic quality. RNA for high value elk winter range and important elk concentration area.
Irish Canyon	11,919	Remnant (Relict) vegetation, sensitive plant species, geological, cultural, and scenic quality
Lookout Mountain	6,946	Remnant (Relict) vegetation, sensitive plant species, and scenic quality
Cross Mountain Canyon	650	Sensitive plant species, threatened and endangered species, and scenic quality

Characterization

Restrictions that arise from an ACEC designation are determined at the time the designation is made, and are designed to protect the values or serve the purposes for which the designation was made. In addition, ACECs are protected by the provisions of 43 CFR 3809.1-4(b)(3), which requires an approved plan of operations for activities (except casual use) under the mining laws. The EIS for the revised RMP will identify a reasonable range of alternatives that will include current management for these areas.

Increased use and surface disturbing activities (particularly OHV use) pose a threat to the relevant and important values in the Limestone Ridge ACEC/RNA, Irish Canyon ACEC and Lookout Mountain ACEC. Recreation use in the Irish Canyon ACEC has resulted in damage to rock-art sites, and the potential for mineral entry in the Lookout Mountain area could further threaten the ACEC values.

Current ACECs will be re-evaluated as part of the RMP revision process. This process will determine whether the relevant and important values of each ACEC are still present and require continued management attention, threats of irreparable damage to these values have been identified, and whether current management is sufficient to protect these values. Goals, standards, and objectives for each area will be identified, as well as general management practices and uses, including necessary constraints and mitigation measures (see BLM Manual 1613). This management direction should be adequate to minimize the need for subsequent ACEC management plans. In addition to the re-evaluation of existing ACECs, public and internal proposals to designate additional ACECs will be evaluated through the RMP revision process.

3.1.12.3 Wild and Scenic Rivers

The National Wild and Scenic Rivers System (NWSRS) was created by the Wild and Scenic Rivers Act (WSRA) of 1968. The purpose of the act was to preserve in their free-flowing condition, certain selected rivers of the nation, which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values.

Current Conditions

The Nationwide Wild and Scenic Rivers Inventory listed the Yampa River between the Williams Fork River and Dinosaur National Monument as potentially eligible for designation. The 1989 RMP was protested by the Colorado Environmental Coalition because it did not include a Wild and Scenic study. In resolution to this protest, the BLM was required to conduct the Wild and Scenic River Study. BLM policy now requires Wild and Scenic studies as part of the RMP process.

BLM resource specialists conducted a technical analysis in 1991, in which 172 stream segments in the RMPPA were inventoried and analyzed for potential eligibility. Seven stream segments on the Yampa River and one stream segment on the Little Snake River were found to be potentially eligible.

Currently, there are no river segments within the RMPPA that have been through the Wild and Scenic River review process. The final part of the Wild and Scenic River Study, the suitability analysis and report preparation, was not completed because of planning and funding issues regarding the Yampa Valley Alliance planning effort in 1992. This study will be completed as part of this RMP process.

An interdisciplinary team met in February 2005 to evaluate the preliminary Wild and Scenic River Eligibility Study. The conclusions of the 1991 study were found to be largely sufficient to include in an Eligibility Report. However, LSFO staff will visit several segments within the RMPPA to determine if Outstandingly Remarkable Values are present. An Eligibility Report is being prepared and a public review period is tentatively scheduled for April 2005.

The eight stream segments that were found to be potentially eligible and their approximate length, classification, and identified values are listed in Table 3-22.

Table 3-22. — Potentially Eligible Wild and Scenic River Segments

Segment	Size	Classification	Values
Little Snake River; Hwy 318 to Yampa River confluence.	9.5 miles	Recreational	Fish (Colorado Pike Minnow)
Yampa River; Williams Fork to Milk Creek	12 miles	Recreational	Boating and fish (Colorado Pike Minnow)
Yampa River; Milk Creek to Duffy Tunnel	15.5 miles	Scenic	Boating and fish (Colorado Pike Minnow)
Yampa River; Duffy Tunnel to Cross Mountain Canyon[1]	47 miles	Recreational	Boating and fish (Colorado Pike Minnow)
Yampa River; Cross Mountain Canyon	3.5 miles	Wild	Scenic, boating, fish (Colorado Pike Minnow)
Yampa River; Cross Mountain Canyon to Dinosaur National Monument	9 miles	Recreational	Fish (Colorado Pike Minnow)

[1] The Duffy Tunnel to Cross Mountain Canyon section of the Yampa River includes three segments. Total mileage of these segments is included in the 47 miles listed.

Characterization

Section 5(d) of the WSRA directs federal agencies to consider the potential for national wild, scenic, and recreational river areas in land use planning documents. A Wild and Scenic River review will therefore be conducted as part of the RMP revision process. The analysis will inventory all stream segments in the RMPPA that meet the following to determine if there are "outstandingly remarkable values" that would make the river segment "eligible" for further consideration as a Wild and Scenic River segment: 1) contain regular and predictable flows [in normal water years], 2) are free-flowing, 3) are derived from naturally occurring circumstances, and 4) are not ephemeral. The EIS for the revised RMP will then identify a reasonable range of alternatives that will identify which "eligible" river segments should be recommended as "suitable" for inclusion into the NWSRS. During the suitability process, consideration will be given to the amount of private land involved and associated or incompatible uses. This analysis will be included as an appendix to the Draft RMP/EIS following a public scoping process.

River-based activities are a major component of the recreation program and offer a unique recreation opportunity in the RMPPA. There is an increasing risk of loosing these recreation opportunities because of development along waterways within the RMPPA. Determining the eligibility and suitability of potential Wild and Scenic River segments is critical in protecting the "outstandingly remarkable characteristics" of certain streams and rivers within the RMPPA.

3.1.13 Visual Resources

VRM provides a mechanism for protecting the spectacular visual setting of the RMPPA, while allowing for other uses. Protecting the visual resources within the RMPPA is important because the area's scenery is valued by users and can be negatively affected by some resource uses. Human-caused changes to the geologic and biotic features of the landscape can also add to or detract from the scenic value of the area. FLPMA requires that the public lands be managed in a way that will protect the quality of scenic values. Levels of management vary by area, resource, and use.

3.1.13.1 Current Conditions

While the RMPPA is still largely undeveloped, range improvements and oil and gas developments of the past 15 years have changed much of the scenery. Range improvements, such as fencing and water developments, have occurred across the RMPPA. Most oil and gas developments have occurred in more concentrated areas where the potential for economically recoverable mineral resources is high. Highway 40 extends east-west through the towns of Steamboat Springs, Hayden, Maybell, and Craig, and Highway 13 extends north-south through the town of Hamilton. Overall, the landscape consists of open rolling hills and desert in the lower elevations of the western portion of the RMPPA, while forested mountainous landscapes characterize the higher elevations to the east.

Based upon recent field observations and the Visual Resource Inventory (1979), the landscapes vary greatly within the RMPPA, and are described physiographically. The landscape types consist of mountains, ridges, narrow valleys, canyons, mesas, rolling hills, broad valleys, river valleys, basins, reservoirs, and badlands. Following are brief narrative descriptions of the general landscape types that make up the visual resources of the Planning Area.

- Moderate to steeply sloping land at higher elevation levels generally characterizes mountains within the Planning Area. High alpine ridges, broken talus slopes, and smooth undulating slopes are all common to the mountainous terrain. North-facing slopes tend to be densely forested with mixed alpine conifers and aspen, while south-facing slopes support somewhat less dense stands of conifers and aspen with pinyon and juniper on the dryer aspects.
- Ridges, narrow valleys and rolling hills of intermediate elevation are located above the valley floors and below the mountains. Ridges and narrow valleys are characterized by moderate to steeply sloping land that crests in sharply angular ridgelines. Significant rock outcrops may be present along many of the slopes. Between these ridges are numerous steep walled valleys, which have been formed by intermittent streams that drain the area from west to east. Conifers and aspen are confined to northern aspects and higher elevations. Sagebrush, grasslands, and scrub oak are commonly found on lower slopes and southern aspects.
- The upland rolling hill environments situated at the base of the mountainous areas have a variety of vegetative types and patterns. Random patterns of aspen and mixed conifers and grasslands are typical along the hillsides, while the small valley bottoms lying between these hills contain small water features in the form of ponds and intermittent streams. Vegetation is diverse within these wetter valley floors. The lowland rolling hills are dominated by grass and sagebrush or pinyon and juniper depending on slight elevational differences, and differ from the upland rolling hills in that the vegetation is primarily uniform throughout. Due to the low profile of this vegetative cover, views are generally more expansive within the lowland rolling hill landscapes.
- Several canyons are found within the RMPPA characterized by nearly vertical, precipitous walls exhibiting a variety of geological formations. Flowing rivers or streams generally bisect the canyon floors and are visually dominant elements within the canyons. Vegetation is comprised primarily of coniferous species, which vary in density with the steepness of the canyon walls.
- Broad valleys of wide, open expanses of relatively flat to gently sloping lands are commonly used for agricultural activities, which also make use of the many small streams draining this landscape. Vegetation is diverse along the immediate stream corridors offering interesting patterns, textures and colors to the area. Outside the direct influence of the stream corridor, vegetation consists primarily grass and sagebrush. Basin landscapes are similar to broad valleys, but are much larger in scale and comprise an entire watershed. Basins have moderate to gentle slopes, no outstanding landform features, and vegetation primarily consisting of grass and sagebrush.

- Major rivers, such as the Yampa River, serve as important and dominant scenic resources within the RMPPA. Land associated with a major river corridor is referred to as a "river valley" and contains a great diversity of vegetation as a result of the dominant water feature. Agricultural activities are common, taking advantage of the water supply and flat valley floor.
- Major water bodies in the form of reservoirs or ponds are commonly used for recreation or agricultural activities. These waterbodies offer a variety of visual experiences and uses, especially if they are dominant water features.
- Mesas are extensive flat land areas that have been formed by streams. Typically, these mesas are independent from other mesas, separated by stream corridors. Dominant vegetation consists of grass and sagebrush with scattered stands of pinyon-juniper associations.
- Badland formations are characteristically areas where sandstone, claystone, mudstone, and shale have been exposed through erosion. Diverse colors and topography are characteristic of these areas and contrast greatly to the surrounding landscapes. Little, if any, vegetation exists within these areas, which highlights the intense colors and contrast between this and adjacent landforms.

The BLM's VRM system is a planning tool that helps to ensure that actions taken on the public lands today will benefit the visual qualities associated with the landscapes described above, while protecting these visual resources for adjacent communities in the future. The current Visual Resource Inventory (VRI), developed in 1979 for the RMPPA, is insufficient to be used as a planning tool because it is incomplete and outdated. The VRI does not reflect the classification of WSAs correctly, and thus does not help to protect the visual integrity of these areas. The VRI is currently being used as a mitigation tool after activities have been approved, rather than a tool in the planning and management of visual resources. The VRI is an insufficient guide for decision-making and does not protect the visual resources and/or prevent impacts to the landscape.

3.1.13.2 Characterization

BLM-administered lands are placed into one of four visual resource inventory classes, which represent the relative value of the visual resources. Classes I and II areas are the most valued, Class III represents a moderate value, and Class IV areas are of least value. The inventory classes provide the basis for considering visual values in the RMP process. Once the inventory classes are assigned to specific areas, each will serve as an indicator for visual quality and a baseline measurement for scenic values. This is a method of evaluating a proposed activity's visual contrast with the existing landscape character.

Visual quality is an important factor in land use decision making to prevent environmental degradation and maintain important resource values. Public perception of and concern for visual resources is critical in land use planning. The visual character of the RMPPA is valuable to a spectrum of users and sightseeing travelers. Designation and management of VRM classes allows BLM to control surface disturbing uses in a manner consistent with natural features and existing uses throughout the RMPPA.

VRM classes are assigned to areas based on the combination of scenic quality, visual sensitivity, and distance zones. VRM Classes I–IV range from completely natural landscapes to landscapes containing extensive human modification. Visual values are considered throughout the RMP process, and the area's visual resources are then assigned to management classes with established objectives:

- **Class I Objective.** To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- **Class II Objective.** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.

- **Class III Objective.** To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- **Class IV Objective.** To provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.
- **Rehabilitation Areas Objective.** Areas in need of rehabilitation should be flagged during the inventory process. The level of rehabilitation will be determined through the RMP process by assigning the VRM class approved for that particular area.

Management of VRM in WSAs may differ from management direction included in the 1989 RMP. The BLM's VRM manual stipulates that Class I covers special areas in which the management situation requires a natural environment essentially unaltered by man. This definition addresses WSAs.

The trend for impacts to visual resources within the RMPPA is increasing due to an outdated and incomplete visual resource management tool and increased use of RMPPA resources. The BLM planning regulations require the development of VRM objectives. For example, the visual classification of the WSAs within the RMPPA will be appropriately designated to reflect their scenic values, and thus management will adapt to protect these areas with quality visual characteristics. Management changes could also occur where areas of high quality scenic value intersect an area with a high demand for OHV use. These areas would have to be managed appropriately to balance both recreation and visual resource protection. Because changes in resource conditions may occur in the RMPPA and visitors may have developed increased sensitivity to visual contrasts and landscape changes, the entire RMPPA is in need of a contiguous set of VRM assessments and designations.

VRM assessment and management will be evaluated during the RMP revision process to ensure compliance with current VRM guidelines established by the BLM, and thus better manage the visual resources within BLM-administered lands of the RMPPA. Specifically, it will be important to evaluate the role that an updated VRM could play when considering visual resources in relation to upland conditions and vegetation resource management. For example, while healthy cover of perennial vegetation stabilizes soil, prevents erosion, and provides clean water to adjacent streams, it also enhances the visual quality of public land. The same considerations will need to be made for surface-disturbing activities associated with mineral development, and how an updated VRM could affect these decisions.

3.1.14 Geology

The RMPPA is located in the northwest corner of Colorado within a diverse geological setting. These geologic features affect the surface topographic features, soils, and hydrologic system. In addition, this geological variability, structural and stratigraphic, forms an ideal situation for accumulation of fluid and non-fluid mineral resources. Exposed rocks in the RMPPA are mostly sedimentary, but a minor amount of metamorphic and igneous rocks are also present in the eastern part of the RMPPA. Distribution of fluid and non-fluid minerals resources in the RMPPA is controlled by the geological characteristic, conditions, and trends of these features, which will influence the planning issues and the management actions for the area.

3.1.14.1 Current Conditions

The main tectonic and geographic features in the RMPPA (shown in Figure 3-13; Tweto, 1979) include the Uinta Mountains, Sand Wash Basin, Axial Basin Uplift, Piceance Basin, Douglas Creek Arch, White River Plateau, and Grand Hogback Monocline. The Park Range forms the extreme eastern boundary of

the RMPPA. The elevation ranges from 14,000 feet in the Sawatch Range to 4,400 feet where the Colorado River flows out of the northwest portion of Colorado. The generalized geologic stratigraphic columnar section in the RMPPA is presented in Figure 3-14.

Geologically, the area is defined by the Southern and Middle Rocky Mountains, Wyoming Basin, and the Colorado Plateau provinces (Figure 3-15; Fenneman and Johnson, 1946). The Axial Basin Uplift in Moffat County connects the Southern Rocky Mountains with the Uinta Mountains (Middle Rocky Mountains Province). The Piceance Basin, which occupies a small area of southern Moffat County and northern Rio Blanco County in the RMPPA, is within the Colorado Plateau Province. The Sand Wash Basin is the dominant geological feature in the RMPPA and is the southern most extension of the Greater Green River Basin of the southwestern Wyoming Basin. Rocks of Precambrian to the Cenozoic with a diverse lithology and complex structural patterns are present in the RMPPA. Cambrian through Tertiary age rocks are approximately 30,000 feet thick, of which 11,000 feet is clastic sediments of Cretaceous age rocks. The geologic eras and periods represented in the RMPPA are discussed by era below in Table 3-23.

Table 3-23. — Geologic Time Scale in the Little Snake RMPPA

Geologic Era	Geologic Period	Time Period in millions of years ago (mya)	Geologic Activity and Importance
Precambrian		545 – 4500 mya	During the Precambrian Era, the Cordilleran miogeosynclinal belt extended into the northwestern portion of Colorado where a maximum of 20,000 feet of sediments were deposited in the trough in Utah and northwest corner of Colorado.
Paleozoic	Cambrian	490 – 545 mya	A shallow shelf was covering much of northwest Colorado
	Ordovician	443 – 490 mya	
	Silurian	417 – 443 mya	Experts continue to debate whether northwestern Colorado was a land area or a shallow epicontinental sea (Chronic and Ferris, 1961) during this period.
	Devonian	354 – 417 mya	Pre-Devonian episodes of uplift and erosion preceded the deposition of the early Devonian sediments. Pre-Devonian erosional cycles have removed the Middle and Upper Ordovician Rocks. The late Devonian period characterized by a second phase of advancement of the sea from the west and deposition of carbonate sediment in a shallow marine environment.
	Mississippian	323 – 354 mya	This period is represented by a continuous carbonate deposition over a wide area that has been subject to early Devonian erosion. Later, during the middle to early late Mississippian time, the sea withdrew from the area and extensive erosion and weathering has occurred. However, the late Mississippian period is marked by an advancement of sea and extensive deposition of Mississippian sediment in northwest Colorado.

Table 3-23 cont'd. — Geologic Time Scale in the Little Snake RMPPA

Geologic Era	Geologic Period	Time Period in millions of years ago (mya)	Geologic Activity and Importance
	Pennsylvanian	290 – 323 mya	The early Pennsylvanian period is known for extensive tectonic activities in the area. The Front Range and Uncompahgre positive areas were providing the clastic debris to the area, especially to the Colorado trough. However, early Pennsylvanian limestone and dark shale sedimentation followed by evaporites and red clastic sediments.
	Permian	251 – 290 mya	During the late Pennsylvanian and early Permian time, red clastic, conglomerates, and sandstone were deposited in the area. Limestone deposits are also known to have been deposited during the Permian time. Upper Pennsylvanian-Permian Weber Sandstone is a major hydrocarbon producing formation in the RMPPA.
Mesozoic	Triassic	206 – 251 mya	The Uncompahgre Plateau and Front Range remained positive during the early to middle Triassic. Red beds of early Triassic sediments indicate widespread continuous sedimentation in the area. However, middle Triassic sediments are absent and the upper Triassic sediments rest unconformably over the early Triassic sediments in the area. The Lower Triassic Moenkopi and Shinarump Formations are also major hydrocarbon producers in the RMPPA.
	Jurassic	144 – 206 mya	The widespread late Triassic sedimentation continued into the early Jurassic period. Early to middle Jurassic sediments are of eolian and alluvial nature until the late Jurassic period where marine embayment extended into the northwest Colorado from the north. Entrada and Morrison Formations (lenticular sandstone) of the middle and Upper Jurassic age are the major oil producer in the area.
	Cretaceous	65 – 144 mya	However, during the late Jurassic and early Cretaceous period, the entire area was covered by continental sediments. Lower Cretaceous Dakota Sandstone is the primary natural gas producer in the RMPPA. The late Cretaceous is marked by a retreat of sea to the east and north. The area was covered by deltaic sediments. Cretaceous rocks are the thickest known sedimentary unit in the RMPPA. Middle Cretaceous fracture shales of Mowry and Mancos Formations are known to have produced high API gravity oil in northwest Colorado. However, Upper Cretaceous Mesa Verde, Lewis, and Lance Formations are the main natural gas objectives of exploration in the RMPPA, especially in the Sand Wash Basin. In addition, the Upper Cretaceous Mesa Verde Formation is the main coal producer in the RMPPA.

Table 3-23 cont'd. — Geologic Time Scale in the Little Snake RMPPA

Geologic Era	Geologic Period	Time Period in millions of years ago (mya)	Geologic Activity and Importance
Cenozoic	Tertiary	1.8 – 6.5 mya	Laramide orogenic activity created the present structural feature of the northwest portion of the Colorado during the Tertiary period. In general, non-marine sediments dominated the areas in northwest Colorado. Paleocene and Lower Eocene Fort Union and Wasatch Formations are also shallow natural gas producers in northern Moffat County within the Sand Wash Basin Areas. The Tertiary period Browns Park Formation is the major source of uranium in the area. The Eocene epoch Green River Formation in the Piceance Basin portion of the Little Snake RMPPA contains high gravity oil that is classified as an oil shale. Times of intense structural deformation in the area occurred during the Eocene and post-Eocene epoch during the Tertiary period.
	Quaternary	Present – 1.8 mya	Igneous intrusions and lava flow covered portions of the RMPPA, especially in the areas of the eastern Sand Wash Basin and Elk Mountain during the Tertiary and Quaternary periods.

Source: Fenneman, 1931; Chronic and Ferris, 1961; Haun; 1962; and Irwin, 1986.

The trend of regional structural features in the RMPPA is northwest-southeast. However, major, large scale features have north-south orientation that intersect the regional structures and form a very complex pattern. These complex structural patterns are favorable locations as hydrocarbon traps in the RMPPA.

An array of minerals resources is produced as a result of geologic activity in each geologic era and period. Triassic (Shinarump and Moenkopi Formations), Cretaceous (Mancos, Dakota, Lance, Lewis, and Mesa Verde Formations), and Lower Tertiary (Green River, Wasatch, and Fort Union Formations) age rocks provide the best sources of oil and gas production in the eastern part of the Sand Wash Basin. Upper Cretaceous (Mesa Verde, Lewis, and Lance Formations), Lower Tertiary (Fort Union and Wasatch Formation), and Upper Jurassic (Entrada, Curtis, and Morrison Formations) age rocks provide the best sources of oil and gas production in the western part of the Sand Wash Basin. Oil and gas resources in the Piceance Basin are primarily from Cretaceous and Jurassic age rocks with minor amounts of Triassic and Mississippian and Pennsylvanian rocks. Coal in the Little RMPPA occurs mainly in Upper Cretaceous age rocks (Williams Fork and Iles Formations) and to a lesser degree from Cenozoic age rocks (Wasatch and Fort Union Formations). The Sand Wash Basin has extensive coal resources in Upper Cretaceous age rocks (Williams Fork Formation and Lance Formation) and the Lower Tertiary age rocks (Fort Union Formation). Oil shale deposits occur within Middle Eocene age rocks of the Tertiary period (Green River Formation). Uranium is found in Miocene age rocks of Tertiary period (Browns Park Formation).

3.1.14.2 Characterization

The geological setting and present topographic features in the RMPPA were formed as part of large-scale, regional geological activities that took place several million years ago. In order to understand the local geology of the RMPPA, regional geological activities were used to characterize the local structure and stratigraphy of the area. Related, well known geological activities from the surrounding states, specifically Wyoming and Utah, were used in analyzing the local geology of the area. The major

geological features of the RMPPA would not change much through time, unless more regional-scale activities take place in the area.

Human, resources, or land use activities in the RMPPA are not expected to impact the general geology and structural features. However, resource development activities such as road construction, drilling location pads, pipeline construction, and production facilities (compressor stations) will cause minor disturbances and alternation to the land surface, but will not cause major changes to the topographic characteristic of the RMPPA. The discharge of produced water from drilling activities into the surface water system may increase the salt contents and possibly increase the flow rates, which could eventually increase the surface erosion rate. However, none of these factors would change the local or regional geological characteristics of the area.

3.2 CURRENT RESOURCE USE CONDITIONS AND TRENDS

3.2.1 Summary of Resource Uses

Resource uses involve activities that utilize the natural, biological, and/or cultural components of the RMPPA. Resource uses in the RMPPA include energy and minerals, livestock grazing management, recreation, forest products, lands and realty, and transportation and access.

3.2.2 Energy and Minerals[11]

Energy and minerals are discussed in three separate subsections to describe fluid and non-fluid minerals: leasable, locatable, and mineral materials.

- **Leasable minerals**—include oil and gas, coal, geothermal resources, oil shale, phosphate, helium, trona, and sulfate. Leasable minerals are governed by the Mineral Leasing Act of 1920, as amended, which authorized specific minerals to be disposed of through a leasing system.
- **Locatable minerals**—include stratabound gold, copper-gold deposits, diamonds**,** gems, semiprecious stones, limestone, zeolite, uranium, bentonite, gypsum, and titaniferous magnetite. Locatable minerals can be located and claimed under the Mining Act of 1872.
- **Mineral materials**—include sand and gravel, limestone aggregate, building stone, moss rock, cinders (clinker), clay, decorative rock, and petrified wood. Mineral materials are sold or permitted under the Mineral Materials Sale Act of 1947.

3.2.2.1 Leasable Minerals

Leasable minerals discussed in this subsection include conventional oil and gas, coalbed methane (CBM), coal, oil shale, and renewable energy resources. Leasable minerals are governed by the Mineral Leasing Act of 1920, as amended, which authorized specific minerals to be disposed of through a leasing system. Existing mineral leases for oil, gas, and coal are shown on Maps 25 and 26.

Oil And Gas

The Energy Policy and Conservation Act Amendments (EPCA) of 2000, Public Law (PL) 106-469, directed the Department of the Interior to conduct an inventory of oil and natural gas resources beneath

[11] *Note that this section was written without a current Reasonably Foreseeable Development (RFD) scenario for the Little Snake RMPPA and it will be updated to include this information in Chapter 3 of the Little Snake RMP/Draft EIS.*

federal lands. The Act also directed the Department of Interior to identify the extent and nature of any restrictions to their development. Executive Order 13212 (May 18, 2001), stated that "…agencies shall expedite their review of permits and take other action as necessary to accelerate the completion of [energy-related projects] while maintaining safety, public health, and environmental protections. The agencies shall take such actions to the extent permitted by law and regulation, and where appropriate." As a result, the Departments of the Interior, Agriculture, and Energy released a report, *Scientific Inventory of Onshore Federal Lands' Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to their Development* (referred to as the "EPCA Inventory"), in January 2003. Based on the EPCA Inventory, BLM designated seven EPCA Focus Areas to concentrate BLM efforts and resources to meet the President's National Energy Policy. BLM is integrating the results of the EPCA Inventory into RMPs and reasonably foreseeable development (RFD) scenarios.

Current Conditions

Two of the seven EPCA Focus Areas are partially found within the RMPPA, the Greater Green River Basin and the Piceance Basin. The Greater Green River Basin, which extends from Wyoming into most of Moffat and Routt Counties (known as Sand Wash Basin in Colorado), has the greatest potential for oil and gas resource development with a cumulative sedimentary rock thickness of more than 20,000 feet. There are 62 oil and gas fields in the RMPPA. Production from the eastern part of the Sand Wash Basin in Routt County is shallow and small in size, and historically produces more oil than gas. Production from the western part of the Sand Wash Basin in Moffat County is much deeper and produces more gas than oil; however, with recent technological advancement, additional resources have been identified in deeper formations in the RMPPA. A portion of the Piceance Basin, which occupies a small area of the southern part of Moffat County, has the second largest potential for oil and gas resource development in the RMPPA. However, the reserve in the RMPPA has been reported as mostly unconventional resources.

As of November 2004, approximately 60 percent of BLM-administered surface and 70% of federal mineral estate within the RMPPA is leased. There are currently 1,171 oil and gas leases administered by the BLM within the RMPPA. During the past 20 years, a total of 594 wells have been drilled in the RMPPA, of which 226 are on BLM-administered lands. On average, 30 wells are drilled each year (based on the last 20 years of data). It is expected that the number of wells to be drilled in the next 20 years will increase slightly as a result of new CBM gas well drilling activities in the RMPPA. A more detailed analysis of potential development is being prepared as part of the planning process and the results of this report will be incorporated in the RMP/EIS. Based on current economic conditions, it is likely the historic trend of numbers of wells developed will increase. Table 3-24 portrays oil and gas resource categories found within the RMPPA (Appendix A in Final EIS, 1991).

Table 3-24. — Oil and Gas Leasing Categories in the Little Snake RMPPA

Oil and Gas Leasing Category	Acres of BLM-Administrated Mineral Estate	Comments
Open Subject to Standard Lease Term and Conditions	1,878,000 acres	
Open Subject to Seasonal or Other Minor Constraints	22,530 acres	❑ Cross Mountain Canyon ACEC and Limestone Ridge ACEC/RNA—NSO stipulations. ❑ Irish Canyon and Lookout Mountain ACECs—CSU stipulations. ❑ Certain wildlife habitat—NSO, CSU, or timing limitations/stipulations and/or Lease Notice and Condition of Approval (COA) on permit application.
Open Subject to No Surface Occupancy or Other Major Constraints	80,000 acres	❑ Vermillion Creek Basin—administratively withdrawn until final decisions are made regarding sensitive resources.
Closed to Leasing	35,380 acres	❑ WSAs—closed to oil and gas leasing and development.

Characterization

The indicators for oil and gas development include presence of proven oil and gas reserves (conventional and unconventional) within and adjacent to the RMPPA and similar geological settings, and geophysical activities related to searching for and identifying new or additional resources. It is considered likely that significant conventional and unconventional oil and gas resources in the RMPPA will be developed in the next 20 years.[12] In addition, large scale geophysical activities in the RMPPA have increased, specifically in the western portion in Moffat County. As of November 2004, two Notice of Intent (NOI) to conduct geophysical surveys (3-D seismic) in Moffat County have been approved by the LSFO within the last six months. It is expected that approximately 40 large-scale 3-D seismic surveys will be conducted in the next 20 years within BLM-administered lands in the RMPPA. Therefore, it is reasonable to expect that existing production areas could be expanded and new reservoirs could be discovered.

Based on the RFD scenario developed for this RMP effort [currently pending completion by the LSFO], it is anticipated that approximately 1,000 wells (conventional and unconventional) could be drilled over the next 20 years in the RMPPA under current conditions. Presently, the general conventional spacing requirement is 40 acres for oil wells and 160 acres for gas wells. However, exceptions to the existing spacing requirements may be granted under certain circumstances. Of the total number of wells that could be developed, it is anticipated that approximately 44 percent would be gas wells, 15 percent oil wells, 35 percent dry holes, and 6 percent other types of wells (e.g., injection well). For each well developed, an estimated amount of acreage would be disturbed: 2 acres of land disturbed as a result of

[12] *A Mineral Potential Report has not been prepared for the Little Snake RMPPA in the past. However, resource potential development (low, medium, and high) has been evaluated for conventional oil and gas resource development based on the statistical analysis of the historical development data from the Little Snake RMPPA. Maps 2, 3, and 4 of the previous RMP ROD (1991) define the resource potential development in the Little Snake RMPPA. The LSFO has also reviewed the validity of the existing Reasonable Foreseeable Development (RFD) (1989) for the Little Snake RMPPA and determined that a new RFD is necessary for the current RMP effort.*

drilling activities (drill pads); 8 acres as a result of new road construction; and 12 acres as a result of production facilities and transportation pipelines. The total numbers of wells in the RFD will be reassessed during the alternatives development process. In addition to well drilling and production facility disturbances, additional disturbance is expected from geophysical activities in the RMPPA (estimated to be a total of 22,000 acres if recent trends continue). It is also expected that approximately 85 federal wells and 305 fee wells will be plugged and abandoned over the next 20 years. Of the 1,000 wells projected to be drilled in the RMPPA over the next 20 years, approximately 400 are expected to be federal wells.

Coalbed Methane

CBM is methane gas that can be extracted from coal seams. CBM gas is a relatively new and major source of onshore natural gas in the U.S. CBM production is very different from conventional oil and gas resources. Water permeates the coal bed and the pressure causes the methane to be absorbed onto the grain surfaces of the coal. To produce CBM, the water must first be removed, which causes a pressure reduction that allows methane to be desorbed from the coal and flow to the well bore. Since most CBM is associated with coals at shallow depth, exploration, well drilling and completion, and production costs are considerably lower than for conventional deep gas production.

Current Conditions[13]

Large quantities of CBM are available from coal beds that underlie public lands in the RMPPA; however, there are currently no commercially producing CBM wells. Based on the U.S. Geological Survey report (Brownfield et al, 2004), there are three main potential CBM areas in the Little Snake RMPPA: eastern Sand Wash Basin, Lower White River, and Danforth Hill (Figure 3-16).

The eastern Sand Wash Basin area includes Yampa Coal Field in the southeast corner of Moffat County and western portion of Routt County. Sand Wash Basin is the southern extension of the Greater Green River Basin of Wyoming, which has had proven CBM production fields for several years. Sand Wash Basin also has extensive coal resources in the Upper Cretaceous Williams Fork Formation, the Lance Formation, and the Lower Tertiary Fort Union Formation. These coals have gas content of less than 200 to 540 cubic feet per short ton (Kaiser and others, 1993). It is estimated that the Sand Wash Basin has at least 101 trillion cubic feet (Tcf) of gas reserves at depths of less than 6,000 feet.

The Lower White River area is in the northern part of Rio Blanco County and south central part of Moffat County and is within the Piceance Basin. The Piceance Basin is also one of the most prolific oil and gas basins in Colorado and has several productive CBM fields in operation. The producing CBM fields closest to the RMPPA are White River Dome and Pinyon Ridge, which are in the Lower White River area. The White River Dome field produces an average of 3,080 Mcf/day of gas and about 96 barrels of water per day (Johnson and Flores, 1998) from the Williams Fork Formation (Upper Cretaceous age). The average well depth in this field is about 5,400 to 6,400 feet. The Pinyon Ridge Field also produces gas from the Williams Fork Formation at an average depth of 1,300 feet. The Danforth Hill area is in the southeastern portion of Moffat County and northern Rio Blanco County.

[13] *Since there were no CBM wells or production history in the Little Snake RMPPA, CBM is considered with and included in the conventional oil and gas exploration and production resource development in the existing RMP (BLM, 1989, 1991). Recently, the LSFO has awarded a contract to perform CBM assessment for the entire Little Snake RMPPA. This assessment consists of two phases. Phase I will review the basic geology of the area regarding coal distribution and reserves, and Phase II will evaluate hydrology, impact of produced water from CBM fields on the groundwater, and the potential for CBM resource development in the Little Snake RMPPA. This report will be available in early 2005.*

In addition, seven CBM exploration/pilot projects (Meridian Oil and Marsh Drilling Company in 1989 and 1990; Cockrell Oil Corporation in the early 1990's; Phillips Petroleum in 2000, Yates Petroleum in 2002, and currently Patina Oil and Gas/CDX, Tipperary Oil and Gas Corporation and KLT Gas Inc.) have either been completed or continue to be explored and developed. The Iles, Williams Fork and Fort Union Formations are the formations of interest. Four of the projects are in Moffat County and three are in Routt County. Most of the wells drilled in these projects are fee wells. Reportedly, all of the projects have encountered large volumes of produced water with varying amounts of total dissolved solids. Much of the water is fresh enough for permitted surface discharge.

Characterization

The indicators for CBM include geological information, coal bed thickness, depth of coal burial, wide geographical distribution, available pipelines, and proven production from the same formation in surrounding areas (Greater Green River Basin and Piceance Basin). Based on current data, it is likely that the RMPPA will experience several CBM resource development projects in the next 20 years. The RFD scenario developed for this RMP effort [currently pending completion by the LSFO] projects that about 20 to 25 CBM wells could be drilled each year in the RMPPA over the next 20 years. The total numbers of wells in the RFD will be reassessed during the alternatives development process. Based on current conditions, it is anticipated that the well spacing would be 80 acres during the dewatering stage and 160 acres during production phase. However, the spacing requirements may change as additional data become available to evaluate the appropriate spacing requirement to capture the maximum efficiency in gas production.

There are currently no specific requirements established for CBM production within BLM-administered lands of the RMPPA. Since the impacts of CBM development are different than conventional oil and gas (e.g., water disposal and compressor stations), resource development requirements specific to CBM should be developed through the RMP revision process.

Coal

Coal is classified by rank in accordance with standard specifications of the American Society for Testing and Materials (ASTM) D-388. There are four basic types of coal of economic value: anthracite, bituminous, sub-bituminous, and lignite. These four categories of coals are different based on their hardness, density, heat value, and luster. Anthracite has the highest heat value and is the hardest of all four categories. Lignite, on the other hand, is less dense and has low BTU value. Coal impurities such as sulfur, ash, moisture, and volatile contents are also important in its value. Colorado coal has the second highest quality (low impurity content) in the nation. Most of the Colorado coals are bituminous and sub-bituminous.

Current Conditions

Of the 12 active coalmines in Colorado, four are within the RMPPA (Table 3-25). Moffat and Routt Counties are the two leading coal-producing counties in the state accounting for an annual production of about 16.50 million tons (2003 production, CGS report). Coal in the RMPPA occurs mainly in the Upper Cretaceous Williams Fork and Iles Formations, and to a lesser degree in the Wasatch and Fort Union Formations (Cenozoic age). The Green River Coal Region, which occupies most of Moffat County and the western portion of Routt County, is the largest coal-producing region in the RMPPA. Coal is also produced from the Danforth Hills and Lower White River areas within the Uinta Coal Region of the RMPPA. Most of the coals in the RMPPA are high-volatile bituminous to sub-bituminous (Trapper and Colowyo Mines) in rank and vary in bed thickness from 3 to 20 feet. The chemical analyses of coal from the Green River Coal Region contains an average of 9.7 percent moisture, 36.4 percent volatiles, 9.0

percent ash, and 0.6 percent sulfur. British Thermal Unit (BTU) values range from 9,850 (Moffat County, Yampa Field) to 12,581 (Routt County, Yampa Field).

Table 3-25. — Active Coal Mines in the Little Snake RMPPA [1]

Mine name	County	Coal Field	Formation	Mine Type	Annual Production
Colowyo	Moffat	Danforth Hills	Williams Fork	Surface	4,988,615
Trapper	Moffat	Yampa	Williams Fork	Surface	1,854,061
Twentymile	Routt	Yampa	Williams Fork	Longwall underground	8,127,386
Seneca II-W, Yoast	Routt	Yampa	Williams Fork	Surface	[2]

[1] Inactive coal leases are inspected annually to assure their inactive status. BLM conducts quarterly inspection of active mines in the RMPPA to verify production.
[2] Data not available.

As of November 2004, there were 88 coal leases in the RMPPA (Map 26), of which 16 are contained entirely on privately-owned lands. Accordingly, there is one inactive subsurface mine where the permit has been suspended (due to expiration) and two mines that are in the reclamation process (Edna and Seneca #1). One Lease by Application (LBA) was filed in May 2004 by Peabody Energy Engineering Company for additional coal development in Routt County (Twentymile Mine, COC-67514). Presently, Peabody's LBA is in the review stage of lease approval. According to the LSFO, one new coal mine is expected to open in the near future. However, due to economic factors and reduction in coal thickness at the surface, two of the surface mines may change the nature of their operations and start producing coal using underground mining techniques.

Characterization

The indicators for coal resources include geological information (outcrop, maps, sedimentary depositional system, core samples, and geophysical log signature). The indicators show that there are significant coal reserves within the RMPPA. Routt and Moffat Counties account for more than 30 percent of the total coal produced in the State. According to the *Geological Assessment of Coal Resources and Coalbed Methane Potential of Northwest Colorado Report* (U.S. Geological Survey, 2004), the following future coal potential development projections have been proposed for the RMPPA:

- The Danforth Hills, Lower White River, and Yampa coalfields contain approximately 56 billion short tons of coal in beds greater than 1.2 feet thick and less than 3,000 feet of overburden (Figure 3-17).
- The potential for mining operations in the Lower White River Coal Field is good and coal could be produced from two coal zones of Mesa Verde Group Formations.
- The Danforth Hills coalfield has a very high potential for coal resources for surface coal development. Coal in this field is produced from Fairfield Coal Group of the Williams Fork Formation.
- The Yampa coalfield is the most important coal producing area in Colorado. Future development potential is very high and expansion is expected to be underground using longwall technology. Coal from this field is produced from four coal zones of the Williams Fork Formations.

The coal suitability analysis prepared for the 1989 RMP is considered to be sufficient to carry forward for this RMP revision effort although it is currently being reviewed for adequacy. Current coal suitability determinations for BLM-administered lands within the RMPPA is depicted in Table 3-26. Exploratory

drilling or any other data gathering efforts to obtain additional information for resource management and economic analyses for the RMPPA may be considered on a case-by-case basis.

Table 3-26. — Coal Suitability in the Little Snake RMPPA

Coal Suitability	Area	Estimated Reserve
Available for Further Consideration [1]	638,800 acres	5.8 billion tons of coal
Surface or subsurface development only	457,089 acres	4.2 billion tons of coal
Underground development only	181,669 acres	1.3 billion tons of coal
Not available for surface mining	N/A	266 million tons of coal

[1] Lands available for further consideration would be assessed either during the development of a coal activity plan (e.g., calling for coal information, applying unsuitability criteria, performing multiple land-use analysis, or conducting surface owner consultation), or upon request by an applicant. Site-specific activity planning including additional environmental analysis is needed before approval of any lease.

Oil Shale

Oil shale is one of the unconventional hydrocarbon resources in the U.S. where most of the resources are located in Western States, especially in Utah, Wyoming, and Colorado (Piceance Basin, Uinta Basin, and Sand Wash Basin). According to the U.S. Department of Energy (DOE) report, the total oil shale reserve in the U.S. is about 2 trillion barrels of oil. Of this total reserve, approximately 1 trillion barrels of oil is contained in the Green River Formation in Colorado, but only a small fraction of this reserve is in the RMPPA. Approximately 78 percent of the surface acreage and 82 percent of the shale oil in place is administered by the BLM. Overall, the deposit's grade (percent oil content per ton), impurities such as sulfur and nitrogen contents, hydrogen content, access to water supply, access to infrastructure such as refinery, quality of oil (API gravity), oil price, recovery technology, the loss of liquids during processing, and environmental regulatory requirements (surface and groundwater quality, reclamation, air quality, and ecological and health effect) are among the most important factors in economic evaluation and development of this resource. In general, oil shale deposits are classified as low grade where recovery is approximately 15 gallons of oil per ton of shale, and classified as high grade where shale is at least 10 feet thick and there is potential for recovery of 25 or more gallons of oil per ton of sediments.

Current Conditions

Oil shale deposits occur within the Green River Formation of the Middle Eocene sediments covering approximately 2,600 square miles of northwest Colorado (Burgh, 1962). In the RMPPA, low-grade oil shale deposits are known in the Gray Hills of south central Moffat and north central Rio Blanco Counties and in sediments of the Sand Wash Basin in Moffat and Routt Counties. High-grade oil shale deposits are present in Piceance Creek Basin in northern Rio Blanco County and the south-central portion of Moffat County. Based on LSFO records, no oil shale development applications have been filed to date.

Characterization[14]

The indicators for oil shale include past and current oil shale development, pending or authorized applications, and development in neighboring areas with similar geography. It is estimated that approximately 1.5 trillion barrels of oil from oil shale deposits could be recovered from northwest Colorado (Burgh, 1962). However, development of oil shale has been limited because of oil price, recovery technology, access to refineries, transportation infrastructure, process water requirement, access to land (public and private), and environmental regulatory requirements (air, surface and groundwater, land reclamation and restoration, and ecological and health effect) (Bunger, et. al., 2004).

Renewable Energy Resources

Renewable energy resources include wind, solar, biomass, hydropower, and geothermal. Because the potential for development of biomass, hydropower, and geothermal resources are minimal in the RMPPA, these resources are not discussed in detailed in this document. However, wind energy has a moderate chance of being considered in the RMPPA, and is therefore discussed in detail.

In recent years, the Department of Interior in conjunction with the Department of Energy, Agriculture, and the Defense has developed an interim policy to comply with the requirement for wind energy regarding compliance with the NEPA. This policy development is in response to the NEPA requirements and the Nation's energy independence from foreign fossil fuel energy supply. The renewable energy resources potential in the RMPPA were not evaluated in the 1989 RMP/EIS.

Wind and solar resource production is permitted via ROWs through the Lands and Realty Program, whereas geothermal resources are considered leasable. However, for ease of reading, all renewable energy resources are discussed in the following sections.

Current Conditions

Wind and solar energy are the primary potential sources for renewable electricity generation within the RMPPA. However, interest in developing renewable energy resources in the RMPPA has not occurred to date.

Wind Energy. There are currently no wind energy producing facilities and no pending applications for wind facilities within the RMPPA. Based on the U.S. Department of the Interior Draft Programmatic EIS on Wind Energy Development on BLM-Administered Lands in the Western United States (2004), the northwest corner of the RMPPA has a wind energy potential of medium to high (Map 27). According to the Wind Energy Resource Atlas of the United States (1986), the RMPPA is within wind power classes of 6 and 7 (on a scale that ranges from 1 to 7). In addition, Brower and Company (1995) indicated that the RMPPA is predominantly in a wind power density class of 200-300 wind per square meter (which is marginal). However, isolated locations are also present with a wind power density of 300-400 wind per square meter (which is a “fair” rating).

Solar Energy. There are currently no commercial solar energy producing facilities and no pending applications for solar facilities within the RMPPA. However, with over 300 days of sunshine per year, Colorado is one of the prime locations for solar energy development. Data from the National Renewable

[14] *Because the latest RFD for the Little Snake RMPPA is not available to gather area specific future projections, potential development areas have not been defined and the projection for oil shale development has not been determined. Discussions on the future potential development for the area will be included in Chapter 3 of the Little Snake RMP/Draft EIS.*

Energy Laboratory (2002) indicate that most of the RMPPA is within 5.6 to 6.5 Kilowatt hour per square meter per day (Kwh/m^2/day) solar isolation annual average range (ranges from 3.5 to 7.0). Northeastern Moffat County and all of Routt County are within 4.1 to 4.5 Kwh/m^2/day.

Biomass. There are no biomass production facilities and no pending applications for biomass production within the RMPPA. There are numerous ways of using organic matter to directly generate power and heat, process it into fuels, or convert it to organically derived chemicals and other materials. Biomass sources are quite varied and include agricultural food and feed crops, crop waste and residue, wood waste and residues, animal waste, and municipal wastes. Based on the data published by the U.S. Department of Agriculture (1996 and 2002) and U.S. Environmental Protection Agency (2001), the potential for biomass renewable energy resource development in the RMPPA is very low and ranges between 50,000 to 775,000 mmbtu (the range is from 50,000 to 11,200,000 mmbtu).

Hydropower. There are no hydropower facilities or pending applications for the RMPPA. The U.S. Department of Energy (1998) indicated that hydropower resource development throughout the country has reduced drastically due to the environmental attributes and legal and institutional constraints. The potential for hydropower generation in the RMPPA is very low.

Geothermal. The BLM has statutory authority for leasing geothermal mineral rights under the Geothermal Steam Act of 1970 (P.L. 91-581; 30 U.S.C. §§ 1001-1027, December 24, 1970, as amended 1977, 1988, and 1993). Geothermal energy is a source of energy resource that uses the natural heat, steam, and/or hot waters of the Earth's interior supply. In particular, steam and hot water have been used to generate electricity since the early 1970's in the U.S. (California). In other places, it is used as a direct source of heat in buildings and swimming pools. There are no geothermal facilities or pending applications for the RMPPA. Geothermal energy resources have been used in Colorado since the early 1900s (Coe, 1978). In the RMPPA, geothermal development has been limited to only six known locations in Moffat County (Juniper and Craig) and Routt County (Steamboat, Brand's Ranch, and Hot Sulphur Springs) to heat swimming pools or baths (Coe, 1978). However, based on geological history, market demand, proximity to the population density and ease of access, environmental constraints, and development cost, the RMPPA does not have geothermal resources that can contribute significantly to the energy supply. In addition, the recent data published by the Southern Methodist University Geothermal Laboratory (2001) also indicate that the RMPPA has a low geothermal resource potential for commercial development and it is unlikely that it will support an economically viable geothermal power plant. No Known Geothermal Resource Areas (KGRAs) are known in the RMPPA.

Characterization

The indicators for renewable energy include the existence of current renewable energy facilities, pending or authorized applications, and renewable energy development in neighboring areas with similar geography. There are no renewable energy facilities in the RMPPA. However, the LSFO could potentially receive ROW applications for wind and solar energy facilities initiated under the new national policies for both wind and solar energy development on BLM-administered lands. Isolated locations within the RMPPA may be suitable for wind power development provided that suitable topographic locations, access to the power grid and transmission line ROWs could be developed economically.

The RMPPA may be suitable for solar power development provided that accessibility to suitable topographic locations, cost reduction in installation and distribution of electricity, access to the power grid and transmission lines ROWs, and technological advancement in more efficient systems are obtainable.

3.2.2.2 Locatable Minerals

Locatable minerals (metallic and non-metallic) are those that can be located and claimed under the Mining Act of 1872. Placer gold, limestone, zeolite, and uranium are further discussed in this subsection.

Current Conditions

Placer Gold. According to the Colorado Geological Survey Mineral and Mineral Fuel Activity Report (2003), there are no active metal and industrial minerals mines and/or prospects in the RMPPA. Based on the BLM records, there were two small low potential gold mines/prospects (Joker Mine operated by M&M II Ltd., and Blue Jet Mine that was operated by Orvie Zimmerman) in the eastern part of the RMPPA, which are now in reclamation. The production data for these mines/prospects are not available. Placer gold was also purported to be found in the eastern part of the RMPPA near the town of Steamboat Springs, at Hahn's Peak on U.S. Forest Service lands. These deposits were the result of the erosion of quartz veins related to Tertiary intrusion rocks in the area.

Limestone. A small limestone quarry, operated by Moffat Limestone Company, is present on Juniper Mountain in the RMPPA that supplies scrubbing materials to the power plants. The waste materials from the quarry are reportedly used as road base. The amount of production from the 2004 quarry activity is 27,000 tons of mineral grade limestone and 19,000 tons of non-mineral grade limestone. According to LSFO records, the operator of this quarry has a mining claim on the land.

Zeolite. An exploration mining notice for Zeolite in the Sand Wash Basin of Moffat County was filed in 2003. Zeolite is a hydrous aluminum silicate that is generally used for molecular filtration and as an ion-exchange agent. The project was reclaimed and no new proposals are pending or anticipated at this time.

Uranium. There are currently no uranium mining activities in the RMPPA. However, the Maybell-Lay-Juniper Springs region in central part of Moffat County and the Fish Creek District in the east central part of Routt County (near the town of Steamboat Springs) were historically two uranium-producing regions in the RMPPA. The Maybell-Lay-Juniper Springs region was the largest producing and the source of the uranium was believed to be the tuffaceous beds in the Brown Park Formation. Mining activity in this region started in 1953 and continued until 1982. Approximately 5,300,000 pounds of uranium oxide was produced.

Characterization

The indicators for locatable minerals are based on the geological information, required conditions for development of metallic minerals, economic values regarding percent ore recovery per ton of host materials and the percent of ore in the host rocks, market demand, and the nature of these commodities. Preliminary analysis of these indicators illustrate that it is unlikely that any significant metallic (gold or other metallic minerals) mining activities will be present in the RMPPA in the next 20 years. It is anticipated that current trends for non-metallic minerals (such as limestone and zeolite) would continue over the next 20 years.

Based on the recent study by the Department of Energy, National Uranium Resource Evaluation (NURE) report (Goodknight, 1983), it is speculated that the Maybell region could contain at least 200 million pounds of uranium oxide in intermediate-grade resources. If a large increase in the price and market demand occurs, uranium interest in the Maybell region could be renewed in the next 20 years.

3.2.2.3 Mineral Materials

Mineral Materials include sand and gravel and construction materials that are sold or permitted under the Mineral Materials Sale Act of 1947. The mineral materials program on BLM-administered lands within the Little Snake RMPPA centers mainly around the use of sand and gravel for concrete aggregate, road base and coverings, construction fill, and rock for aggregate, riprap, and decorative purposes (flagstone and moss rock). Other mineral materials, such as silica sand and decorative stone, are also produced in Colorado but not in the RMPPA. Mineral materials are sold at a fair market value or through free use permits to governmental agencies. Local government agencies and non-profit organizations may obtain these materials free of cost for community purposes. County and state road construction divisions are the significant users of gravel and sand resources.

Current Conditions

Presently, the RMPPA includes the following mineral materials activities: eight active community gravel pits (under free use permit), mostly in Moffat County; a general stone quarry at Breeze Mountain (flagstone, bulk stone); and several common use areas for moss rock. Mineral material disposal regulations allow limited quantities (up to 25 pounds with a yearly limit of 250 pounds) of petrified wood collection for non-commercial purposes under the terms and conditions consistent with the preservation of significant deposits as a public recreational resource (40 CFR 3620). In this case, petrified wood is classified as a salable mineral and paleontological resource, which may be subject to additional resource protection as specified in the RMP. Based on the BLM records, sporadic petrified wood areas possibly exist in the RMPPA. However, no permits have been issued and no requests for collection have been submitted to date.

Characterization

Indicators of mineral material development are based on geological units that have high potential for mineral materials and access. In areas of high potential for sand and gravel, which are located near major roadways (along Highway 40 between Craig and Steamboat Springs and along Highway 2 south of the Steamboat Springs) and along the Little Snake River, it is considered likely that mineral materials (sand and gravel) could be developed over the next 20 years. Other areas not easily accessible via major roadways are unlikely to be developed.

3.2.3 Livestock Grazing Management

Approximately 98 percent (1,282,590 acres) of the BLM-administered lands within the RMPPA are allocated to livestock grazing allotments, which are managed in accordance with the 1989 RMP. Allotments are an outgrowth of the grazing districts and permitting system established to manage livestock grazing in these districts by the 1934 Taylor Grazing Act. Unallotted acreage includes small isolated parcels not included within existing allotment boundaries, and areas withdrawn specifically for other uses. Approximately 36,052 acres in the central portion of the RMPPA were acquired through the Bankhead-Jones Farm Tenant Act. These tracts are known as Land Utilization (LU) lands, and were originally patented under the agricultural homestead laws.

Sustainable livestock grazing and desired rangeland condition requires the collective management of forage, water, soil and livestock by the BLM and the livestock owners and operators. An interdisciplinary approach ensures effective management of the multiple resource values and uses included in the RMPPA. The livestock that graze on lands within the RMPPA are primarily cattle, but also include sheep and some domestic horses. The relative numbers of these grazing livestock have varied in response to their economic value as a commodity (cattle and sheep) and their use in ranching operations (horses).

3.2.3.1 Current Conditions

The Colorado Standards for Public Land Health and Guidelines for Livestock Grazing Management, effective in 1996, establish appropriate conditions for soils, riparian systems, upland vegetation, wildlife habitat, threatened and endangered species and water quality. These standards not only pertain to impacts associated with livestock grazing, but also to other rangeland impacts from activities such as recreation, development activities, wildlife grazing and wild horse management.

There are a total of 348 allotments in the RMPPA (Map 28), which are comprised of BLM-administered land as well as land managed by other federal agencies, the State of Colorado, and private entities. These allotments are used by 197 permittees. The allotments are used for grazing cattle (59 percent of the allotments), sheep and horses (17 percent of the allotments), or sheep (12 percent of the allotments), with the other 12 percent of the allotments grazed by some combination of these species. Additional information on the allotments is provided in Appendix G. Section 3 permits provide grazing authority for 162 allotments, while the remainder of the allotments (186) are managed as Section 15 leases. Section 3 allotments are those that are within a grazing district, as provided in the Taylor Grazing Act, and are most common in the western portion of the RMPPA. Section 15 allotments are those that are outside a grazing district and are mostly located in the eastern portion of the RMPPA. Section 15 allotments total 118,130 acres of the federal surface.

The 1986 Draft RMP reported 166,259 permitted AUMs. Agreements between the BLM and individual permittees lowered the permitted AUMs to 165,275 by 1990 (BLM 1996 and BLM 1990). Total permitted numbers change frequently due to conversions of the class of livestock and changes in allotment or livestock management. With this caveat, the best estimate of current permitted use (Appendix G) indicates that the total AUMs provided on the lands managed by BLM, other federal agencies, the State of Colorado, and private entities are 141,242, 8,243, 145,025, and 724,210, respectively, with 13,841 AUMs in suspension. There are two unpermitted allotments, which are either used by the Colorado State Experiment Station or as a common allotment for permittees to use when their permitted allotment has insufficient forage for livestock grazing due to a wildfire or vegetation treatments.

Actual use is the number of AUMs used by livestock in a given year, which may be less than the number of permitted AUMs. Maintaining accurate records on actual use allows permittees and BLM to make comparisons with utilization data and vegetation trend data to guide livestock management adjustments. Use has fluctuated over the last ten years from a high in 2001 of just over 92,000 AUMs to a low in 1994 of less than 59,000 AUMs (Table 3-27). These changes are due to many factors, including precipitation levels, forage production, and market and social factors.

Table 3-27. — Livestock Billed Use In Animal Unit Months (AUMS) for the Little Snake Field Office, from 1994 to 2003, Craig, Colorado.[1]

Year	Cattle Sec 3	Sheep Sec 3	Cattle Sec 15	Sheep Sec 15	Horse Sec 3	Horse Sec 15	Total Sec 3	Total Sec 15	Total AUMs
1994	25,269	16,629	10,840	4,653	970	518	42,868	16,011	58,879
1995	32,580	18,307	10,459	5,596	1,814	506	52,701	16,561	69,262
1996	36,623	24,612	11,761	4,843	1,614	583	62,849	17,187	80,036
1997	34,817	27,243	11,095	5,052	1,548	603	63,608	16,750	80,358
1998	37,345	27,068	11,648	5,042	1,152	603	65,565	17,293	82,858
1999	39,826	35,815	11,532	4,792	2,279	558	77,920	16,882	94,802
2000	36,552	26,873	13,468	4,764	1,745	553	65,170	18,785	83,955
2001	40,301	31,837	12,805	4,804	1,804	463	73,942	18,072	92,014
2002	39,331	19,351	13,255	4,790	1,425	488	60,107	18,533	78,640
2003	33,120	15,684	13,659	4,960	920	483	49,724	19,102	68,826

[1] All actual use numbers are in AUMs that are based on billed use.

3.2.3.2 Characterization

Trends in livestock grazing reflect changes in livestock species, changes in permittees and their perspectives, and changes in permitted use or season of use. Since the early 1970's sheep producers in the area have been converting to cattle, or have sold to permittees wanting to run cattle on their allotments. This has caused a conversion of sheep grazing to cattle grazing on much of the RMPPA. Absentee ownership of many of the allotments has increased, as has the number of permittees that do not rely on livestock grazing for their primary source of income. Changes in the types of permittees that run livestock on the RMPPA have resulted in diversification of perspectives. Some permittees value the wildlife resources and habitat on their grazing allotments more than livestock grazing.

Changes in permitted use or season of use may be due to livestock conversions and the differences in seasonal use patterns for different species, or may be due to changes in rangeland condition. Variations in the condition of the land are in response to climatic factors and wildlife, livestock, and recreational use. If rangeland condition deteriorates, BLM has the ability to reduce the number of permitted AUMs, manage plant communities that provide forage and browse through vegetation treatments, change the season of use, require deferment and pasture rotations, and/or install range improvements such as fences, water pipelines, spring developments and reservoirs. These range improvements often enable more intensive grazing systems and encourage better livestock distribution and grazing utilization. BLM's traditional goal in managing livestock grazing is to provide sustainable habitat for livestock and other animals, which is likely to remain as the primary focus of BLM's management of livestock.

3.2.4 Recreation

3.2.4.1 Recreation Use

Current Conditions

General recreation use includes a variety of activities in the RMPPA, such as boating and river-based recreation, hiking and equestrian recreation, hunting and wildlife-based recreation, and OHV use on and

off roads and trails. In some areas, concentrated recreation use is beginning to create resource impacts and increased user conflicts.

BLM policy requires that concentrated recreation use areas be designated as SRMAs through the RMP process. These areas occur where BLM recreation funding has provided for on-the-ground improvements, such as campgrounds and interpretive signing. Areas that are not designated as SRMAs are by default Extensive Recreation Management Areas (ERMA), for which minimal capital investments are to be made. Under the current RMP, the Little Yampa Canyon SRMA is the only designated SRMA on BLM-administered land within the RMPPA.

OHV use is one of the fastest growing recreation opportunities in the RMPPA. Because of its relationship to transportation and access issues, discussion on the subject of OHV use can be found in Section 3.2.7 of this document. OHV use has potential to conflict with other recreation uses, such as hiking, biking and equestrian use, which utilize many of the same roads and trails. In addition, many recreation experiences require quiet and solitude, such as a backcountry experience or wildlife viewing. OHV use in the same area can frighten away wildlife and create noise across great distances, which diminishes the backcountry experience.

Hunting is another major recreation use which takes place across the entire RMPPA. Hunting-related revenue is a major part of the economic base in Northwest Colorado, which is a highly sought after destination for big game hunters. The number of hunters recreating in the RMPPA has remained constant over the recent past. User conflicts have been known to occur between hunters and hikers, particularly in the Cedar Mountain area. CDOW has determined that 40 percent of the big game license revenue taken in by the State of Colorado is from Moffat and Rio Blanco counties (Petch, personal communication, 2005)

There are limited fishing and waterfowl hunting opportunities in the RMPPA. Fishing for Northern Pike has become popular on the upper segment of the Yampa River. Other wildlife-related recreation opportunities include wildlife viewing and wild horse observation. Although wildlife-based recreation activity levels are relatively constant, there is a potential for increase (particularly viewing of wintering elk). Wildlife and bird watching tours are also common in the RMPPA, as eagles and other raptors can be viewed along Hwy 13. In the spring, antler gathering is popular in Sand Wash and the western portions of the RMPPA near big game wintering areas, such as Douglas Mountain, Diamond Breaks and Cold Springs.

The Yampa River provides recreation opportunities such as canoeing, kayaking, rafting, and jet boating. However, the season is short, generally from mid-May when spring runoff begins until late June when irrigation demands begin to substantially reduce flow levels. The river level drops enough that some sections become impassable by boat. A portion of the Yampa River is managed by BLM as an SRMA (also see Section 3.2.4.4). As of January 1999 under a cooperative agreement with the BLM, the Colorado Department of Parks and Recreation (State Parks) has become the primary manager of the Yampa River public land access sites. The purpose of the agreement is to implement the consistent river management component of the Yampa River System Legacy Project. The Legacy Project is supported by participating local, state, and national organizations and by a major grant from Great Outdoors Colorado. State Parks provides day-to-day management, facilities, signing, maintenance, and regulation enforcement. A user fee is charged at developed river access sites. State Parks and BLM cooperatively enforce all applicable laws and regulations on public lands within the Yampa River corridor. State Parks issues all Yampa River permits for commercial guides and outfitters.

Upstream of the Yampa River (on non-federal land), Elkhead reservoir also provides water-based recreation opportunities. This reservoir will be closed and expanded over the next few years by the City

of Craig Water Conservation District, which may increase use and recognition of river recreation opportunities on the Yampa River. The closing of the reservoir may result in a shift in recreation use patterns on the river to more motorized use from local boat and skijet owners, which will create an increase in user conflicts.

Because of the large amounts of historic and user created roads and trails in the RMPPA, the need to develop a designated and managed trail system has been low. Only two managed trail systems exist within the RMPPA. The Yampa Valley Trail contains both motorized and non-motorized trail segments, and use of these segments is generally low because much of the trail system exists in non-spectacular landscapes. Most use of this trail occurs in the Little Yampa Canyon SRMA, along Juniper Mountain, and in the western part of the RMPPA across the southern part of Cross Mountain Canyon. The other managed trail is the Cedar Mountain Trail, which is a non-motorized trail. This trail receives high use due to it's close proximity to the City of Craig.

Hiking and other trail-based recreation in the RMPPA do not occur at significant levels. Mountain bike use has increased since the last RMP planning effort, but actual use is still low, occurring mostly in the spring and summer. There is a potential for mountain biking opportunities to increase due to overflow from the Steamboat Springs area, which occurs mainly in the earlier part of the season because of snow pack in the Steamboat Springs area. Equestrian use in the RMPPA on and off existing roads, routes and trails, mainly by local horse enthusiasts, is popular and has remained constant. Motorized recreation occurs on many of the same trails as nonmotorized use and impacts other uses chiefly by diminishing opportunities for solitude. Nevertheless, there are good opportunities for solitude and remoteness in the RMPPA, especially in Brown's Park and near Dinosaur National Monument on the western side of the RMPPA. The WSAs in the RMPPA do not attract considerable recreational use.

Non-motorized recreation opportunities, especially hunting, exist in the Fly Creek and Serviceberry areas, which are both in the northern part of the RMPPA. Planning for these areas occurred in the mid-1990s and temporary travel restrictions were implemented that closed these areas to motorized vehicle use until final travel management decisions are made in the revision of the RMP. Comments from hunters in these areas indicate the non-motorized restrictions create a high quality hunting experience. Every season, BLM receives complaints about motorized vehicle incursions into these areas.

BLM attempts to account for the amounts of different types of annual recreation use through the Recreation Management Information System (RMIS). RMIS measures recreation participation in 65 types of recreation activities. However, the data sources for most of these activities depend entirely upon observations and professional judgment, and hence, have no supportable sources or statistical basis. Therefore, most of the RMIS data is unreliable and will not be used in this AMS. The activities that have supportable data sources are hunting licenses issued by CDOW, river permit and camping fees at river campgrounds managed by State Parks, and actual use figures reported by BLM permitted outfitters and guides. Hunting license data shows steady and high use trends over the past 10 years. River use has also been fairly consistent and heavy, with decreases in use during years of low river flows due to drought. Permitted outfitter and guide use has also remained strong and consistent during the past 5 years.

Although not statistically measured, OHV use within the RMPPA is increasing. The increase in this use during the past 15 years is obvious to long time users of the RMPPA. The LSFO has received an increase in complaints regarding OHV use in the form of written letters, phone calls and other in-person communication. These complaints concern resource and wildlife impacts, conflicts with non-motorized users, conflicts with other OHV users and irresponsible OHV use, motorized use in non-motorized areas, conflicts with grazing management activities, failure to close gates, vandalism to fences, and degradation of hunting experiences due to the use of OHVs by other hunters, which drives big game out of public land areas. The on-the-ground imprint of OHV use is also obvious to long time users of the RMPPA, with the

proliferation of many user created routes during the past 15 years, and the conversion of single track game and motorcycle trails to wider two-track trails. More discussion regarding OHV use is included in Section 3.2.7 below.

Antler gathering is another use that is increasing and creating increased user conflicts. Antlers that are shed by big game in their winter and spring ranges across most of the western RMPPA are of monetary value. The LSFO does not currently have any restrictions on the collection and sale of antlers. Many people who participate in this activity use OHVs to cover more ground than can be done on foot or via horseback. The LSFO has received reports of groups of people who "grid" areas to increase their success in finding antlers, and some reports of people "staking out their areas" and threatening other lawful users of the RMPPA to keep out of these areas.

Characterization

Indicators to measure trends in recreation include visitor use levels, user conflicts levels, impacts to resources, and compliance with commercial authorization.

Concentrated camping use is increasing across the RMPPA during the fall hunting seasons, and in the spring and summer due to OHV use. This increase in camping and associated impacts is especially obvious in Sand Wash, the Duffy Mountain area, and BLM-administered lands along the elk and deer seasonal migration routes. The impacts include soil compaction and vegetation loss at campsites, rock fire rings, user created routes, littering, and vandalism of signs. As OHV use continues to increase, potential conflicts with users will increase and impacts to wildlife, archeological resources, wild horses, and soil and vegetation resources will increase. The need for OHV management tools and active OHV management is becoming increasingly obvious.

Recreation use overall is likely to increase, especially motorized- and river-based recreation. Some recreation users are advocating more trail development in the RMPPA; particularly a trail system from Flat Tops to the Yampa Valley corridor. There is an opportunity for interpretive recreation at cultural sites to educate visitors on cultural resource values and heritage resources, such as rock art, caves, and other sites.

3.2.4.2 Recreation Opportunity Spectrum

Current Conditions

The Recreation Opportunity Spectrum (ROS) is a system of inventorying and classifying the range of recreational experiences, opportunities, and settings available on public lands. BLM primarily manages for five of the six ROS classes, including primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, and rural. The urban ROS classification does not typically require BLM management restrictions. Rural ROS classes also require very few BLM restrictions. The primitive, semiprimitive, and roaded natural classifications are designed to provide certain types of recreation settings and may require restrictions on use to meet management objectives.

Although ROS inventories were designated in the 1989 RMP, there was not an ROS objective that was stated where management actions would have to comply with the objectives. Hence, the past 15 years has resulted in an overall shift across the RMPPA towards a more developed ROS condition. Some of the more primitive settings, such as the WSA's have retained much of their original ROS setting, but unmanaged OHV use in some of these areas has the potential to shift the character of these areas to more developed settings.

Characterization

As predicted in the 1989 RMP, the trend over the last decade has been for ROS conditions to shift from more primitive to more developed, semiprimitive settings and from thence to more developed rural settings. This occurs as local populations and developments increase and the demand for primitive settings exceeds availability.

BLM Recreation Policy now requires that a Benefits Based Recreation Planning system be used in RMP revisions that identifies and manages for particular recreation opportunities. This system requires the designation of three different intensity scales of SRMAs, and funding for recreation developments will be focused on these SRMAs. Funding for recreation developments in ERMAs will be discouraged except for route and destination signing. ROS objectives can still be set through RMP revisions which will provide an additional management tool to meet recreation goals and assess impacts to recreation resources.

3.2.4.3 Extensive Recreation Management Areas

Current Conditions

ERMAs are areas where recreation is nonspecialized, dispersed, and does not require intensive management. Recreation may not be the primary management objective in these areas, and recreational activities in the areas are subject to few restrictions. Most BLM-administered lands within the RMPPA are managed as ERMAs.

On BLM-administered lands within the RMPPA, there are currently only two developed campgrounds, Rocky Reservoir and Irish Canyon. These campgrounds are free sites with few facilities and limited services due to their small size, remoteness, and low use levels. Additionally, there are picnic sites at the Irish Canyon interpretive site and at Cedar Mountain Recreation Area. There is a boat ramp near the upper part of Little Yampa Canyon.

Other areas of concentrated recreation use have been identified as being in need of increased management. Facility development such as ATV unloading ramps, horse corrals, hardened sites, and sanitation facilities has been considered for focused, developed recreation management in some key areas. Possible areas include:

- Emerald Mountain
- South Sand Wash
- Cedar Mountain
- Wild Mountain
- Duffy Mountain

Sand Wash in particular has been identified as one of the key motorized recreation opportunities in the RMPPA. An assessment was recently conducted to outline the recreation use history; explain the existing and emerging conflicts, impacts, and issues; display existing route and resource data; display existing management direction; and to recommend a planning and development approach to the Sand Wash area for future recreation use (BLM 2004).

Characterization

Recreation activity of any kind may indicate the need for ERMA designation and management. As areas of concentrated recreation use continue to increase in size, number and use levels, increased focus on

providing facilities in these areas will be required in order to protect natural resources and maintain the recreational experience. The management needs of some areas of concentrated recreation use may go beyond the scope of the ERMA. In that event, these areas could be considered for SRMA designation.

3.2.4.4 Special Recreation Management Areas

Current Conditions

SRMAs may be areas that require a recreation investment, where more intensive recreation management is needed, where unique recreation opportunities can be provided, and/or where recreation is a principal management objective. These areas may have high levels of recreation activity and/or valuable or sensitive natural resources.

The Little Yampa Canyon is the only designated SRMA on BLM-administered land within the RMPPA (Map 24). This area was designated as a SRMA in the 1989 ROD. The ROD states that the SRMA (19,840 acres) "will be administered . . . to provide unrestricted flatwater river floatboating opportunities in the region" (BLM 1989). It describes management actions that are needed and explains that all concerns for this area will be addressed in a Recreation Area Management Plan (RAMP). Subsequently, the LSFO completed the Little Yampa Canyon RAMP in 1996 (BLM 1996).

Characterization

An indicator of the need to designate an SRMA could include high levels of actual recreation use and/or a need for increased management of the area in question. Management of the Little Yampa Canyon SRMA continues to be monitored and can be revised as necessary. Other areas within the RMPPA are beginning to receive increased levels of recreation.

Other areas of important recreation use may become desirable for SRMA designation. Possible areas include:

- **Emerald Mountain:** If the area is acquired through the proposed land exchange, niche opportunities may include environmental education, watchable wildlife (big game and birds), muscle-powered day use (hiking, biking, and Nordic skiing), big game hunting, and OHV recreation.
- **Sandwash Basin:** Opportunities include developed recreation facilities, a managed OHV road and trail system, and onsite interpretation that includes watchable wildlife and wild horse.
- **Great Divide and Axial Basin:** Niche opportunities include big game hunting and watchable wildlife (big game).
- **Vermillion Basin:** Opportunities may include solitude and primitive/unconfined recreation, scenic views, watchable wildlife (big game and birds), archeology, OHV use, and mountain biking.

3.2.4.5 Special Recreation Permits

Current Conditions

As authorized by 43 CFR 2932, there are four types of uses for which special recreation permits (SRP) are required: commercial use, competitive events, organized groups, and recreation use in special areas.

BLM can issue SRPs for noncommercial use in certain "special areas" including rivers and backcountry and camping areas.

Most SRPs issued by the LSFO are related to hunter outfitting and guiding. The number of SRPs issued on BLM-administered land is market driven as opposed to being limited by BLM. Very few permanent camps are authorized on BLM-administered lands, as most camps are on private lands. Currently there are no commercially guided OHV-related SRPs issued by the LSFO, despite high OHV use. In addition, no river-related SRPs are issued by BLM because the Yampa river permit system is handled through State Parks.

Characterization

The number and type of SRPs issued and requested are used as indicators of the level of this type of use. There has been little change in the demand for SRPs on BLM-administered land within the RMPPA over the past planning period. It is unlikely the demand for SRPs in the RMPPA will change over the upcoming planning period. If demand for SRPs were to increase, the issue of limiting SRPs may need to be addressed.

3.2.5 Forest Products

3.2.5.1 Current Conditions

There are approximately 37,600 acres available for woodland products. Fuelwood is the greatest use of timber within the RMPPA. Individuals cutting firewood for personal use represents the greatest demand on the woodland resource. Historically, pinyon pine has been the preferred species for fuelwood in the RMPPA. More recently, juniper is increasingly used for fuelwood.

Harvesting trees for posts is another use of timber. Posts are generally found on the more productive pinyon-juniper sites where the soils are deep and well drained. Many of these areas are difficult to access. Seasonal Christmas tree harvesting by local residents is also a common use of the timber resource. However, the RMPPA contains only a limited quantity of good quality Christmas trees. The double needle pinyon that grows in this locality does not have the growth characteristics of the single needle pinyon, which is a popular Christmas tree.

There are also uses of timber that do not include harvesting. These uses include hunting, wildlife viewing, hiking, sightseeing, and camping. Such activities are becoming increasingly important uses of woodlands.

3.2.5.2 Characterization

Current trends observed by BLM resource specialists show an increase in pinyon-juniper woodland encroachment onto other lands, an increase in shade tolerant conifer species in aspen stands, and an increased fuel loading and stand stocking rate for other forest types. The rate of these changes has not been quantified.

Lands on the Diamond Peak, Middle Mountains and Douglas Mountain are considered suitable for timber harvest, and such uses might occur in the future.

3.2.6 Lands and Realty

The goals of the lands and realty program are to: manage the public lands to support the goals and objectives of other resource programs, provide for uses of public lands in accordance with regulations and compatibility with other resources, and improve management of the public lands through land tenure adjustments. The lands and realty program is a support program to all other resources to help ensure that BLM-administered lands are managed to benefit the public. The following sections describe the current conditions and characterization of lands and realty within the RMPPA.

3.2.6.1 Current Conditions

The ROI for lands and realty is comprised of the RMPPA. Of over 4.2 million acres encompassing the RMPPA, approximately 1.3 million acres (40%) is BLM-administered public surface ownership concentrated primarily in the western half of the RMPPA (Map 2). Approximately 53% is privately owned and 7% administered by the State of Colorado (Table 3-28). Roughly 1.1 million acres (56%) of the private and state lands are underlain by federally-owned minerals. BLM public lands are used for a wide variety of purposes, and it is common for conflict among competing uses to occur.

Table 3-28. —Surface Land Ownership in Little Snake RMPPA

Ownership	Acres
BLM Public Surface	1,351,300
Private	1,742,900
State of Colorado	251,700
Other Federal	878,600
Total	4,224,500

Major focus areas for the lands and realty program include land tenure adjustments, mineral estate, rights-of-way (ROWs), and communication sites, which are further discussed below. Wind and solar renewable resource production is permitted by ROWs through the Lands and Realty Program. However, for ease of reading, all renewable energy resources are discussed in Section 3.2.2.

Land Tenure Adjustments

BLM land tenure adjustments are used to consolidate, where possible, BLM-administered surface and subsurface estate. The following actions are considered:

- **Disposal**: Public lands have potential for disposal when they are isolated and/or difficult to manage. Disposal actions are usually in response to public request, such as community expansion. Disposals result in a title transfer, wherein the lands leave the public domain. All disposal actions are coordinated with adjoining landowners, local governments, and current land users.
- **Sale**: Public land sales are managed under the disposal criteria set forth in Section 203 of FLPMA. Public lands determined suitable for sale are offered on the initiative of the BLM. The lands are not sold at less than fair market value. Lands suitable for sale must be identified in the RMP. Any lands to be disposed of by sale that are not identified in the current RMP require a plan amendment before a sale can occur.
- **Acquisition**: Acquisition of lands can be pursued to facilitate various resource management objectives. Acquisitions, including easements, can be completed through exchange, Land and

Water Conservation Fund (LWCF) purchases, and/or donations or receipts from the Federal Land Transaction Facilitations Act sales or exchanges.

- **Exchange**: Land exchanges are initiated in direct response to public demand, or by the BLM to improve management of the public lands. Lands need to be formally determined as suitable for exchange. In addition, lands considered for acquisition would be those lands that meet specific land management goals identified in the RMP. Non-federal lands are considered for acquisition through exchange of suitable public land, on a case-by-case basis, where the exchange is in the public interest and where acquisition of the non-federal lands will contain higher resource or public values than the public lands being exchanged.
- **Withdrawal**: Withdrawals are used to preserve sensitive environmental values, protect major federal investments in facilities, support national security and provide for public health and safety. Withdrawal segregates a portion of public lands and suspends certain operations of the public land laws, such as mining claims. Certain stock driveways are also withdrawn. Federal policy now restricts all withdrawals to the minimum time and acreage required to serve the public interest, maximize the use of withdrawn lands consistent with their primary purpose, and eliminate all withdrawals that are no longer needed.

In all land tenure adjustments, keeping the surface and mineral estate intact on both the lands disposed of and acquired would benefit the future owners and their use of the land. Of the approximately 81,000 acres of BLM-administered lands in Routt County, 41,523 acres (269 parcels) were identified by the LSFO in the 1989 RMP as potential for sale or exchange. Some lands in Moffat County might also be considered for sale, exchange or Recreation and Public Purposes (R&PP) Act adjustments, leases, or withdrawals.

In Routt County, approximately 15,621 acres of BLM-administered lands (129 parcels) have been tentatively identified for sale, the proceeds from which will be used to purchase the 6,350 acre State Land Board Emerald Mountain parcel in Steamboat Springs. A separate NEPA analysis of the transaction has been initiated, and will be acknowledged but not analyzed as part of the RMP revision process.

Mineral Estate

Approximately 60% of the BLM-administered surface and 80% of the federal mineral estate within the RMPPA is leased. The BLM administers the leasing of the mineral estate underlying U.S. Forest Service (USFS) and Bureau of Reclamation (BOR) withdrawn lands, although mineral management decisions on these lands are coordinated with the appropriate surface agency. Much of the private lands had the mineral estate (either all of the minerals or portions of the minerals) reserved to the U.S. Government at the time they were patented. In these cases, the mineral estate is administered by the BLM, although those respective agencies and private landowners administer the surface estate.

Rights-of-Way (ROWs)

ROWs across BLM-administered land within the Little Snake RMPPA are primarily for pipelines, roads and electrical and telephone lines. The LSFO processes approximately 35 to 50 ROW applications per year. Thirty-five ROW applications were processed in 2004. In addition to minor linear and non-linear ROWs, there are nine major ROW corridors defined within BLM-administered land of the RMPPA and eleven other potential major ROW corridors, as designated in the 1989 RMP (see page 32-33 of 1989 ROD).

Corridors are established to accommodate preferred routes for transportation and transmission facilities. To the extent possible, linear ROWs such as roads and pipelines are routed where impacts would be least disturbing to environmental resources, taking into account point of origin, point of destination, and purpose and need of the project. Although established corridors exist, this does not preclude the location of transportation and transmission facilities in other areas, if environmental analysis indicates that the facilities are compatible with other resource values and objectives. Further identification of corridors may not necessarily mandate that transportation and transmission facilities would be located there if they are not compatible with other resource uses, values, and objectives in and near the corridors, or if the corridors are saturated. ROWs are issued with surface reclamation stipulations and other mitigation measures. Restrictions and mitigation measures may be modified on a case-by-case basis, depending on impacts to resources. Areas closed to mineral leasing, having an NSO restriction, or otherwise identified as unsuitable for surface disturbance or occupancy are generally avoidance or exclusion areas for ROWs.

Revised Statute (RS) 2477 rights-of-way are discussed in Section 3.2.7, Transportation and Access, below.

Communication Sites

Several sites within the RMPPA host communication equipment for various public and private tenants, such as phone companies, local utilities, and local, state and federal agencies. There are 3 communication sites on BLM-administered land within the RMPPA (Table 3-29).

Table 3-29. —Communication Sites within the Little Snake RMPPA

Site	Acres	Tenant(s)/Customer(s)	Status
Magnetic Mountain	3.03	Steamboat Amateur Radio	Authorized
		Public Service Company	Authorized
		Tri-State	Authorized
		Eagle Communications	Authorized
		CO Division of Telecom	Authorized
		Hutton's Radio Communication	Authorized
Juniper Mountain	11.44	Moffat County Communication	Authorized
		USDA – APHIS	Authorized
		Yampa Valley Electric	Authorized
		BLM Craig DO	Authorized
		Union Telephone Company	Authorized
		CO Division of Commerce	Authorized
		Steamboat Springs Amateur Radio	Authorized

Table 3-29 cont'd. Communication Sites within the Little Snake RMPPA

Site	Acres	Tenant(s)/Customer(s)	Status
Cedar Mountain	12.59	Public Broadcasting Company, Inc.	Authorized
		Wild West Radio, Inc.	Authorized
		Union Telephone Company	Authorized
		Public Service Company	Authorized
		Verizon Wireless	Authorized
		CO State Patrol	Authorized
		Tri-State	Authorized
		Rocky Mountain Natural Gas Co.	Authorized
		DOE WAPA Rocky Mtn Region	Authorized
		CO Christian University	Authorized
		CAP	Authorized
		Pearson Communication Ltd.	Authorized
		Moffat County Communication	Authorized
		Eagle Communications	Authorized

3.2.6.2 Characterization

BLM is moving toward the consolidation of BLM-administered lands to benefit the public. To achieve this goal, candidates for land tenure adjustment through disposal, sale, exchange, or acquisition include: parcels that are difficult to manage and/or that don't have public access, relatively small parcels adjacent to other federal or state-managed lands, parcels that would increase conservation of natural resources, and parcels that increase access/use of public lands. The current RMP is limited in allowing for some actions, such as land sales. Improved/expanded language in the RMP allowing the Field Office manager greater latitude in approving land tenure adjustment actions would help the LSFO achieve its objectives for this program.

BLM also anticipates an increasing need to consider the sale or exchange of mineral rights, particularly for split estate lands, in order to simplify land management and mineral leasing throughout the RMPPA. BLM has seen a steady annual increase in mineral leases over the past several years and since the last RMP decision document, but the 1989 RMP does not contain language for the sale or exchange of mineral rights. Conflicts between minerals development (e.g., oil/gas, coalbed methane, coal, solar energy, and wind energy) and the related transportation network and other land and resource uses and values in the RMPPA also need to be considered, particularly in areas of extensive ownership patterns. Some of the conflicts noted include disruptive activities and human presence in fisheries, big game (i.e., elk, deer, and antelope), crucial (crucial winter range and birthing areas), and other important wildlife species habitats (e.g., greater sage-grouse, mountain plovers, black-footed ferret, and raptors). Conflicts with recreation values, forage uses, air quality, sensitive vegetation types, and sensitive watersheds were also noted. Avoidance and exclusions for these resources could be considered.

ROW applications across BLM-administered lands have increased in the Little Snake RMPPA. The demand for utility corridors, access to communication sites, and additional roads within the RMPPA will

likely continue to increase. Established ROW corridors should be evaluated and considered for adjustment or elimination. The potential for additional ROW corridors should also be considered.

Demand for communication site applications, on both existing and new sites, on BLM-administered lands within the RMPPA is increasing. Communication site applications are now granted through lease rather than ROW. The LSFO expects the increasing demand for communication sites to continue. The revised RMP should include a focus on inventory and planning for communication site identification and management.

3.2.7 Transportation and Access

In the past, comprehensive and proactive transportation planning has not been an emphasis area for the BLM in Resource Management Planning and RMP implementation. The development of transportation routes, whether planned through projects such as oil and gas developments or created by recreation users, has traditionally been viewed as an acceptable part of the development of BLM lands. Research from the past 20 years on the impacts of roads to resources, wildlife, and other users, and actual experience by the BLM on these impacts is increasing the need for well designed and integrated transportation planning. Transportation planning needs to assess the cumulative and individual impacts of existing and proposed routes to resources, determine the appropriate road and trail construction standards needed on routes to allow for motorized and non-motorized access for land management needs, make decisions on allowed vehicle use and seasons of use, and make decisions on road and trail maintenance, reconstruction, realignment, and reclamation needs that provide a transportation system that is balanced with other resources and uses, while providing adequate access.

The 1989 RMP included a Transportation Plan. However, the RMP and Transportation Plan contain very little direction on how to integrate transportation needs with resource and use needs. This Transportation Plan is essentially a map that displays the approved transportation system at the time. This map shows the numbered BLM roads that are considered the official road system. There are about 170 miles of these roads, and they receive maintenance on a scheduled and as needed basis. The map also displays non-numbered BLM roads and trails, which do not receive maintenance but have been interpreted as also being part of the officially accepted BLM route system. There are about 600 miles of these roads. What the map does not show are the many miles of actual routes that are in existence and use on-the-ground. Inventory efforts by the BLM within the past 10 years have attempted to identify these ‘non-system’ routes, especially in Sand Wash and other areas heavily used by motorized recreationists. Based on these inventory efforts, it is estimated that there may be as many as 3,000 miles of these ‘non-system’ routes within the Little Snake RMPPA. Most of these routes are low standard, two-track types of roads that are used by OHV recreationists. Some of them are single track trails that have been developed through use by dirt-bike users, some of them access range improvements, and some of them are old seismographic dozer created routes that are sometimes used by OHVs. None of them receive maintenance through the BLM and their impacts to other resources are not managed.

In addition to the BLM route system are State and County road systems. These roads are usually constructed to higher standards than BLM roads and provide the primary arterial and collector road systems for access to and through BLM lands. Some of the county roads within the Little Snake RMPPA have not been authorized through ROWs, but have instead been adopted by the counties through their maintenance of these roads. The condition, maintenance and standards of these roads have largely not been integrated with BLM resource considerations.

Motorized access to the public lands within the RMPPA is provided by routes of all kinds and sizes ranging from state highways to paved roads, gravel roads and Jeep and OHV trails. The two most populated areas are Steamboat Springs in Routt County and Craig in Moffat County. Outside of those

towns, the majority of the RMPPA is remote and accessible only via smaller unimproved roads such as county roads, dirt tracks and trails. Some routes date back to the settlement and prospecting era; others have been pioneered by OHV users in the past few years. In comparison to the motorized system of routes, the non-motorized trail system is small. By and large, hikers and horse riders travel cross-country or follow natural travel corridors rather than using developed trails.

The LSFO manages access for the purposes of providing legal access to public lands and to provide BLM employees access to public lands for administrative purposes. Transportation within the planning area is managed for a variety of purposes by multiple agencies, including the State of Colorado, Routt, Moffat and Rio Blanco counties, BLM, private individuals and corporations. Many routes however, are rough and rarely or never maintained. The goal of the transportation and access program of the LSFO is to actively manage travel, access and OHV use within the area in order to meet public demand. Map 30 shows some of the transportation routes within the planning area.

An ongoing issue that cannot be resolved in the RMP process, but that is nevertheless important to local governments (especially Moffat County), is the resolution Revised Statute (RS) 2477 road assertions. Contained in the 1866 Mining Law, the RS 2477 authority was intended to facilitate settlement of the West by granting the ability for counties and states to assert a "right-of-way for the construction of highways over public lands." Congress repealed RS 2477 in 1976 when it enacted the Federal Land Management and Policy Act (FLPMA). Since then, it has been an ongoing issue between the federal government, counties, and states as to which routes were actually developed under the RS 2477 authority and thus are the responsibility of the counties. In 1997, Congress directed that the Department of the Interior not issue any new regulations on processing RS 2477 assertions and since that time, there has been no action in Colorado to resolve any of the disputed routes. There has been an attempted partial settlement of the issue involving the Secretary of Interior and the State of Utah that could potentially affect the issue in all BLM States but that settlement has been challenged in court and, as a result, has not been used in other States.

Moffat County has been active in the RS 2477 debate and has established an inventory protocol (June 2002), a maintenance protocol (January 10, 2003), a map showing their RS 2477 assertions (January 10, 2003), and established stipulations in Moffat County Resolution 2003-05 (http://www.co.moffat.co.us/NaturalResources/rightsofway.htm). The LSFO is unaware of any RS 2477 assertions for the RMPPA in Routt or Rio Blanco Counties at this time. Resolution of RS 2477 assertions is a legal issue beyond the scope of this RMP but the FO continues to be very aware of the position of Moffat County on the issue.

The following sections describe the current conditions and trends for travel management, access and OHV use within the RMPPA.

3.2.7.1 Travel Management

The goal of the travel management program of the LSFO is to provide appropriate access to BLM permittees, to provide for administrative access for management of public lands, and to provide a balanced mix of motorized and non-motorized opportunities across BLM-administered lands of the RMPPA.

Current Conditions

Related to transportation planning is travel management. Travel management is the identification, through RMP planning, of areas where motorized vehicle use is allowed, restricted, or not allowed depending upon resource and use considerations. The BLM has tended to designate areas as open to off-

highway vehicle (OHV) use in the past unless such designation was in direct conflict with other specific resource management decisions, such as WSA's or ACEC's. During the past 15 years, OHV use has greatly increased, causing impacts to resources and wildlife and conflicts with users. This has been the case throughout the west, including the Little Snake RMPPA. Without an actively managed travel management system in place, the transportation system is difficult to manage as new routes are created through repeated off road use by motorized vehicles.

Under the current RMP, approximately 71% of the BLM-administered lands of the RMPPA have open travel management designations, 24% are limited to existing or designated roads and trails, and 5% are closed (Map 31). Table 3-32 summarizes acres within the planning are that have restrictions on OHV travel (the balance of acreage within the planning area is classifies as open of OHV use). Travel management signing for the closed areas in Cross Mountain WSA and Diamond Breaks WSA was completed following the signing of the 1989 RMP. Other areas that were adequately signed in the past 15 years have been the Little Yampa Canyon SRMA, the Fly Creek area, and the Serviceberry areas. Until 2004, most of the remaining closed and limited use areas were not signed and subsequently not enforced. The lack of signing, education, and enforcement in these areas has resulted in the same proliferation of user created routes as in the open areas. Additional signing for areas designated as limited in the 1989 RMP is planned for 2005. The BLM Planning Regulations require that transportation plans (including determinations of open and restricted routes) be completed for areas designated as limited within 5 years of the completion of a revised RMP. Routes can be restricted to specific vehicle types to provide a mix of motorized and non-motorized recreation, and they can be seasonally restricted to protect wildlife and other resources.

Characterization

The primary factors describing the condition of travel management within the planning area are:

- The need for a comprehensive approach to travel management that considers the relationship between various resources, access for authorized permittees, and recreation uses.
- Unauthorized uses emanating from designated routes causing impacts to other resources.
- Conflicts between users, both motorized and non-motorized.

Use of the public lands within the planning area is increasing, which includes travel and access. Public lands within the RMPPA are becoming more popular for a variety of activities. In order to gauge and manage the increased popularity and use of the route network, travel within the planning area must be managed more actively and based on updated data. Active management and monitoring will necessarily include a baseline of updated GIS and other data in order to adequately plan resource use and monitor activities. This may require landsat analysis with on-the-ground verification and data collection across resource specialties. The management need includes a non-motorized trail system and a motorized trail system for both single track and two track.

3.2.7.2 Access

Current Conditions

As Map 30 indicates, the RMPPA is not bisected by an interstate highway. The main east-west highway is U.S. Highway 40, and the primary north-south route is Colorado State Highway 13. Much of the RMPPA is relatively remote. The LSFO intends to develop an access plan.

Characterization

See Section 3.2.4 above for information on recreational use of public lands in the planning area. These numbers show a substantial increase in recreational use of BLM-administered lands within the RMPPA. In addition to increased recreational use, the inability to legally access some public lands within the planning area indicates the need to comprehensively plan for access as part of the RMP revision process.

The 1989 RMP established access areas for primarily recreation and forestry uses. The RMP also established areas requiring the physical posting of BLM boundaries (see Map 2 on page 20-21 of the 1989 ROD).

There is insufficient boundary marking of BLM-administered lands, particularly those lands that are adjacent to other federally managed or private parcels. Additionally, changes in use and needs for access requires that access be analyzed and updated. In areas where legal access has never existed, the public is continuing to lose access to BLM-administered lands where private landowners are closing access through their privately owned parcels. Access to public land needs to be assessed in the revised RMP. For example, management might require that the BLM obtain legal access to isolated public lands.

3.2.7.3 Off-Highway Vehicles

OHVs include both motorized and non-motorized vehicles, of varying sizes and capabilities, from all terrain vehicles (ATV) and motorcycles to trucks and Sport Utility Vehicles (SUV), over snow vehicles, and bicycles. The dominant type of OHV use in the planning area is motorized.

Areas within BLM-administered lands of the RMPPA are designated by the BLM as open, limited to existing roads and trails, limited to designated roads and trails, and closed to OHV use. The LSFO has also designated three areas as temporarily closed in order to protect resources. Approximately 71% of the planning area is designated as open to OHV use, 24% is limited to existing or designated roads and trails, and 5% is closed (including temporarily closed) (Map 31). The designations are as follows:

- **Open:** Areas designated as open are available for OHV travel without restriction, based on an analysis that determines there are 'no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel'.
- **Limited:** Areas designated as limited to either designated or existing roads and trails restrict OHV travel in order to protect resources. Restrictions may include the number or types of vehicles, time or season of use, use of existing roads and trails only, use of designated roads or trails, or licensed use only. The BLM may also impose other restrictions as necessary to protect resources.
- **Closed:** OHV travel is not allowed in areas designated as closed. Areas are closed in order to protect resources, ensure visitor safety, or reduce user conflicts.
- **Temporary:** Areas may be closed to OHV use temporarily in order to allow resources to recover or for other purposes.

Current Conditions

As is the case throughout the West, the LSFO has realized a dramatic increase in OHV use within the RMPPA. In light of this increase, the LSFO has had difficulty monitoring and managing OHV use on BLM-administered lands. As a result, there is a need for planning OHV use within these lands. Table

3-30 summarizes acres within the planning area that have restrictions on OHV travel (the balance of acreage within the planning area is classified as open for OHV use).

Table 3-30. —Travel Management Designations

Area	Limited (existing roads & trails)	Limited (designated roads & trails)	Closed	Temporary	Total
Ant Hills/Peterson	10,476				10,476
Axial Basin	32,087				32,087
Bighole	32,031				32,031
Cedar Mountain		904			904
Cold Springs	48,146				48,146
Cottonwood Creek		718			718
Cross Mountain (WSA & ACEC)	3,540		12,044		12,044
Diamond Breaks (WSA)			33,276		33,276
Duffy (SRMA)		17,529			17,529
Fly Creek		12,336		[12,336]	12,336
G Wash	9,859				9,859
Hoy Mountain		6,457			6,457
Irish Canyon (ACEC)		12,318			12,318
Juniper		1,776			1,776
Lookout Mountain (ACEC)		7,665			7,665
Lower Limestone (ACEC)			1,283		1,283
Lower Little Snake	4,103				4,103
Lower Vermillion	2,425				2,425
Middle Mountain	3,952				3,952
Pole Gulch	35,054				35,054
Sand Wash	4,949				4,949
Serviceberry		11,774		[11,774]	11,774
Union		582		[582]	58
Upper Limestone (ACEC)			1,445		1,445
Uranium Mine			295		295
Vale of Tears	7,044				7,044
Vermillion Basin	36,136				36,136
Wild Mountain		10,140			10,140
Willow Creek	918				918
Yellow Cat Wash	5,119				5,119
Total	**235,839**	**82,199**	**48,343**	**[24,692]**	**362,317**

Characterization

Some of the key drivers for the increase in OHV activity are:

- Greater public interest in OHV activities
- Increasing pressures in other areas
- A relatively longer season for non-winter use
- The proximity of the planning area to larger urban and suburban areas

- Improved vehicle technology
- Availability of open use areas
- World class big game hunting

The trend of increased OHV use is evidenced by significant resource impacts resulting from a proliferation of roads and trails. The LSFO does not have quantitative numbers on trends regarding OHV use; however, the statewide trend is dramatic. According to the Colorado Division of Parks and Outdoor Recreation, the number of registered OHVs in the state increased from 11,744 in 1990 to 88,988 in 2003. It is clear that the statewide increase has also been realized within the RMPPA.

Increased OHV activity within the RMPPA is expected to continue, with varied increases depending on the area and motorized/non-motorized use. Some non-motorized uses can be expected to increase, such as mountain biking. The LSFO considers the RMPPA relatively 'undiscovered' and with its proximity to a major urban area and other public lands that are experiencing dramatic increases in use, the upward trend in use is expected to continue. Current management is insufficient to protect many of the important natural resources in the RMPPA in light of the increase in OHV activity.

3.3 CURRENT SOCIAL AND ECONOMIC CONDITIONS AND TRENDS

Because of the high level of interest in the relationship between the management of public lands and the social and economic health of the local and regional economy, BLM has made a determination to procure the services of an independent contractor to develop both the socio-economic baseline study for the RMPPA and to conduct the analysis of impacts of the alternatives identified during the planning process. The study and impact analysis produced by that contractor will be incorporated into the Little Snake RMP/ Draft EIS at a later time.

CHAPTER 4 MANAGEMENT ADEQUACY AND OPPORTUNITIES

This chapter describes resource management activities that may or may not, under present management, be meeting the goals specified in the Little Snake Resource Management Plan (RMP) and therefore may be adjusted accordingly in the RMP revision process. This chapter also discusses management issues that have arisen since completion of the RMP in 1989, which has created the need for new management objectives. Much of this information was obtained from the Little Snake Resource Management Plan Evaluation Report (2001). This report provides a comprehensive evaluation of the 1989 Little Snake RMP. The evaluation compares ongoing management actions with the decisions and management objectives in the RMP to determine if the RMP is serving as an effective guide for management of public lands. The evaluation also serves to identify short-term information and data gathering opportunities and potential issues and management concerns that might be addressed in future RMP amendments or revisions.

One major management change that has occurred since completion of the 1989 RMP is implementation of the Colorado Standards for Public Land Health and Guidelines for Livestock Grazing Management (Standards and Guidelines), which were approved by the Secretary of the Interior in 1997. The various components of the Standards and Guidelines and the process by which they are implemented are discussed in Section 3.1.1 and Appendix A of this document. The Standards and Guidelines provide the management direction for soil, vegetation, water, livestock, and other resources within the Little Snake Resource Management Plan Planning Area (RMPPA). As a result of monitoring activities initiated through the Standards and Guidelines, management actions are assessed and revised to ensure compliance with applicable land health standards.

4.1 AIR QUALITY MANAGEMENT

The 1989 RMP and the 2001 RMP Evaluation Report did not specifically address ambient air quality or the air quality-related values of visibility and atmospheric deposition. The implementation of management actions described in the 1989 RMP has resulted in maintaining adequate air quality throughout the RMPPA. Data gathered from the nearest monitoring stations indicate that current concentrations of criteria air pollutants are in compliance with the National Ambient Air Quality Standards (NAAQS), as shown in Table 3-3.

The revision of the Little Snake RMP (revised RMP) will need to incorporate the objectives for air quality, describe the current condition of air resources within the RMPPA, provide actions or limitations to manage air resources, conduct appropriate analysis of impacts to air quality, ensure conformance with the State of Colorado State Implementation Plan (SIP), and provide for collaboration on regional issues with local, state and federal agencies. The analysis of impacts to air quality as a result of activities on BLM-administered public lands should include recreational use of vehicles, construction activities, and oil and gas development.

The 2001 RMP Evaluation Report determined that plan decisions remain appropriate to achieve objectives. However, RMP changes may be needed to reflect the expected future conditions in the RMPPA, and some standards and objectives may need to be clarified or changed.

4.2 SOIL RESOURCES MANAGEMENT

Activities that occur within BLM-administered lands of the RMPPA are managed to maintain and improve soil conditions, with specific protection measures for fragile soils. The Standards and Guidelines initiate a 10-year monitoring and evaluation cycle to assess upland soil conditions, determine if

management changes are needed to achieve resource objectives, and adjust management prescriptions as necessary. Current soil conditions within BLM-administered lands of the RMPPA are in compliance with the Colorado Standards for Public Land Health. Table 3-1 shows that all landscapes that have been assessed are meeting Standard 1 (upland soils), which indicates that current management has been adequate to maintain desired soil conditions.

The 2001 RMP Evaluation Report determined that plan decisions remain appropriate to achieve objectives for soils management. RMP changes to protect soils may be needed to reflect the expected future conditions of BLM-administered lands, and some standards and objectives may need to be clarified or changed. Specific emphasis will continue to be needed for the identified areas of fragile soils.

4.3 WATER RESOURCES MANAGEMENT

The Standards and Guidelines initiate a 10-year monitoring and evaluation cycle to assess water quality, determine if management changes are needed to achieve resource objectives, and adjust management prescriptions as necessary. The implementation of the management actions described in the 1989 RMP has, in most areas, resulted in maintaining water resource conditions that meet the Colorado water quality standards. However, several streams within the RMPPA have been identified with water quality impairment problems and listed on the State of Colorado 303(d) list, as shown in Table 3-7. Although some streams are listed as impaired and/or do not meet PFC standards (Table 3-10), Table 3-1 shows that all landscapes for which water quality data are available are meeting Standard 5 (water quality), which indicates that current management has been largely successful in maintaining desired water quality conditions.

The 2001 RMP Evaluation Report determined that plan decisions remain appropriate to achieve objectives for water resources management. However, RMP changes may be needed to reflect the expected future conditions of BLM-administered lands. Some standards and objectives may need to be clarified or changed to reflect recently listed impaired waters on the state water quality-limited (303(d)) list.

BLM can also pursue cooperative agreements with various water users for improved stream flow and riparian conditions on streams that are impacted by diversion and storage structures.

4.4 VEGETATION MANAGEMENT

Vegetation management was not identified as a separate resource program in the 1989 RMP or the 2001 RMP Evaluation Report. Management prescriptions for vegetation resources will be developed as part of the RMP revision effort, organized by the three major vegetation types that occur in the RMPPA (i.e., rangelands, forests and woodlands, and riparian and wetland communities).

General management opportunities for the revised RMP could include identification of desired outcomes for vegetative resources (i.e., Desired Plant Communities), including the desired mix of vegetative types, structural stages, and landscape and riparian functions. The revised RMP could also designate priority plant species, including Special Status Species and plant species recognized as significant for at least one factor. Once this is determined, actions and areawide use restrictions needed to achieve desired vegetative conditions could be identified.

4.4.1 Rangelands

The Standards and Guidelines initiate a 10-year monitoring and evaluation cycle to assess the condition of desired plant communities, determine if management changes are needed to achieve resource objectives, and adjust management prescriptions as necessary. BLM has conducted this monitoring and evaluation cycle concurrently with permit/lease renewals. This information, as well as other data, is also used to make adjustments in grazing permits and leases. As shown on Table 3-1, 6 of the 9 landscapes that were assessed are meeting Standard 3 (plant and animal communities). These evaluations indicate that current management is adequate in most areas to maintain healthy, productive plant communities.

Management opportunities for the revised RMP could include changing management direction to focus on identifying Desired Plant Community (DPC) objectives, prioritizing areas that require intensive management, and identifying management actions needed to achieve desired conditions. For example, specific areas within the 3 landscapes that are not meeting Standard 3 could be identified as priority areas that require revised management actions and land use restrictions.

4.4.2 Forests and Woodlands

Forests and woodlands within the RMPPA have become more susceptible to disease, insects and population encroachment. Much of this is due to factors such as drought and modification of the natural fire regime from past fire suppression strategies. Similar to rangelands, management direction for forest and woodland resources could be changed to focus on identifying DPC objectives, prioritizing areas that require intensive management, and identifying management actions needed to achieve desired conditions. For example, the revised RMP could identify areas at risk from insects, disease and conversion of forest type that require revised management actions and land use restrictions.

4.4.3 Riparian and Wetlands

The Standards and Guidelines initiate a 10-year monitoring and evaluation cycle to assess the condition of riparian habitats, determine if management changes are needed to achieve resource objectives, and adjust management prescriptions as necessary. As shown on Table 3-1, 5 of the 9 landscapes that were assessed are not meeting Standard 2 (riparian systems). These assessments employed the Proper Functioning Condition (PFC) rating system, which provides assessment methodology and riparian health standards. As shown on Table 3-10, 91.12 miles (27 percent) of the 337 miles of streams evaluated on BLM-administered lands within the RMPPA exhibit PFC, 159.51 miles (47 percent) are functioning at risk, 24.43 miles (7 percent) are not functioning, and 61.93 miles (18 percent) are unknown. Implementation of the Standards and Guides has resulted in management changes that are adequate to allow BLM to improve or maintain riparian systems in a healthy state. As interdisciplinary teams assess riparian systems, and problems are identified, the BLM will make necessary changes to correct these problems. The livestock grazing permit renewal process which is approximately 70% complete at this time, has resulted in many changes which will directly affect the condition of riparian systems which are Functioning at Risk or Non Functioning. BLM can also pursue cooperative agreements with various water users for improved stream flow and riparian conditions on streams that are impacted by diversion and storage structures.

Management opportunities for the revised RMP could include changing management direction to focus on identifying Desired Plant Community (DPC) and Proper Functioning Condition (PFC) objectives, prioritizing streams that require intensive management, and identifying management actions needed to achieve desired conditions.

4.5 FISH AND WILDLIFE HABITAT MANAGEMENT

Most of the management decisions related to fish and wildlife in the 1989 RMP can be categorized as decisions to collect additional data, cooperate with other agencies, provide/protect habitat for specific species or populations, or improve habitats for particular species.

The 2001 RMP Evaluation Report determined that certain wildlife objectives and management prescriptions (e.g., development of stocking rates for wildlife) are no longer applicable or practical due to changes in wildlife habitat conditions and population numbers. The report also determined that wildlife mitigation measures have been effective in preventing significant impacts to wildlife and wildlife habitat. As wildlife data are updated as part of the RMP revision process, it is recommended that the LSFO determine if the new information results in needed modifications to existing management prescriptions.

Management opportunities for the revised RMP could include identifying desired habitat conditions and/or population objectives for major habitat types that support a wide variety of game and non-game species. Priority species and habitats could also be designated, including Special Status Species, and populations of fish or wildlife species recognized as significant for at least on factor. Once this is determined, actions and areawide use restrictions needed to achieve desired population and habitat conditions could be identified.

Coordinating with other groups who are collecting regional data and using their data as a framework in which to interpret habitat provision/protection needs could enhance BLM's responsiveness toward maintaining desired habitat conditions. For example, the Ecoregional Assessment of the Southern Rocky Mountains by The Nature Conservancy provides data on regional populations and regional conservation goals that might provide a larger context for BLM to evaluate its desired habitat conditions and habitat management decisions.

4.6 SPECIAL STATUS SPECIES MANAGEMENT

The 2001 RMP Evaluation Report indicated that changes in designations and habitat regarding federally listed species have occurred since preparation of the 1989 RMP. In addition, new species have been identified as BLM sensitive. As a result, RMP decisions will need to be modified to reflect these changes and the management needed to prevent adverse effects to listed species or critical habitat that were not considered in the 1989 RMP Biological Opinion. It is also recommended that the LSFO use the new resource information to provide the appropriate conditions of approval (COAs) on all permitted activities. Other recommendations provided in the 2001 RMP Evaluation Report include determining whether the remnant plant associations in the Lookout Mountain ACEC need to be designated as research natural areas (RNAs) and documenting the amendment for black-footed ferret management in the revised RMP.

Similar to vegetation management and fish and wildlife habitat management, management opportunities for the revised RMP could include identifying desired habitat conditions and/or population objectives for Special Status Species and identifying priority species that require immediate, intensive management. Once this is determined, actions and areawide use restrictions needed to achieve desired population and habitat conditions could be identified.

4.7 WILD HORSES MANAGEMENT

The Sand Wash Basin wild horse herd is estimated to be within the current management range (163 to 363 horses). The mare/stud ratio is maintained at approximately 50/50, which enables the herd to sustain smaller bands of 10 to 15 head during the foaling period from March through May. This is an indication

that current management has been adequate to maintain a viable wild horse herd. However, due to changing conditions and resource uses within the RMPPA, management issues are developing that may need to be addressed in the revised RMP.

Conflicts with wild horses involve multiple resource uses within the Sand Wash Basin Herd Management Area (HMA), including recreation, wildlife winter range, and livestock grazing. The following discussion highlights these conflicts and offers suggestions for resolution:

- Within the last ten years late winter recreational OHV use has been increasing in the HMA, as snow accumulation levels are relatively lower in this area of the RMPPA. Recreational travel restrictions have been considered to reduce wild horse harassment by OHV users during foaling periods in April and May.
- Although elk have wintered in the Sand Wash Basin for many years, their numbers have been increasing. Elk also began spending summers in the area within the past 15 years. This increased presence has resulted in greater competition for winter and summer forage, changes in vegetation composition, and losses of native vegetation vigor.
- Utilization studies have documented flora decline on Seven Mile Ridge and Dry Mountain. The Colorado Division of Wildlife recognizes this problem and has increased late season hunting in the area. However, these actions have not been as effective as anticipated. Further action is necessary to resolve this conflict.
- The occurrence of other horses entering the RMPPA also creates conflicts related to competition for forage and habitat degradation. Wild horses from the Adobe Town Wild Horse Herd Management Area in Wyoming often move into the northern portion of the RMPPA and consume forage allotted for livestock and wildlife. In addition, the Sand Wash Basin HMA adjoins an allotment permitted for domestic horse use. The 4-strand wire fence separating these two populations is often damaged by elk or left unsecured (i.e., recreationists fail to close gates), allowing domestic horses to cross the management boundary and mix with the wild horses. Increasing recreational use and elk populations within the RMPPA is expected to exacerbate this problem. Management actions are needed to maintain the Adobe Town herd within its respective HMA and reduce the frequency of domestic horses entering the HMA.
- Approximately 98% of the public land within the HMA has been leased for oil and gas operations. Activation of these leases could negatively impact the wild horse herd and associated habitat. Mitigation of these activities to lessen the impacts to wild horses should include increasing timing limitations on drilling activity and enlarging the area with no surface occupancy (NSO) restrictions to include additional springs and important horse pasture.
- The 2001 RMP Evaluation Report indicated that planned management actions, implementation, priorities and monitoring strategies remain appropriate to achieve management objectives for wild horses. However the revised RMP may consider possible changes to population objectives and document substantive changes that have occurred, including the results of past gathers.

4.8 FIRE MANAGEMENT

According to the 2001 RMP Evaluation Report, the RMP identifies differing fire suppression tactics based on various private and public resource values. The specifics of this direction are expressed in the March 2000 Fire Management Plan. The fire plan implements the RMP and provides the latitude for suppression adjustments to meet changing resource conditions. The RMP should be maintained to reflect the completion of the March 2000 Fire Management Plan, which is expected to provide excellent guidance to the fire program for several years. Additional maintenance may be necessary to reflect current fire management terminology.

4.9 CULTURAL AND HERITAGE RESOURCES MANAGEMENT

When surface disturbing activities (i.e. mineral development, range improvements, recreation site development) threaten cultural resources, the cultural resources program provides support by evaluating cultural resource sites through Section 106 consultation. Relying on the reactive nature of Section 106 preserves resources from direct effects, but also results in the decline of cultural sites due to natural deterioration, decay and incidental damage and vandalism. Additionally, there have been policy changes in the BLM cultural resource management program since completion of the 1989 RMP. Management guidance contained in BLM manual 8130 section .13 is not present in the existing RMP. Additionally, cultural resource sites are not allocated to use categories as required in BLM manual 8110, section .4. The existing RMP addresses a portion of the required components, but is silent on several other key policy requirements. The 1989 RMP was developed prior to NAGPRA, the 1992 amendments to NHPA, and Executive Order 13007 and does not have specific resource management goals and actions that address these directives.

The RMP revision process could provide for the development of a proactive cultural resources management framework that incorporates changes in BLM policy and law. If a Cultural Resources Management Plan (CRMP) is still desired, this planning effort can provide interim guidance for the cultural resources program and framework direction for the CRMP by allocating cultural resources to use categories and establishing criteria for management of sites yet to be identified. Use allocations could also provide a framework for priority cultural resource areas or site types. This could allow managers to "know in advance how to respond to conflicts that arise between specific cultural resources and other land uses" (BLM-M-8110, .4).

4.10 PALEONTOLOGICAL RESOURCES MANAGEMENT

Past and current management practices have had little appreciable effect on paleontological resources. There have been no reported instances of damage to paleontological resources resulting from implementation of RMP management decisions. However, the paleontological resources management plan directed for development in the 1989 RMP has not been developed. In addition, BLM policy for management of paleontological resources management has not been updated since completion of the RMP.

Changes in paleontological resources management policy and increases in paleontological resource data should be incorporated into the revised RMP. Decisions for inventory and management of paleontological resources could be determined based on fossil diversity, distribution, and reasons for their importance to science. Priority areas for inventory could be identified, along with future research needs.

4.11 SPECIAL MANAGEMENT DESIGNATIONS

4.11.1 Wilderness Study Areas

The current management of the seven WSAs in the RMPPA has been adequate to protect the wilderness characteristics of those areas. However, some problem areas have recently developed. Increased OHV use throughout the Little Snake RMPPA has begun to threaten the wilderness characteristics of WSAs. The revised RMP will need to address this issue through route designations and travel management decisions for these areas in order to continue to protect the wilderness characteristics of the WSAs. Additionally, the revised RMP will need to address BLM guidance, which requires that all WSAs be managed as VRM Class I areas.

4.11.2 Areas of Critical Environmental Concern

The 2001 RMP Evaluation Report determined that the current management direction for the four designated ACECs has been sufficient to protect the resource values associated with each area. Specifically, the remnant plant association locations within these ACECs have been protected. The 1989 RMP indicated that a management plan would be prepared for each ACEC; however, these plans have not been completed.

As part of the RMP revision process, the current ACECs will be evaluated to determine maintenance of relevant and important values and whether ACEC designation is still necessary to protect these values. Management prescriptions for these areas will also be reviewed to ensure they can protect the identified relevant and important values. The revised RMP will consider whether additional areas should be designated and managed as ACECs.

4.11.3 Wild and Scenic Rivers

There are no planning decisions in the 1989 RMP relative to Wild and Scenic Rivers. Current law and policy requires that the LSFO, as part of the planning process, conduct an analysis and identify river segments that may be eligible and suitable for inclusion in the National Wild and Scenic River System.

4.12 VISUAL RESOURCES MANAGEMENT

There are limited planning decisions in the 1989 RMP relative to visual resources management (VRM). BLM policy requires that the LSFO designate VRM management classes for all areas of BLM-administered land. Visual resource values are to be managed in accordance with visual resource management (VRM) objectives and utilized in the implementation of land use decisions.

4.13 ENERGY AND MINERALS MANAGEMENT

Existing management is adequate to achieve objectives for minerals management. However, the RMP revision process should serve to resolve resource conflict and management inconsistencies and incorporate best management practices and best available technology in minerals development. The following are management issues related to minerals development (fluids and non-fluids) within BLM-administered lands of the RMPPA that need to be addressed in the revised RMP:

- CBM development has not been addressed in previous plans. Resource development potential, drilling, operational requirements, spacing, and conflict with other uses should be addressed in detail in the revised RMP. Requirements for production water disposal in each area and possibly from each producing interval (if constituents are different) should also be addressed.
- Use conflicts among coal production, CBM development, and conventional oil and gas development were not addressed in the 1989 RMP and should be addressed in detail in the revised RMP.
- In areas of high erosion potential, reclamation has generally taken more time than specified in the lease or COA. The revised RMP should address this issue to minimize resource impacts.
- The administrative withdrawal of the Vermillion Basin Wilderness Characteristic Study Area (80,000 acres) could preclude energy related activities within this area. This issue should be addressed in the revised RMP.
- Conventional and unconventional oil and gas well drilling and completion in areas where there is the potential for oil shale development should be addressed in the revised RMP. Oil shale

potential areas may be impacted if improper casing length and cementation is used during well drilling and completion to isolate the oil shale intervals.

- Current lease stipulations and Conditions of Approval (COAs) for oil and gas development should be reviewed to ensure they are consistent with resource management objectives.

The 2001 RMP Evaluation Report indicated that coal, oil, gas, and other minerals are adequately addressed in the 1989 RMP.

4.14 LIVESTOCK GRAZING MANAGEMENT

Several modifications and updates to existing livestock grazing management could be included in the revised RMP, such as:

- Consolidation of Section 15 lands would simplify and enhance management of these areas, with a cost savings to the BLM and livestock operators. This would include land exchanges and disposals.
- Scattered parcels of land throughout the RMPPA are currently not included in allotments. These parcels should be identified as being available (or not) for grazing. If it is determined that they should be available, then they could be used by qualified permittees.
- Should allotments become vacant, they could be used as common area relief pastures when forage is not available in scheduled pastures due to wildfire or vegetation treatments.
- The increasing elk population is creating conflicts with other grazing animals in areas where they concentrate in the late fall, winter and spring. The Land Health Assessments have identified areas that have been adversely impacted by wildlife. Increased pressure on forage and water is resulting in a downward trend of riparian and upland forage.
- As necessary, develop allotment management plans, or activity plans designed to serve as the functional equivalent of AMPs, as part of the permit renewal process.

The 2001 RMP Evaluation Report has also identified several issues that need attention in the revised RMP. According to the report, the discussion of livestock use adjustments as described in planned actions #1 through #5 is no longer accurate. Planned action number 10 (AMPs will be developed for all allotments) has not been implemented. Furthermore, other planned actions (#6 through #10), implementation priorities and monitoring have not been accomplished as described in the RMP. The applicable sections of the RMP should be reviewed to determine if the current Standard and Guide process adequately addresses these issues and whether additional RMP decisions are required.

4.15 RECREATION MANAGEMENT

Although certain aspects of the recreation management program are functioning well under the management direction provided in the 1989 RMP, some issues will need to be addressed in the revised RMP. As recreation use has increased across the RMPPA, some of the ERMA areas may not be adequate for managing the more concentrated use, and may need to be re-assessed for SRMA designation. SRMA designations will allow the BLM to allocate funding for management, improvements, and/or developments in these areas. There are many areas in the RMPPA that may benefit from increased management that could be provided by SRMA designation. Decisions concerning designation of Recreation Opportunity Spectrum (ROS) categories are also inadequate. The primitive nature of many areas has changed due to increased visitation and use. A new ROS inventory and objective setting through the RMP revision should be considered to provide a better assessment tool for determining development impacts to the recreation resources, especially in the ERMA areas. The RMP revision will use a Benefits Based Recreation Planning system to identify recreation niche opportunities that exist and for determining potential SRMA's. Lastly, recreation decisions regarding trail designation and use are

non-existent. Given the increasing use of trails in BLM-administered lands of the RMPPA from both motorized and non-motorized recreationists, alternatives could be considered that establish motorized route designations that determine the appropriate amount, type, and season of use.

4.16 LANDS AND REALTY MANAGEMENT

Although land exchanges and other land tenure adjustment actions completed by the LSFO conform with the 1989 RMP, several areas should be addressed to facilitate implementation of the lands and realty program. Criteria concerning land retention, disposal, and acquisition should be reviewed to ensure they provide adequate opportunity to accomplish appropriate land tenure actions.

The following management decisions regarding rights-of-way (ROW) should be addressed during the RMP revision process:

- The revised RMP should consider the designation of major ROW corridors.
- The 1989 RMP identifies specific areas as suitable, unsuitable and sensitive for siting ROWs. These decisions are outdated because changes in data and resource uses, conditions and needs have occurred since completion of the 1989 RMP. As a result, the RMP revision process should include a reassessment of those identified areas and areas where surface disturbing activities are suitable, not suitable, or should be restricted.
- The 1989 RMP states "minor ROWs will be processed on a case-by-case basis, generally guided by criteria set for major ROWs." However, it does not include an analysis of communication sites or wind and solar energy development. The revised RMP should include modification of language to ensure that impacts to other resources are considered, guidance for communication site inventory, and guidance relating to BLM memoranda for wind and solar energy development and ROW proposals.
- In accordance with the 1995 Black-Footed Ferret Reintroduction Amendment, ROWs on public land that have the potential to disturb occupied black-footed ferret habitat will be rerouted to avoid those prairie dog towns. This decision may need to be modified in the revised RMP based on updated data and analysis.

The 2001 RMP Evaluation Report indicated that land tenure adjustments conform to the 1989 RMP. The report also provides the following suggestions to improve the RMP through detailed management direction:

- The revised RMP should include language that addresses land use planning for lands acquired through exchange.
- The revised RMP should review and resolve the inconsistencies found in the 1989 RMP regarding acquisition areas identified in Map 3 and those in Appendix 3.
- Lands acquired since approval of the 1989 RMP do not have land use plan decisions applied to them. Therefore, the revised RMP may need to assess the need for updated decisions regarding these areas.

4.17 TRANSPORTATION AND ACCESS

Transportation and access is addressed in the 1989 RMP by identifying the need for an access/transportation plan to identify routes, road closures, and support needs. However, this plan has not been developed. The RMP revision process should develop direction for assessing and making changes to the road and trail system that will continue to allow for adequate public access to public lands, while mitigating resource and use impacts. The revision should also determine where additional legal access is

needed, and what forms of travel access would be appropriate. Additionally, the 1989 RMP designated areas open, limited or closed to OHV use. These OHV designations should be re-evaluated to determine if they are still valid.

In accordance with the 1995 Black-Footed Ferret Reintroduction Amendment, OHV use will be closed within ¼ mile of release cages or release sites for 3-4 months during the release period. This decision may need to be modified in the revised RMP based on changes in data and resource uses, conditions and needs.

CHAPTER 5 CONSISTENCY/COORDINATION WITH OTHER PLANS

According to the BLM RMP guidance found in 43 CFR 1610, BLM RMPs and amendments must be consistent, to the extent practical, with officially approved or adopted resource-related plans of state and local governments, other federal agencies, and tribal governments so long as the guidance and resource management plans are also consistent. BLM RMPs must also be consistent with the purposes, policies, and programs of FLPMA and other federal laws and regulations applicable to public lands, including federal and state pollution control laws (see 43 CFR 1610.3-2 (a)). If these other entities do not have officially approved or adopted resource-related plans, then BLM RMPs must, to the extent practical, be consistent with their officially approved and adopted resource-related policies and programs. This consistency will be accomplished so long as BLM RMPs incorporate the policies, programs, and provisions of public land laws and regulations and federal and state pollution control laws (see 43 CFR 1610.3-2 (b)).

Before BLM approves proposed RMP decisions, the Governor(s) has 60 days to identify inconsistencies between the proposed plan and state plans and programs and to provide written comments to the BLM State Director. The BLM and the state may mutually agree on a shorter review period satisfactory to both. If the Governor does not respond within this period, it is assumed that the proposed RMP decisions are consistent. If the Governor recommends changes in the proposed plan or amendment that were not raised during the public participation process, the State Director shall provide the public with an opportunity to comment on the recommendations (see 43 CFR 1610.3-2 (e)). This public comment opportunity will be offered for 30 days and may coincide with the 30-day comment period for the Notice of Significant Change. If the State Director does not accept the Governor's recommendations, the Governor has 30 days to appeal in writing to the BLM Director (see 43 CFR 1610.3-2(e)).
County and town, state agency, and other federal agency plans for neighboring areas or cross-jurisdictional purposes are further discussed in the following sections. The plans discussed in the following sections should be consulted as applicable during the development of the RMP.

5.1 COUNTY PLANS

The Little Snake RMPPA boundaries encompass all of Moffat County and portions of Routt and Rio Blanco Counties. The majority of contiguous BLM-administered surface and mineral estate is within Moffat County, scattered BLM-administered surface and mineral estate is found within Routt County, and only a small portion of BLM-administered lands are within the northern portion of Rio Blanco County.

5.1.1 Moffat County, Colorado

Moffat County and the City of Craig prepared a joint master plan, which incorporates planning direction "to jointly guide the coordinated and harmonious development of unincorporated Moffat County [including unincorporated Maybell], the City of Craig, and the Town of Dinosaur while promoting the custom and culture of residents and land users" (http://www.co.moffat.co.us/Planning/). In addition, the County prepared a wildland fire and fuels management plan. The Moffat County Area plans are further discussed in Table 5-1.

Table 5-1. —Moffat County Area Plans

Name:	**Moffat County/City of Craig Master Plan**
Date:	2003
Purpose:	"The 2003 Moffat County/City of Craig Master Plan (Plan) is a broad public policy tool for guiding decisions concerning land use and future growth. The Plan builds upon and succeeds previous master planning efforts, primarily the Moffat County Master Plan completed in 1982 and revised in 1992, and the Moffat County Land Use Plan: Chapter One adopted in 2001" (p. 3).
Common, Dependant, and Interdependent Resources:	"The nature and intent of Moffat County land use policy concerning the use of public land and public resources in Moffat County is to protect the custom and culture of County citizens and the resource itself, per the recommendations of the Moffat County Land Use Plan. The directions, policies, and actions of the Public Land Area are intended to support and enhance, rather than substitute, Moffat County's position statements and action steps found within the adopted Moffat County Land Use Plan" (p. 13). Direction and policy is outlined in the plan to support Moffat County's position on the following matters: land use changes, multiple use, special land designations, economic base, archaeological features, private property rights, wildlife habitat, fire management (pp. 13-16).
Planning Implications:	The direction and policy outlined in the 2003 Moffat County/City of Craig Master Plan should be considered for any management actions that could occur in the area.
Name:	**Moffat County Land Use Plan**
Date:	September 2001
Purpose:	"Due to Moffat County's dependence on public lands and accompanying resources, this land use plan is intended to provide direction for federal and state land management efforts in Moffat County." (p.4).
Common, Dependant, and Interdependent Resources:	"The mission of Chapter One of the Moffat County Land Use Plan is to promote the custom and culture of Moffat County's residents and land users by identifying Moffat County's position and recommended action steps to support Moffat County's position on public land use issues."(p.3). Recommended action steps are outlined in the plan to support Moffat County's position on the following matters: custom and culture, economics, multiple use, access, agriculture, cultural and archeological resources, law enforcement, minerals and industry, recreation and tourism, special land designations, water resources, weed management, wildlife (plant and animal)."(pp. 8-39).
Planning Implications:	The issues, background, and action steps outlined in the 2001 Moffat County Land Use Plan should be considered for any management actions that could occur in the area.
Name:	**Moffat County Wildland Fire and Fuel Management Plan, Phase I Planning Area**
Date:	December 2001
Purpose:	"The purpose of this Fire Management Plan (FMP) is to present the results of several public meetings and numerous individual meetings with private landowners in the northwest portion of Moffat County. The completion of this document will provide the Moffat County Sheriff and County Commissioners with a fire plan that will allow the fire staff authority to manage wildland fires along with other federal agencies for specific resource benefits on private lands. Moffat County FMP will also allow specific projects and programs, such as hazardous fuels and cooperatively dual ownership programs to be completed on a cooperative ecological community basis rather than strictly individual land ownership. This plan will provide guidance not only for Moffat County Sheriff, but also for adjacent agencies support and cooperative management of wildland fires. The Phase I Planning Area encompasses "the northwest portion of the county and includes the Greystone, Powder Wash and Hiawatha community sites" (p. 4).
Common, Dependant,	"This document has attempted to be consistent with current fire planning efforts of Craig, Rock Springs, and Vernal BLM District and Dinosaur National Monument fire plans' (p.

and Interdependent Resources:	4). "The Fire and Fuels Program initiated by Moffat County seeks to provide resource benefits and reduce hazardous fuels by restoring and maintaining the natural fire regime in a manner consistent with firefighter and public safety" (p. 5). "To accomplish the mission statement, Moffat County recognizes the necessity of managing three element values, hazards, and risks in managing wildland fire areas. There are three components that form the basis for the program goals. They are as follows: 1. Protect Moffat County ecological and social values, which include vegetation, water, wildlife, and air resources. Social values include public safety, historic and current private residences. 2. Reduce fire hazards in ecosystems and restore ecological community functions. Fire hazard is defined as those attributes that affect the ability to control, or contribute to extreme fire behavior. Fuel conditions, however, can be effectively altered by management actions and are the focus of most fuel hazard reduction activities. Reduce risk of unauthorized probability of wildland fire ignitions" (p. 5). Objectives and a fire management map were developed in the plan to implement these goals.
Planning Implications:	Goals, objectives, and the fire management map should be considered for any fire related management actions that could occur in the area.
Name:	**Moffat County Wildland Fire and Fuel Management Plan, Phase II Planning Area**
Date:	August 30, 2002
Purpose:	"The purpose of this plan is to effectively manage fire and hazardous fuels within Moffat and Rio Blanco Counties toward a common vision shared by property owners. The plan reflects the preferences expressed through several public meetings, numerous individual meetings with private landowners and through discussions with county, state and federal agencies. Specific projects, such as hazardous fuel reduction treatments, will be cooperatively designed and implemented according to the character of the landscape or ecosystem rather than by individual land ownership boundaries. The Phase II area is located in the southwest portion of Moffat County and the northwest portion of Rio Blanco County" (p. 3).
Common, Dependant, and Interdependent Resources:	"To achieve healthy shrub land, woodland, and grassland ecosystems, the property owners along with the government agencies must work together to manage fuel hazards and fuel continuity" (p. 3). "The fire and fuels program initiated by Moffat County seeks to provide a common vision for achieving resource benefits while reducing hazardous fuels through the restoration of the natural fire regime in a manner consistent with firefighter and public safety" (p. 9). Goals of the fire and fuels program include: "Protect Moffat County ecological values, including vegetation, water, wildlife, and air resources and social values including public safety, historic values and private residences. Reduce wildland fire hazards and restore the functions of the ecological communities. Reduce risk to life and property from wildland fire ignitions" (p. 9). Objectives and a fire management map were developed in the plan to implement these goals.
Planning Implications:	Goals, objectives, and the fire management map should be considered for any fire related management actions that could occur in the area.
Name:	**Moffat County Wildland Fire and Fuel Management Plan, Phase III Planning Area**
Date:	September 15, 2003
Purpose:	"Moffat County intends to develop a countywide Fire and Fuel Management Plan to effectively manage wildland fire and fuels within the county. The plan would reflect the preferences of landowners and agencies as expressed through public meetings, individual meetings with private landowners, and discussions with county, state, and federal agencies. The plan would also provide the Moffat County Sheriff's Department

	and County Commissioners with the guidance and authority necessary to manage wildland fires and fuels on privately owned lands. Furthermore, it would provide guidance for state and federal agencies involved in cooperative management of wildland fires. The safety of the public and firefighters will remain the primary consideration in identifying appropriate responses to wildland fires" (p. 1-1). "The Phase III planning area includes all private lands within Moffat County east of Range 96 West to the Routt County line" (p. 1-1). To include "more detailed community wildland fire mitigation plans for four communities identified at greatest risk from wildfire in Moffat County including Greystone, Wilderness Ranch, Bakers Peak and Knez Divide."
Common, Dependant, and Interdependent Resources:	"The wildland fire and fuels management program initiated by Moffat County seeks to achieve resource benefits while reducing hazardous fuels by restoring and maintaining a natural fire regime in a manner consistent with landowner desires and safety for the public and firefighters. The goals of the Moffat County Wildland Fire and Fuel Management Plan are to: Protect ecological values in Moffat County, including vegetation, water, wildlife, and air resources; social values including public safety and historic properties; and private residences. Reduce wildland fire hazards and restore the functions of ecological communities. Reduce the risk to life and property from wildland fire" (p. 2-1). Identify "communities at risk" and assign them with fire hazard ratings. Objectives and a fire management map were developed in the plan to implement these goals.
Planning Implications:	Goals, objectives, and the fire management map should be considered for any fire related management actions that could occur in the area.

5.1.2 Routt County, Colorado

Routt County prepared a Master Plan, which provides the platform for multiple sub-area plans specific to distinct communities in Routt County. A description of the Routt County Area plans is provided in Table 5-2.

Table 5-2. —Routt County Area Plans

Name:	**Routt County Master Plan**
Date:	Adopted April 3, 2003
Purpose:	"The Routt County Master Plan is structured to respect the rights of private property owners while considering the best ways to solve problems of future county growth and development. The Master Plan outlines policies that will guide future development in the unincorporated portions of the County. The general goal of the Plan is to ensure the rural character while accommodating appropriate development" (p. 7).
Common, Dependant, and Interdependent Resources:	The Routt County Master Plan identifies goals and policies for a variety of common resources and resource uses including: recreation and tourism, mineral resources, wildlife resources, agricultural lands, and transportation. "1.2.F. It is the policy of Routt County that land use within the County's jurisdiction should remain within its control. Federal and state proposals for changes in land use should be subject to the same land use controls that apply to residents of private lands within the County" (p. 8).
Planning Implications:	The goals and policy outlined in the 2003 Routt County Master Plan should be considered for any management actions that could occur in the area.
Name:	**Sarvis Creek Area Plan**
Date:	Adopted September 5, 1996

Purpose:	"The mission of the Sarvis Creek Area planning process is to develop a plan for proper management of a unique and undeveloped ecosystem, which includes a rare, low-elevation wilderness area. The plan was developed by public agencies and private individuals with an interest in the area."
Common, Dependant, and Interdependent Resources:	The Sarvis Creek Area Plan identifies recommendations for a variety of common resources and resource uses including: roads and utilities, management of recreation activities, land acquisitions, cooperative management, land use, agriculture, wildlife and fisheries management, archeology, and the Sarvis Creek Wilderness Area.
Planning Implications:	"All of the agencies and individuals made a party to the Memorandum of Understanding will have the responsibility to implement these recommendations. Collective agreement of the responsible party for items contained in these recommendations remains a function of the Memorandum of Understanding." The BLM Little Snake FO is a party to the agreement. "The Memorandum of Understanding states that the group is to provide for the following elements: open space; scenic beauty of the area; wildlife habitat; custom and culture of Routt County; recreational opportunities; human use and development compatible with the natural ecosystem within the Plan boundaries; land use processes which respect the uses of private and public lands; more effective management of state, federal and private land in a cooperative ecosystem; joint planning processes that will manage the potential impacts on state lands, Sarvis Creek Wilderness Area, Lake Catamount development and the Stagecoach residential community; and ecosystem planning process partnership to analyze and resolve resource conflicts. In addition to these statements of cooperation, the memorandum also recognizes that no single entity has sole responsibility for management of the planning area. In keeping with the spirit of a unified approach, the goals of this planning process are: To provide for orderly human use and development while preserving the natural and rural qualities of the area, to the extent possible that make it a desirable place to live and recreate; To maintain healthy wildlife populations by preserving and enhancing habitat while managing wildlife populations; To preserve the rural agricultural lifestyle; To coordinate potential land exchanges; To coordinate the management of public uses and facilities in the planning area; To coordinate funding opportunities and develop priorities for interpretation, recreation and other projects."
Name:	**South Steamboat Area Land Use Plan**
Date:	Adopted on December 20, 1990
Purpose:	"The character of the study area benefits the physical, emotional, social and economic well-being of the residents and visitors to Routt County. It is the desire and vision of the general public and landowners alike that this character be preserved, protected and enhanced" (p. 2).
Common, Dependant, and Interdependent Resources:	The South Steamboat Area Plan provides goals for the following: appearance of open space, visual qualities, prime agricultural lands, diverse economic opportunities, encourage social and economic diversity, environmentally sensitive development, quantity of surface and subsurface waters, clean water, clean air, wildlife, compatibility of land uses, mineral extraction operations, fiscal, economic or social impacts, and environmentally responsible development.
Planning Implications:	Goals identified for the South Steamboat Area should be considered for any management actions that could occur in the area.
Name:	**Stagecoach Community Plan**
Date:	September 1999
Purpose:	"One significant goal of this Plan is to clarify a future direction for Stagecoach that is consistent with the goals articulated in the Routt County Master Plan" (p. 7). "Over the

	next twenty years, Stagecoach will grow into a balanced community with a distinct rural Routt County small town character emphasizing new and expanded public and private recreational amenities; diverse types of high quality housing; preservation of open lands; an environmentally sensitive transportation system; and a small town center to serve as the focal point for retail, commercial, and public facilities serving the community" (p. 34).
Common, Dependant, and Interdependent Resources:	Common resources in the Stagecoach area include: recreation amenities, open lands, and transportation.
Planning Implications:	The vision identified for the Stagecoach Area should be considered for any management actions that could occur in the area.
Name:	**Steamboat Springs Area Community Plan**
Date:	Adopted May 2004
Purpose:	"Overall, the purpose of this Plan is to direct the type, location, and quality of growth, while addressing its impacts and reinforcing its desirable characteristics" (p. 1-3). It is intended to convey the general direction and vision desired by the community, as follows: improve the community's core areas; maintain the area's "sense of community;" develop a comprehensive, integrated transportation system; promote stewardship of natural, scenic, and environmentally sensitive areas; develop an open lands program; provide affordable housing; diversify and balance the economic base; preserve historic resources; provide infrastructure and public services; and efficiently and equitably.
Common, Dependant, and Interdependent Resources:	Common resources in the Steamboat Springs area include mobile natural resources or resources that have a larger area of influence including: wildlife, water, air, minerals, and visual resources.
Planning Implications:	The vision of the community should be considered for any management actions that could occur near the area.
Name:	**Upper Elk Valley Community Plan**
Date:	Adopted February 4, 1999
Purpose:	"The Plan presents the vision for the future of the Valley and identifies general goals, specific policies, and follow-up action items for each of the key elements of this vision. These key elements include Agriculture; Housing and Development, Recreational Uses and Public Lands, Business; Industry and Commercial Uses; Wildlife and Natural Resources; Steamboat Lake Subdivision; Transportation; and Public Utilities and Services" (p. 6).
Common, Dependant, and Interdependent Resources:	A variety of community values are established including: clean water and air are protected; the natural environment is treasured and managed as a valued resource for its scenic beauty, wildlife habitat and multiple use opportunities; the heritage and economic benefit of agriculture, outdoor recreation, tourism and natural resource industries are recognized and supported; existing public lands are sustained as a valuable multiple use resource; population growth and economic development including tourism and recreation are directed to designated areas in an orderly fashion with appropriate land uses, infrastructure and services; developed recreational amenities are provided and maintained in good condition through cooperative efforts; public lands management is integrated with local community planning efforts; and private property rights are respected (p. 3-4).
Planning Implications:	"Because such a large portion of the area is public lands, the recommendations for public lands can have influence beyond the set boundaries of the planning areas" (p. 2). Community values should be considered for any management actions that could occur near the area.
Name:	**West of Steamboat Springs Area Plan**

Date:	Adopted November 16, 1999
Purpose:	"The West of Steamboat Springs Sub-area plan is a joint effort between the City and County to comprehensively plan the entire sub-area to assure that coordinated and compatible development occurs in the most cost-effective manner possible" (p. 9).
Common, Dependant, and Interdependent Resources:	Many policies are geared toward housing development activity, but policies for views, wildlife, land use, and water were also established.
Planning Implications:	Community values should be considered for any management actions that could occur near the area.
Name:	**Draft Hayden Comprehensive Plan**
Date:	October 21, 2004
Purpose:	"A Comprehensive Plan is a general guide describing how the community wants to grow, where the community wishes various land uses to take place and what the community wants to look like. The Plan applies most directly to the area within the City limits but also has an influence on lands to be annexed in the future, such as the land within the three-mile boundary. The Comprehensive Plan establishes a big picture that is based in the community vision, goals and objectives that are then implemented through zoning and development regulations. The document provides guidance to the public, property owners and decision - makers concerning a multitude of long-term issues that will impact the community. When land use decisions are only considered on a short-term basis without regard to long-term impacts, the result is little consistency in land use decisions. The Comprehensive Plan provides a basis to test how well any proposed land uses relate to the long term goals set forth by residents."
Common, Dependant, and Interdependent Resources:	Policies are geared primarily toward growth of the Town.
Planning Implications:	Community values should be considered for any management actions that could occur near the area.
Name:	**Yampa River Management Plan**
Date:	2003
Purpose:	"The plan provides direction for management of the Yampa River, including the types, amount and location of recreation activities. The plan also focuses on the preservation and enhancement of the natural environment" (p. 1).
Common, Dependant, and Interdependent Resources:	The plan provides guidelines to address issues with recreation demand, land use, aquatic habitat, and terrestrial habitat for the Yampa River through Steamboat Springs.
Planning Implications:	Goals and priorities in the management plan should be considered for any actions that may impact the Yampa River through Steamboat Springs.

5.1.3 Rio Blanco County, Colorado

The RMPPA boundaries encompass some lands within a portion of Rio Blanco County. No plans were identified for the County.

5.2 STATE AGENCY PLANS

Several state agencies have interests or jurisdiction within the Little Snake Field Office boundaries. These agencies include the Colorado Division of Wildlife, Colorado Division of Parks and Outdoor Recreation, Colorado State Land Board, and Upper Yampa Water Conservancy District. A description of the state agency plans or missions are provided in Table 5-3.

Table 5-3. —State Agency Plans

Name:	**Colorado Division of Wildlife Strategic Plan**
Date:	January 11, 2002
Purpose:	"It is the policy of the state of Colorado that the wildlife and their environment are to be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of the people of this state and its visitors. It is further declared to be the policy of this state that there shall be provided a comprehensive program designed to offer the greatest possible variety of wildlife-related recreational opportunity to the people of this state and its visitors and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities [C.R.S. 33-1-101 (1)]. The mission of the Colorado Division of Wildlife is to perpetuate the wildlife resources of the state and provide people the opportunity to enjoy them" (p. 1) "The Colorado Division of Wildlife's (the Division) Strategic Plan defines values and expectations, consistent with the Division's mission, that form a roadmap for wildlife management in the coming years. In addition, the Strategic Plan provides a foundation for policy analysis and priority setting for current wildlife management issues and for unforeseen issues that will inevitably arise over the five year period covered by the Strategic Plan" (p. 1).
Common, Dependant, and Interdependent Resources:	The plan establishes priority achievements and management principles. The priority achievements include (p. 3): • Research and eliminate diseases in free-ranging and captive wildlife. • Manage mule deer populations to meet DAU objectives. • Protect high priority deer and elk habitat. • Habitat to support broadest sustainable wildlife populations • Increase hunter satisfaction by providing responsive customer service. • Provide the number of fish needed to meet recreation-day objectives. • Protect coldwater habitats and fish from whirling disease parasite. • Expand conservation partnerships with private landowners. • Protect and enhance species at risk of becoming threatened or endangered. • Implement recovery plans for species listed as threatened or endangered. • Increase the number of Colorado students who learn about wildlife issues.
Planning Implications:	BLM should work with CDOW to evaluate and coordinate management actions that may conflict with the priority achievements.
Name:	**Colorado Division of Parks and Outdoor Recreation**
Mission:	"At Colorado State Parks, our mission is to provide a spectrum of safe quality outdoor recreation experiences for our visitors while effectively managing the natural resources under our authority. Colorado's 40 State Parks are a vital cornerstone in Colorado's economy and quality of life, offering some of the highest quality outdoor recreation destinations in the state " (http://parks.state.co.us/home/aboutus.asp?page=aboutus).
Common, Dependant,	Several Colorado State Parks are located within the RMPPA boundaries, including: Yampa River, Steamboat Lake, Pearl Lake, and Stagecoach State Parks. In addition, the BLM holds an

and Interdependent Resources:	MOU with Yampa River State Park to administer boating permits on the river.
Planning Implications:	BLM should consider implications to the conditions of resources, visitation, or established agreements from management actions in the RMP.
Name:	**Colorado State Land Board**
Mission:	"The State Land Board mission is to manage the assets entrusted to our care for our beneficiaries by producing a reasonable and consistent income with long term protection of economic values, while providing responsible environmental stewardship to ensure the conservation of natural resources. The agricultural section leases grazing, cropland, recreational and other surface rights to both public and private entities. The mineral section manages the exploration and development of coal, oil and gas, and other minerals, and oversees and evaluates nonrenewable resources, manages all mineral leases, administers quarterly oil and gas lease sales, processes mineral royalty revenue and ensures the State is compensated for its resources. The real estate section leases primarily commercial land to public and private entities" (http://www.trustlands.state.co.us/Information/AboutUs.asp).
Common, Dependant, and Interdependent Resources:	State owned lands are interspersed throughout the planning area that are used for agriculture and minerals.
Planning Implications:	BLM should work with the State Land Board to evaluate and coordinate management actions that may conflict with the mission.
Name:	**Upper Yampa Water Conservancy District**
Mission:	"The Colorado River Water Conservation District is a public water policy agency chartered by the Colorado General Assembly in 1937 to be "an appropriate agency for the conservation, use and development of the water resources of the Colorado River and its principal tributaries." The District is comprised of 15 West Slope Counties in which a majority of the Colorado River Basin in the State of Colorado exists. These counties are Moffat, Routt, Grand, Eagle, Summit, Pitkin, Gunnison, Rio Blanco, Garfield, Mesa, Ouray, Delta, and portions of Montrose, Saguache and Hinsdale" (http://www.crwcd.org/whoweare.html).
Common, Dependant, and Interdependent Resources:	Several reservoir projects are located within the RMPPA boundaries.
Planning Implications:	BLM should work with the District to evaluate and coordinate management actions that may conflict with the mission.

5.3 OTHER FEDERAL AGENCY PLANS

5.3.1 National Park Service, Colorado

Dinosaur National Monument shares boundaries with BLM surface and subsurface estate managed by the Little Snake Field Office. A description of the National Park Service plan is provided in Table 5-4.

Table 5-4. —National Park Service Plan

Name:	Dinosaur National Monument General Management Plan with Land Protection Plan Update
Date:	Issued August 1986, updated April 1991
Purpose:	"The purpose of this final plan is to guide management of Dinosaur National Monument over the next 15 years so its resources will be managed as a total environment, perpetuating the natural, historic, and prehistoric features for which the area was established" (p. iii).
Common, Dependant, and Interdependent Resources:	The land protection plan for Dinosaur National Monument "describes the recommended strategies for non-federal lands with the boundary as well as certain non-federal and federal lands adjacent to the boundary" (p. 101). One of the objectives of the plan identified is to "cooperate with landowners, other federal agencies, state and local governments, and the private sector to manage lands for public use or to protect them for resource conservation" (p. 101). Land protection issues from external conditions outside the monument that could affect natural and visual resources within the boundary include (p. 102-109): "Pollution or flow disruptions of tributary streams originating outside the monument that impact upon the Green and Yampa Rivers in the monument (stock pond/reservoir impoundments, cattle excrement, silting and sedimentation, pesticides and herbicides, fertilizers, etc.)." "Mining activity near the monument (such as existing phosphate and coal mining) and related noise, dust, air, and water quality, and visual impacts." "Oil and gas exploration and extraction adjacent to the monument boundary, resulting in noise, visual impacts, ground disturbance, water pollution, etc." "Surface disturbance and dust from sand and gravel operations as seen from the Quarry and Split Mountain areas (Green River peninsula)." "Cattle trespassing on lands inside the monument from lands outside the monument." "Pesticides (herbicide and insecticide) used on adjacent federal state, and private lands."
Planning Implications:	The land protection plan and issues from external conditions should be considered for any management actions that could affect resources or resource uses near the monument.

5.3.2 U.S. Fish and Wildlife Service, Colorado

Browns Park National Wildlife Refuge shares boundaries with BLM surface and subsurface estate managed by the Little Snake Field Office. A description of the U.S. Fish and Wildlife Service plan is provided in Table 5-5.

Table 5-5. —U.S. Fish and Wildlife Service Plan

Name:	Browns Park National Wildlife Refuge Comprehensive Conservation Plan
Date:	September 1999
Purpose:	"This Plan establishes the goals, objectives, management guidelines and strategies, and monitoring and evaluation strategies for the Refuge. The Plan will be used to prepare step-down management plans, revise existing plans, and performance standards and budgets which describe specific actions to be taken by the Refuge over the next 15 years" (p. 7).
Common, Dependant, and	The Refuge mission is to "conserve, manage, and restore a diversity of wildlife and a diversity of habitats important to migratory birds and other species, while providing compatible wildlife-dependent recreation" (p. 31).

Interdependent Resources:	Issues addressed in the plan focus on wildlife, habitat, and people (p. 8): "Refuge wildlife species are far ranging and impacted by activities that occur beyond the Refuge boundary." "Opportunities exist to better focus Refuge habitat management efforts on the needs of special status species and other wildlife for which the Refuge provides essential habitat." "The opportunity exists to more fully develop public use on the Refuge." Goals, objectives, and strategies were developed to address these issues. Of particular concern, activities were noted on adjacent BLM land "including oil and gas development, mining, and off-road vehicle use" (p. 27). The potential for oil, gas development, or mining and continued gravel mining "pose threats to the vegetation, soils, Green River water quality, and resident and migratory wildlife" and "the quality of wildlife-dependent recreational experiences for Refuge visitors" (p. 27). "A related issue involves hunting, camping, and off-road vehicle use. Regulations over such uses differ markedly between surrounding BLM land and the Refuge. Even though Refuge land is fenced and posted every quarter mile along the boundary, confusion still prevails. People enter the Refuge thinking they are still on BLM administered land and often violate Refuge regulations" (p. 27).
Planning Implications:	The Comprehensive Conservation Plan and issues discussed should be considered for any management actions that could affect resources or resource uses near the refuge.

5.3.3 U.S. Forest Service, Colorado

Two National Forests share boundaries with the Little Snake Field Office, Routt and White River National Forests. A description of the U.S. Forest Service plans is provided in Table 5-6.

Table 5-6. —U.S. Forest Service Plans

Name:	**Routt National Forest Land and Resource Management Plan**
Date:	February 1998
Purpose:	"A forest plan provides guidance for all resource management activities on a National Forest: (1) it establishes forest-wide multiple-use goals and objectives [36 CFR 219.11(b)], (2) it establishes forest-wide standards and guidelines to fulfill the requirements of 16 USC 1604 applying to future activities and the resource integration requirements found in 36 CFR 219.13 through 219.27, (3) It establishes management area direction (management area prescriptions) applying to future activities in a management area (resource integration and minimum, specific management requirements) [36 CFR 219.11(c)], (4) it designates lands as suited or not suited for timber production [16 USG 1604(k)] or other resource management activities [36 CFR 219.14, 219.15, 219.20, and 219.21], (5) it establishes monitoring and evaluation requirements [36 CFR 219.11(d)], and (6) it provides recommendations to Congress for the establishment of wilderness, wild and scenic rivers, and other special designations, as appropriate" (p. 1).
Common, Dependant, and Interdependent Resources:	The Plan establishes Forest goals and objectives for desired resource conditions, which focus on multiple use, recreation, and local economies. Standards and guidelines are set that apply to physical resources, biological resources, disturbance processes, social resources, administrative issues, and economic resources.
Planning Implications:	Goals and objectives in the plan should be considered for any management actions that could occur near Routt Forest managed lands.

Name:	White River National Forest Land and Resource Management Plan
Date:	2002 Revision
Purpose:	"The 2002 Forest Plan and the final environmental impact statement (FEIS) should be reviewed concurrently. Together, these two documents will provide strategic, forest wide direction for the next 10 to 15 years. A forest plan provides guidance for all resource management activities on a national forest" (p. P-1).
Common, Dependant, and Interdependent Resources:	"Forest-wide direction combines regional goals (which apply to all national forests in the Rocky Mountain Region of the Forest Service) with goals, objectives, standards, and guidelines that are specific to the White River National Forest" (p. 1-1). The Plan establishes Forest goals and objectives for desired resource conditions, which focus on ecosystem health, multiple benefits to people, scientific and technical assistance, effective public service, public collaboration, and American Indian rights and interests. Standards and guidelines are set that apply to physical resources, biological resources, disturbance processes, social resources, and administrative issues.
Planning Implications:	Goals and objectives in the plan should be considered for any management actions that could occur near White River Forest managed lands.
Name:	White River National Forest Travel Management Plan
Status:	Currently being prepared and is not yet finalized.

5.3.4 Neighboring Bureau of Land Management Field Offices

The Little Snake Field Office surface estate boundaries are shared with other BLM field offices in Colorado, Wyoming, and Utah. Many resources are common, dependant, or interdependent, which has various planning implications for the Little Snake Field Office. Resources that are of particular interest include oil and gas leasing and stipulations, wild horse and burro herd management areas, sage grouse habitat, vegetation management, fire management, transportation systems, grazing, and recreation and OHV management. A list of adjacent BLM Field Office plans is provided in Table 5-7.

Table 5-7. —Adjacent BLM Field Office Plans

State	BLM Field Office	Plan Name	Date / Status
Colorado	White River Field Office	White River Field Office, Colorado Approved Resource Area Resource Management Plan	Approved July 1997
Wyoming	Rock Springs Field Office	Green River Resource Management Plan	Approved October 1997
		Jack Morrow Hills CAP/Proposed Green River RMP Amendment FEIS	FEIS issued July 2004
	Rawlins Field Office	Great Divide/Rawlins RMP Revision	DEIS scheduled for release in December 2004
	Kemmerer Field Office	Kemmerer Field Office Resource Management Plan	Currently being revised
Utah	Vernal Field Office	Vernal Resource Management Plan	DEIS is scheduled for release March 26, 2004

5.4 NEIGHBORING AGENCY CONSULTATION AND COORDINATION

The LSFO plans to collaborate with other federal, state, and local agencies and governmental entities throughout the RMP process. Coordination was initiated at the inception of the project with the

Northwest Colorado Stewardship (NWCOS), Moffat County, Routt County, USFWS, NPS, U.S. Forest Service, Colorado Division of Wildlife, Colorado State Parks, Colorado State Land Board, and the neighboring BLM Field Offices in Colorado, Wyoming, and Utah. A neighboring agency coordination meeting was held on November 17, 2004 to enhance coordination and gain expertise that was attended by several of the aforementioned agencies. Several areas discussed for coordination and consistency included:

- Travel Management and Access
- Sage Grouse/Sharp-tail Grouse
- Fire Management
- Utility Corridors
- Visual Resources
- Wild Horses
- Oil and Gas Development
- Livestock Grazing
- Special Designations and Sensitive Areas
- Wildlife
- Vegetation and Invasive Species Management
- Recreation and OHV
- Cumulative Effects
- Air Quality
- Water Quality/Salinity
- Land Tenure Adjustments

In addition, several cooperating agencies have been identified to date, including Moffat County and the Colorado Department of Parks and Natural Resources. Additional opportunities for coordination with other agencies will be sought throughout the RMP and EIS development process. Project phases where state and local governments, other federal agencies, and tribal governments involvement could prove to be most critical to ensure consistency include scoping, alternatives development, impacts analysis, and public and agency comment periods.

CHAPTER 6 SPECIFIC MANDATES AND AUTHORITY

The foundations of public land management are located in the mandates and authorities provided in laws, regulations, and executive orders. These statements of federal policy direct BLM concerning management of public lands and resources. The U.S. Congress has acknowledged that the appropriate use of these resources requires proper planning. BLM's planning process (as described in 43 CFR 1600) is authorized and mandated through two important laws.

Federal Land Policy and Management Act of 1976 states that BLM "shall, with public involvement…develop, maintain, and when appropriate, revise land use plans" (43 U.S.C. 35 Section 1712 (a)). In addition to federal direction for planning, FLPMA declares the policy of the United States concerning the management of federally owned land administered by BLM. Key to this management policy is the direction that BLM "shall manage the public lands under principles of multiple use and sustained yield, in accordance with the [developed] land use plans" (43 U.S.C. 35 Section 1732 (a)). The commitment to multiple-use will not mean that all land will be open for all uses. Some uses may be excluded on some land to protect specific resource values or uses, as directed by FLPMA (43 U.S.C. 35 Sections 1712 (c) (3)). Any such exclusion, however, will be based on laws or regulations or be determined through a planning process subject to public involvement. In writing and revising LUPs, FLPMA also directs BLM to coordinate land use activities with the planning and management of other federal departments and agencies, state and local governments, and indian tribes. This coordination, however, is limited "to the extent [the planning and management of other organizations remains] consistent with the laws governing the administration of the public lands" (43 U.S.C. 35 Section 1712 (c) (9)).

In the **National Environmental Policy Act of 1969**, the Congress directs "all agencies of the Federal Government…[to]…utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment" (42 U.S.C. 55 Section 4332 (2A)). Because the development of a new RMP may cause impacts to the environment, NEPA regulations require the analysis and disclosure of potential environmental impacts in the form of an EIS. The EIS will examine a range of alternatives, including a No Action Alternative, to resolve the issues in question. Alternatives should represent complete, but alternate means of satisfying the identified purpose and need of the EIS and of resolving the issues. The Little Snake RMP/EIS is being prepared using the best available information.

In addition to these acts, management of public land and resources is authorized and directed through several resource and resource use specific laws, regulations, and executive orders. The direction from these sources is refined and made department- and bureau-specific through agency documents such as Instruction Memoranda (IM), Information Bulletins (IB), and manuals and handbooks. Following are some of the documents that direct the management of public land and resources.

6.1 LAWS, REGULATIONS, AND ORDERS

- Act of May 24, 1928 (airport leases)
- Airport and Airways Improvement Act, (49 U.S.C. 47125 *et seq.*)
- American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
- Antiquities Act of 1906 (16 U.S.C. 431–433)
- Appropriations Act of 1952, McCarran Amendment
- Archeological Resources Protection Act of 1979, as amended (16 U.S.C. 470)
- Classification and Multiple Use Act of September 1964, in accordance with 43 CFR 2400

- Clean Air Act, as amended (42 U.S.C. 7418)
- Color of Title Act, as amended (43 U.S.C. 1608 *et seq.*)
- Colorado River Basin Salinity Control Act of 1974
- Combined Hydrocarbon Leasing Act of 1981
- Desert Land Entry Act, as amended (43 U.S.C. 321 *et seq.*)
- Economy Act of 1932, as amended
- Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)
- Federal Cave Resources Protection Act of 1988 (16 U.S.C. 4301 *et seq.*)
- Federal Coal Leasing Amendments Act of 1976 (30 U.S.C. 201)
- Federal Water Pollution Control Act [commonly referred to as the Clean Water Act], as amended (33 U.S.C. 1251–1387)
- Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*)
- General Mining Law of 1872, as amended (30 U.S.C. 21 *et seq.*)
- Healthy Forests Restoration Act of 2003
- Historic Sites Act of 1935 (16 U.S.C. 461)
- Homestead Act of 1862 (Although repealed in 1976, the effects of this act are visible and impact some management decisions.)
- Migratory Bird Conservation Act of 1979 (16 U.S.C. 715)
- Mineral Leasing Act of 1920, as amended (30 U.S.C. 181 *et seq.*)
- Mining and Mineral Policy Act of 1970 (30 U.S.C. 21a)
- National Historic Preservation Act, as amended (16 U.S.C. 470)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001)
- Onshore Oil and Gas Leasing Reform Act of 1987 (30 U.S.C. 181 *et seq.*)
- Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901)
- Recreation and Public Purposes Act of 1926, as amended (43 U.S.C. 869 *et seq.*)
- Reservoir Salvage Act of 1960 (16 U.S.C. 469)
- Safe Drinking Water Act of 1974 (42 U.S.C. 201)
- Sikes Act (16 U.S.C. 670 *et esq.*)
- Soil Conservation and Domestic Allotment Act of 1935, as amended
- Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 *et seq.*)
- Taylor Grazing Act of 1934 (43 U.S.C. 315)
- Water Resources Development Act of 1974
- Water Resources Planning Act of 1965, as amended
- Water Resources Research Act of 1954, as amended
- Watershed Protection and Flood Control Act of 1954
- Wild and Scenic Rivers Act, as amended (16 U.S.C. 1271 *et seq.*)
- Wild Free-Roaming Horses and Burros Act (16 U.S.C. 30)
- Wilderness Act, as amended (16 U.S.C. 1131 *et seq.*)
- Executive Orders 10046, 10175, 10234, 10322, 10787, and 10890 (Authorize the transfer of certain lands from the Department of Agriculture to the Department of the Interior for use, administration, or exchange under the Taylor Grazing Act of 1934)
- Executive Order 11288 (water quality management and pollution abatement plans)
- Executive Order 11507 (protect and enhance the quality of air and water resources)
- Executive Order 11514 as amended by Executive Order 11991 (Protecting and enhancing the quality of the nation's environment to sustain and enrich human life)
- Executive Order 11593 (Protection and Enhancement of the Cultural Environment)
- Executive Order 11644 (Use of Off-Road Vehicles [ORV] on the Public Lands)
- Executive Order 11738 (Enforce the Clean Air Act and the Clean Water Act in the procurement of goods, materials, and services)
- Executive Order 11752 (Protect and enhance the quality of air, water, and land resources through compliance with applicable federal, state, interstate, and local pollution standards)

- Executive Order 11987 (Exotic Flora and Fauna)
- Executive Order 11988 as amended by Executive Order 12148 (Floodplain Management)
- Executive Order 11989 (ORVs on Public Lands)
- Executive Order 11990 (Protection of Wetlands)
- Executive Order 12088 (Federal Compliance with Pollution Control Standards)
- Executive Order 12322 requires that any report, proposal, or plan relating to a Federal or Federally assisted water and related land resources project or program must be submitted to the Director, Office of Management and Budget (OMB), before submission to the Congress
- Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)
- Executive Order 13007 (Indian Sacred Sites)
- Executive Order 13084 (Consultation and Coordination with Indian Tribal Governments)
- Executive Order 13112 (Invasive Species)
- Executive Order 13186 (Migratory Birds)
- President's Letter of May 26, 1974 (Creates the Interagency Committee on Water Resources and establishes interagency participation in river basin planning)
- Secretarial Order 3175 (incorporated into the Departmental Manual at 512 DM 2)
- Secretarial Order 3206 (American Indian Tribal Rights, Federal–Tribal Trust Responsibilities, and the Endangered Species Act)
- Regional Haze Regulation (Federal Register/Vol. 64, No. 126; 35714 July 1, 1999)
- 43 CFR Chapter 2 Parts 1000 – 9999 (Federal Regulations for the BLM)
- 36 CFR, 62 (Addresses procedures to identify, designate, and recognize National Natural Landmarks)
- The U.S. Water Resource Council published Floodplain Guidelines on February 10, 1978, after being directed to establish guidelines for floodplain management and preservation
- The Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management (*Federal Register*, October 18, 2000)
- National Ambient Air Quality Standards (40 CFR Parts 50.4–50.12)
- New Source Review (40 CFR Part 51.307)
- Regional Haze Rule (40 CFR 51)
- "Treatment as a State" Regulation (40 CFR Part 71)
- National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)

6.2 INSTRUCTION MEMORANDA, INFORMATION BULLETINS, MANUAL SECTIONS, HANDBOOKS, AND TECHNICAL NOTES

- IM 78-410 (Protection of Wetlands and Riparian Areas)
- IM 78-523 (Compliance with BLM Interim Floodplain Management Procedures)
- IM 87-261 (Implementation of the Riparian Area Management Policy)
- IM 99-085 (Federal Multi-Agency Source Water Agreement)
- IM 99-123 (Reporting to the Colorado River Salinity Control Forum)
- IM 2000-179 (Funding of Water-Related Restoration and Cleanup Projects on Private and Other Non-BLM Lands)
- IM 2002-174 (Oil and Gas Leasing Stipulations)
- IM 2003-035 (Implementing the President's Healthy Forests Initiative)
- IM 2003-137 (Integration of the Energy Policy and Conservation Act [EPCA] Inventory Results into Land Use Planning and Energy Use Authorizations)
- IM 2003-158 (Memorandum of Understanding (MOU) between Bureau of Land Management and the Animal and Plant Health Inspection Service (APHIS) Addressing the Management of Grasshoppers and Mormon Crickets)

- IM 2003-169 (Use of the Economic Profile System in Planning and Collaboration)
- IM 2003-182 (Geocaching Activities on BLM Public Lands)
- IM 2003-195 (Rescission of National Level Policy Guidance on Wilderness Review and Land Use Planning)
- IM 2003-197 (Right-of-Way management, Interstate Natural Gas Pipeline)
- IM 2003-226 (Fire Program Analysis System—Development of Fire Management Objectives)
- IM 2003-233 (Integration of the EPCA Inventory Results into the Land Use Planning Process)
- IM 2003-234 (Integration of the Energy Policy and Conservation Act (EPCA) Inventory Results into Oil and Gas Exploration and Development Use Authorizations)
- IM 2003-238 (Guidance for Data Management in Land Use Planning)
- IM 2003-274 (BLM Implementation of the Settlement of Utah v. Norton Regarding Wilderness Study)
- IM 2003-275 (Consideration of Wilderness Characteristics in Land Use Planning [Excluding Alaska])
- IM 2004-005 (Clarification of OHV Designations and Travel Management in the BLM Land Use Planning Process)
- IM 2004-007 (Land Use Plan and Implementation Plan Guidance for Wildland Fire Management)
- IM 2005-003 (Cultural Resources and Tribal Consultation for Fluid Minerals Leasing)
- IM 2005-006 (Solar Energy Development Policy)
- IM 2005-008 (Black-tailed, White-tailed, and Gunnison Prairie Dog Conservation Update)
- IM 2005-024 (National Sage-Grouse Habitat Conservation Strategy)
- IB 98-116 (Clean Water Action)
- IB 2002-101 (Cultural Resource Information)
- IB 2003-074 (Sample Filing Plan for Land Use Planning Records)
- IB 2003-113 (The Manager's Role in the Land Use Planning Process)
- IB 2004-005 (Extension of FY 2002 Instruction Memoranda)
- BLM-M-1601 (Land Use Planning)
- BLM-M-1613 (Areas of Critical Environmental Concern)
- BLM-M-4180 (Rangeland Health Standards)
- BLM-M-4700 (Wild Horse and Burro Management)
- BLM-M-6740 (Establishes policy and procedures for the identification, protection, maintenance, and management of fresh, brackish, and saline waters and wetland areas)
- BLM-M-6800 (Special Status Species Management)
- BLM-M- 7100 (Defines the policy of BLM's Soil Resource Management Program.)
- BLM-M-7120 (Provides guidelines for maintaining Bureau watershed improvements constructed on public lands)
- BLM-M-7150 (Provides guidance in the conduct and maintenance of water utilization and development, water quality, water yield and timing, and water rights)
- BLM-M-7160 (Provides general guidance for preventing water and wind erosion)
- BLM-M-7180 (Relates the restoration of disturbed areas directly to policy on erosion control, protection, maintenance of environmental quality, rehabilitation of mined lands (BLM 3509 and 3605), and prevention of erosion in road construction, etc.)
- BLM-M-7210 (Provides the basic framework for soil and watershed activities)
- BLM-M-7221 (Describes the policies, responsibilities, and procedures used to incorporate floodplain management into BLM activities)
- BLM-M-7240 (Describes BLM policy to protect, maintain, restore, and enhance the quality of water on public lands so that its utility for other dependent ecosystems will be maintained equal to or above legal water quality criteria)
- BLM-M-7250 (Establishes policy and guidance to acquire, perfect, and protect water rights necessary for multiple use management)

- BLM-M-7315-7317 (Provides procedures for inventory and analysis of ground and surface water inventories and of erosion and sediment reduction)
- BLM-M-7322 (Provides procedures for analyzing watershed problems and developing plans for improving watershed conditions)
- BLM-M-7410 (Provides criteria, standards, and techniques for land treatment)
- BLM-M-8100 (Cultural Resource Management)
- BLM-M-8110 (Identifying Cultural Resources)
- BLM-M-8120 (Protecting Cultural Resources)
- BLM-M-8130 (Utilizing Cultural Resources for Public Benefit)
- BLM-M-8160 (Native American Coordination and Consultation)
- BLM-M-8270 (Paleontological Resource Management)
- BLM-M-8340 (OHV Management)
- BLM-M-8531 (Wild and Scenic Rivers)
- BLM-M-9210 (Fire Management Policy)
- BLM-H-1601 (Land Use Planning)
- BLM-H-1742 (Emergency Fire Rehabilitation)
- BLM-H-1790 (NEPA Handbook)
- BLM-H-2200 (Land Exchanges)
- BLM-H-4750 (Wild Horse and Burro Management)
- BLM-H-6310-1 (Wilderness Inventory and Study Procedures)
- BLM-H-4180-1 (Rangeland Health Standards)
- BLM-H-8160-1 (General Procedural Guidance for Native American Consultation)
- BLM-H-8270-1 (Paleontological Resource Management)
- BLM-H-8410-1 (Visual Resource Inventory)
- BLM-H-8550-1 (Interim Management Policy and Guidelines for Lands Under Wilderness Review [1995])
- BLM-H-9214-1 (Prescribed Fire Management)
- Bureau of Land Management, Riparian Area Management Policy, January 1987
- Technical Notes 346: Erosion condition classification system
- Technical Notes 364: 1980-82 salinity status report: results of Bureau of Land Management studies on public lands in the Upper Colorado River Basin
- Technical Notes 365: Hydrology and USLE: application to rangelands
- Technical Notes 369: Considerations in rangeland watershed monitoring
- Technical Notes 371: Determining hydrologic properties of soil
- Technical Notes 372: Stream discharge measurement using a modified technique
- Technical Notes 373: Diffuse-source salinity: mancos shale terrain
- Technical Notes 405: A framework for analyzing the hydrologic conditions of watersheds

6.3 APPLICABLE COLORADO STATE LAWS AND REGULATIONS

- CO 2004-014 (Updated Environmental Assessment (EA), Categorical Exclusion (CE), and Documentation of Land Use Plan Conformance and National Environmental Policy Act (NEPA) Adequacy (DNA) Templates, Updated List of Critical Elements of the Human Bureau of Land Management (BLM) NEPA Handbook (H-1790-1) and EA-Level Guidance
- CO 2004-035 (Compliance with Critical Sections of 43 CFR 3715 and 43 CFR 3809 Regulations)
- CO 2004-040 (Prescribed Burn Plan Format)
- CO 2004-044 (Wildland Fire Use Policy)
- CO 2004-047 (Memorandum of Understanding for Fire and Fuels Management Activities in Colorado
- Colorado Revised Statutes (CRS) Section 37, Water and Irrigation (CRS 37-1-101 through CRS 37-98-104)

6.4 MEMORANDA AND AGREEMENTS

- Master MOU with U.S. Fish and Wildlife Service (USFWS) dated December 1986
- The rangeland programmatic memorandum of agreement among BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers
- The federal coal management programmatic memorandum of agreement among BLM, Office of Surface Mining, U.S. Department of the Interior, U.S. Geological Survey (USGS), and the Advisory Council on Historic Preservation
- Interagency MOU between the Department of the Interior-BLM and the Department of Agriculture in 1995 (60F26045-48, 5/16/95)
- MOU between the BLM State Director of Colorado and BLM State Director of Utah on public land management lying in Colorado, west of the Green River.
- MOU with Moffat County concerning weed management dated 1994.

6.5 PLANNING DOCUMENTS APPLICABLE TO THE LITTLE SNAKE RMPPA

The following documents are applicable to land use planning efforts within the RMPPA.

6.5.1 BLM Land Use Plans

Little Snake Resource Management Plan Record of Decision (1991)

6.5.2 Activity Plans

Sand Wash Basin Herd Management Area Plan (1982)

6.5.3 Recreation Management Plans

- Little Yampa Canyon Recreation Area Management Plan (1996)
- Draft Recreation Assessment for Sand Wash Basin (2004)

6.5.4 Habitat Plans

A Cooperative Management Plan for Black-Footed Ferrets, Little Snake Management Area, Colorado (1995)

6.5.5 Endangered Species Recovery Plans

- Dudley Bluffs Bladderpod and Dudley Bluffs Twinpod Recovery Plan (1993)
- Bonytail Chub Recovery Plan (1990)
- Colorado Squawfish Recovery Plan (1991)
- Humpback Chub Recovery Plan (1990)
- Razorback Sucker Recovery Plan (1998)
- Mexican Spotted Owl Recovery Plan (1995)
- Final Recovery Plan, Southwestern Willow Flycatcher (2002)
- Black-Footed Ferret Recovery Plan (1978)
- Gray Wolf Recovery Plan (1987)

6.5.6 Existing Environmental Assessments and Impact Statements

- Environmental Assessment and Gather Plan for the Gather and Selective Removal of Wild Horses from the Sand Wash Wild Horse Herd Management Area (2001)
- Little Snake Field Office and Brown's Park National Wildlife Refuge Fire Management Plan Environmental Assessment (2000)
- Vermillion Oil and Gas Environmental Assessment

6.5.7 Other Policy and Guiding Direction

- Northwest Colorado Fire Program Area Fire Management Plan (2004)
- Routt County Master Plan (2003)
- Moffat County Land Use Plan (2001)
- Sarvis Creek Area Plan (1996)
- South Steamboat Area Land Use Plan (1990)
- Stagecoach Community Plan (1999)

CHAPTER 7 ACRONYMS

ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
AIRFA	American Indian Religious Freedom Act
AMP	Allotment Management Plan
AMS	Analysis of the Management Situation
APD	Application for Permit to Drill (an oil or gas drill)
APHIS	Animal and Plant Health Inspection Service (USDA)
ARPA	Archeological Resource Protection Act
AUM	Animal unit month
BBLS	Barrels (a measure of the quantity of condensate)
BCF	Billion cubic feet (a measure of quantity of natural gas)
BLM	Bureau of Land Management
BMP	Best Management Practice
CA	Sub-basin and Regional Assessments
CAP	Coordinated Activity Plan
CDOW	Colorado Division of Wildlife
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRMP	Cultural Resource Management Plan
CSR	Channel stability rating
COA	Conditions of Approval
DAU	Data Management Units
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
EVAL	RMP Evaluation
ERMA	Extensive Recreation Management Area
FAR	Functioning At Risk
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act (of 1976)
FMU	Forest management unit
FONSI	Finding of No Significant Impact
FR	Federal Register
FTE	Full-time equivalent
HMA	Herd Management Area
LHA	Landscape Health Assessment
LSFO	Little Snake Field Office
LU	Land Utilization
MFP	Management Framework Plan (pre-FLPMA BLM land use plan)
MMBTU	Million British Thermal Unit
NAAQS	National Ambient Air Quality Standards
NCA	National Conservation Area
NEPA	National Environmental Policy Act (of 1969)
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NNL	National Natural Landmark

NOI	Notice of Intent
NPS	National Park Service
NRA	National Recreation Area
NRHP	National Register of Historic Places
NSO	No Surface Occupancy (a stipulation on an oil and gas lease)
NWPS	National Wilderness Preservation System
NWSRS	National Wild and Scenic Rivers System
OHV	Off-Highway Vehicle
ORV	Off-Road Vehicle
PFC	Proper Functioning Condition (of riparian/wetland areas)
RAC	Resource Advisory Council
RAMP	Recreation Area Management Plan
RCRA	Resource Conservation and Recovery Act (1976)
RMIS	Recreation Management Information System
RMP	Resource Management Plan
RMPPA	Resource Management Plan Planning Area
ROD	Record of Decision
ROI	Region of Influence
ROW	Right of Way
R&PP	Recreation and Public Purposes Act
SHPO	State Historic Preservation Officer
SMA	Special Management Area
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
T&E	Threatened and Endangered
TBD	To Be Determined
TMDL	Total Maximum Daily Loads
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USDA	United States Department of Agriculture
USDI	United States Department of Interior
VRM	Visual Resource Management
WH&B	Wild Horse and Burro
WHHA	Wild Horse Herd Area
WSA	Wilderness Study Area
WSR	Wild and Scenic River(s)
WSRA	Wild and Scenic Rivers Act

CHAPTER 8 GLOSSARY

Actual Use. The amount of animal unit months consumed by livestock based on the numbers of livestock and grazing dates submitted by the livestock operator and confirmed by periodic field checks by the BLM.

Air Pollution. The contamination of the atmosphere by any toxic or radioactive gases and particulate matter as a result of human activity.

Allotment. An area of land in which one or more livestock operators graze their livestock. Allotments generally consist of BLM lands but may also include other federally managed, state owned, and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Allotment Management Plan (AMP). A concisely written program of livestock grazing management, including supportive measures, if required, designed to attain specific management goals in a grazing allotment. An AMP is prepared in consultation with the permittee(s), lessee(s), and other affected interests. Livestock grazing is considered in relation to other uses of the range and to renewable resources, such as watershed, vegetation, and wildlife. An AMP establishes seasons of use, the number of livestock to be permitted, the range improvements needed, and the grazing system.

Analysis of the Management Situation (AMS). Assessment of the current management direction. It includes a consolidation of existing data needed to analyze and resolve identified issues, a description of current BLM management guidance, and a discussion of existing problems and opportunities for solving them.

Areas of Critical Environmental Concern (ACEC). Areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards (from H-6310-1, Wilderness Inventory and Study Procedures).

Atmospheric Deposition. Air pollution produced when acid chemicals are incorporated into rain, snow, fog or mist and fall to the earth. Sometimes referred to as "acid rain" and comes from sulfur oxides and nitrogen oxides, products of burning coal and other fuels and from certain industrial processes. If the acid chemicals in the air are blown into areas where the weather is wet, the acids can fall to Earth in the rain, snow, fog or mist. In areas where the weather is dry, the acid chemicals may become incorporated into dusts or smokes.

AUM (Animal Unit Month). The amount of forage needed by an “animal unit” (AU) grazing for one month. The animal unit in turn is defined as one mature 1,000-pound cow and her suckling calf.

Back Country Byways. Vehicle routes that traverse scenic corridors utilizing secondary or back country road systems. National back country byways are designated by the type of road and vehicle needed to travel the byway.

Big Game. Indigenous ungulate wildlife species that are hunted, such as elk, deer, bison, bighorn sheep, and pronghorn antelope.

Candidate species. Taxa for which the FWS has sufficient information on their status and threats to support proposing the species for listing as endangered or threatened under the ESA but for which issuance of a proposed rule is currently precluded by higher priority listing actions. Separate lists for plants, vertebrate animals, and invertebrate animals are published periodically in the Federal Register (from M6840, Special Status Species Manual) (from M6840, Special Status Species Manual).

Casual Use. Means activities that involve practices which do not ordinarily cause any appreciable disturbance or damage to the public lands, resources or improvements and, therefore, doe not require a right-of-way grant or temporary use permit (43 CFR 2800). Also means any short term non-commercial activity which does not cause appreciable damage or disturbance to the public lands, their resources or improvements, and which is not prohibited by closure of the lands to such activities(43 CFR 2920). Casual use generally includes the collecting of geochemical, rock, soil, or mineral specimens using hand tools, hand panning, and non-motorized sluicing. It also generally includes use of metal detectors, gold spears, and other battery-operated devices for sensing the presence of minerals, and hand battery-operated dry washers. Casual use does not include use of mechanized earth-moving equipment, truck-mounted drilling equipment, suction dredges, motorized vehicles in areas designated as closed to off-road vehicles, chemicals, or explosives. It also does not include occupancy or operations where the cumulative effects of the activities result in more than negligible disturbance.

Clean Air Act (CAA) of 1963 and Amendments. Federal legislation governing air pollution control.

Closed. Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 sets forth the specific meaning of “closed” as it relates to off-highway vehicle use, and 43 CFR 8364 defines “closed” as it relates to closure and restriction orders (from H-1601-1, BLM Land Use Planning Handbook).

Condition Class (Fire Regimes). Fire Regime Condition Classes are a measure describing the degree of departure from historical fire regimes, possibly resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings. One or more of the following activities may have caused this departure: fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, introduced insects or disease, or other management activities.

Conditions of Approval. Conditions or provisions (requirements) under which an Application for a Permit to Drill or a Sundry Notice is approved.

Council on Environmental Quality (CEQ). An advisory council to the President of the United States established by the National Environmental Policy Act of 1969. It reviews Federal programs to analyze and interpret environmental trends and information.

Critical Habitat. An area occupied by a threatened or endangered species “on which are found those physical and biological features (1) essential to the conservation of the species, and (2) which may require special management considerations or protection.”

Deferred Rotation. Rotation grazing with regard to deferring pastures beyond the growing season, if they were used early the prior year, or that have been identified as needing deferment for resource reasons.

Designated roads and trails. Specific roads and trails identified by the BLM (or other agencies) where some type of motorized vehicle use is appropriate and allowed either seasonally or year-long. (from H-1601-1, BLM Land Use Planning Handbook).

Disposal. Transfer of public land out of federal ownership to another party through sale, exchange, Recreation and Public Purposes Act, Desert Land Entry or other land law statutes.

Easement. A right afforded a person or agency to make limited use of another's real property for access or other purposes.

Eligibility. Qualification of a river for inclusion into the National Wild and Scenic Rivers System through the determination (professional judgment) that it is free-flowing and, with its adjacent land area, possesses at least one river-related value considered to be outstandingly remarkable (from M-8351, BLM WSR Policy and Program).

Endangered Species. Any species which is in danger of extinction throughout all or a significant portion of its range (from M6840, Special Status Species Manual).

Environmental Impact Statement (EIS). A detailed statement prepared by the responsible official in which a major Federal action which significantly affects the quality of the human environment is described, alternatives to the proposed action provided, and effects analyzed (from BLM National Management Strategy for OHV Use on Public Lands).

Extensive Recreation Management Area (ERMA). Areas in which significant recreation opportunities and problems are limited and explicit recreation management is not required. Minimal management actions related to the Bureau's stewardship responsibilities are adequate in these areas.

Federal Land Policy and Management Act of 1976 (FLPMA). Public Law 94-579, October 21, 1976, often referred to as the BLM's "Organic Act," which provides the majority of the BLM's legislated authority, direction policy and basic management guidance (from BLM National Management Strategy for OHV Use on Public Lands).

Fire Suppression. All work activities connected with fire extinguishing operations, beginning with discovery of a fire and continuing until the fire is completely out.

Fluid Minerals. Oil, gas, coal bed natural gas, and geothermal resources.

Functioning at Risk. (1) Condition in which vegetation and soil are susceptible to losing their ability to sustain naturally functioning biotic communities. Human activities, past or present, may increase the risks. Rangeland Reform Final Environmental Impact Statement (FEIS) at 26. (2) Uplands or riparian-wetland areas that are properly functioning, but a soil, water, or vegetation attribute makes them susceptible to degradation and lessens their ability to sustain natural biotic communities. Uplands are particularly at risk if their soils are susceptible to degradation. Human activities, past or present, may increase the risks (Rangeland Reform Draft Environmental Impact Statement (DEIS) Glossary). SEE ALSO Properly Functioning Condition and Nonfunctioning Condition (from H-4180-1, BLM Rangeland Health Standards Manual).

Grazing Preference. The total number of AUMs on public land apportioned and attached to base property owned or controlled by a lessee.

Habitat. An environment which meets a specific set of physical, biological, temporal or spatial characteristics that satisfy the requirements of a plant or animal species or group of species for part or all of their life cycle.

Herd Management Area (HMA). Public land under the jurisdiction of the BLM that has been designated for special management emphasizing the maintenance of an established wild horse or burro herd.

Intermittent Stream. An intermittent stream is a flowing system under normal weather conditions. During the dry season and throughout minor drought periods, these streams will not exhibit flow. Geomorphological characteristics are not well defined and are often inconspicuous. In the absence of external limiting factors (pollution, thermal modifications, etc.), biology is scarce and adapted to the wet and dry conditions of the fluctuating water level.

K factor. A soil erodibility factor used in the universal soil loss equation that is a measure of the susceptibility of soil particles to detachment and transport by rainfall and runoff. Estimation of the factor takes several soil parameters into account, including: soil texture, percent of sand greater than 0.10 mm, soil organic matter content, soil structure, soil permeability, clay mineralogy, and coarse fragments. K factor values range from .02 to .64, the greater values indicating the highest susceptibilities to erosion.

Late Season. Fall or late summer grazing.

Land Classification. When, under criteria of 43 CFR 2400, a tract of land has potential for either retention for multiple use management or for some form of disposal, or for more than one form of disposal, the relative scarcity of the values involved and the availability of alternative means and sites for realization of those values will be considered. Long-term public benefits will be weighed against more immediate or local benefits. The tract will then be classified in a manner which will best promote the public interest.

Land Tenure adjustments. Ownership or jurisdictional changes are referred as "Land Tenure Adjustments". To improve the manageability of the BLM lands and improve their usefulness to the public, BLM has numerous authorities for "repositioning" lands into a more consolidated pattern, disposing of lands, and entering into cooperative management agreements. These land pattern improvements are completed primarily through the use of land exchanges, but also through land sales, jurisdictional transfers to other agencies, and through the use of cooperative management agreements and leases.

Land use allocation. The identification in a land use plan of the activities and foreseeable development that are allowed, restricted, or excluded for all or part of the planning area, based on desired future conditions. (from H-1601-1, BLM Land Use Planning Handbook).

Land use plan. A set of decisions that establish management direction for land within an administrative area, as prescribed under the planning provisions of FLPMA; an assimilation of land-use-plan-level decisions developed through the planning process outlined in 43 CFR 1600, regardless of the scale at which the decisions were developed. The term includes both RMPs and MFPs. (from H-1601-1, BLM Land Use Planning Handbook).

Lease. Section 302 of the Federal Land Policy and Management Act of 1976 (FLPMA) provides the BLM's authority to issue leases for the use, occupancy, and development of the public lands. Leases are issued for purposes such as a commercial filming, advertising displays, commercial or

noncommercial croplands, apiaries, livestock holding or feeding areas not related to grazing permits and leases, harvesting of native or introduced species, temporary or permanent facilities for commercial purposes (does not include mining claims), residential occupancy, ski resorts, construction equipment storage sites, assembly yards, oil rig stacking sites, mining claim occupancy if the residential structures are not incidental to the mining operation, and water pipelines and well pumps related to irrigation and non-irrigation facilities. The regulations establishing procedures for the processing of these leases and permits are found in 43 Code of Federal Regulations (CFR) 2920.

Lek. An assembly area where birds, especially sage grouse, carry on display and courtship behavior.

Limited. Designated areas and trails where the use of off-road vehicles is subject to restrictions, such as limiting the number or types or vehicles allowed, dates and times of use (seasonal restrictions), limiting use to existing roads and trails, or limiting use to designated roads and trails. Under the designated roads and trails designation, use would be allowed only on roads and trails that are signed for use. Combinations of restrictions are possible, such as limiting use to certain types of vehicles during certain times of the year (from BLM National Management Strategy for OHV Use on Public Lands).

Locatable Minerals. Minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This includes deposits of gold, silver, and other uncommon minerals not subject to lease or sale.

LU project lands. Privately owned submarginal farmlands incapable of producing sufficient income to support the family of a farm owner and purchased under Title III of the Bankhead-Jones Farm Tenant Act of July 22, 1937. These acquired lands became known as "Land Utilization Projects" and were subsequently transferred from jurisdiction of the U.S. Department of Agriculture to the U.S. Department of the Interior. They are now administered by the Bureau of Land Management.

Mineral. Any naturally formed inorganic material, solid or fluid inorganic substance that can be extracted from the earth, any of various naturally occurring homogeneous substances (as stone, coal, salt, sulfur, sand, petroleum, water, or natural gas) obtained for man’s use, usually from the ground. Under Federal laws, considered as locatable (subject to the general mining laws), leasable (subject to the Mineral Leasing Act of 1920), and salable (subject to the Materials Act of 1947).

Mineral Entry. The filing of a claim on public land to obtain the right to any locatable minerals it may contain.

Mineral Estate. The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Mineral Materials. Materials such as sand and gravel and common varieties of stone, pumice, pumicite, and clay that are not obtainable under the mining or leasing laws. but that can be acquired under the Materials Act of 1947, as amended.

Mining Claim. A parcel of land that a miner takes and holds for mining purposes, having acquired the right of possession by complying with the Mining Law and local laws and rules. A mining claim may contain as many adjoining locations as the locator may make or buy. There are four categories of mining claims: lode, placer, millsite, and tunnel site.

Multiple use. The management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and 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 (FLPMA) (from M6840, Special Status Species Manual).

National Wild and Scenic Rivers System. A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three types of streams: (1) recreation—rivers or sections of rivers that are readily accessible by road or railroad and that may have some development along their shorelines and may have undergone some impoundments or diversion in the past, (2) scenic—rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads, and (3) wild—rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with watersheds or shorelines essentially primitive and waters unpolluted.

Nonfunctioning Condition. (1) Condition in which vegetation and ground cover are not maintaining soil conditions that can sustain natural biotic communities. FEIS at 25. (2) Riparian-wetland areas are considered to be in nonfunctioning condition when they don't provide adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are not reducing erosion, improving water quality, or other normal characteristics of riparian areas. The absence of a floodplain may be an indicator of nonfunctioning condition (DEIS Glossary). SEE ALSO Properly Functioning Condition and Functioning at Risk (from H-4180-1, BLM Rangeland Health Standards Manual).

Off-highway vehicle (OHV). Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any non-amphibious registered motorboat: (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used for national defense. (from H-1601-1, BLM Land Use Planning Handbook).

Open. Designated areas and trails where off-road vehicles may be operated, subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343; or an area where all types of vehicle use is permitted at all times, subject to the standards in BLM Manuals 8341 and 8343 (from BLM National Management Strategy for OHV Use on Public Lands).

Outstandingly Remarkable Values. Values among those listed in Section 1(b) of the Act: "scenic, recreational, geological, fish and wildlife, historical, cultural, or other similar values...." Other similar values which may be considered include ecological, biological or botanical,

paleontological, hydrological, scientific or research values (from M-8351, BLM WSR Policy and Program).

Ozone. A faint blue gas produced in the atmosphere from chemical reactions of such sources as burning coal, gasoline and other fuels, and chemicals found in products including solvents, paints, hairsprays, etc.

Perennial Stream. Perennial streams carry flowing water continuously throughout the year, regardless of weather conditions. It exhibits well-defined geomorphological characteristics and in the absence of pollution, thermal modifications, or other man-made disturbances has the ability to support aquatic life. During hydrological drought conditions, the flow may be impaired.

Permit Long. Grazing for the duration of the permitted time with care taken not to overuse the resource.

Permitted Use. The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease, and is expressed in Animal Unit Months (AUMs) (43 CFR § 4100.0-5) (from H-4180-1, BLM Rangeland Health Standards Manual).

Prevention of Significant Deterioration (PSD). An air pollution permitting program intended to ensure that air quality does not diminish in attainment areas.

Primitive and Unconfined Recreation. Non-motorized, non-mechanized (except as provided by law), and undeveloped types of recreational activities. Bicycles are considered mechanical transport (from H-6310-1, Wilderness Inventory and Study Procedures).

Properly Functioning Condition. (1) An element of the Fundamental of Rangeland Health for watersheds, and therefore a required element of State or regional standard and guidelines under 43 CFR § 4180.2(b). (2) Condition in which vegetation and ground cover maintain soil conditions that can sustain natural biotic communities. For riparian areas, the process of determining function is described in the BLM Technical Reference TR 1737-9. FEIS at 26, 72. (3) Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by geomorphic features, soil, water, and vegetation (DEIS Glossary). (4) Uplands function properly when the existing vegetation and ground cover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by geomorphic features, soil, water, and vegetation (DEIS Glossary). SEE ALSO Nonfunctioning Condition and Functioning at Risk (from H-4180-1, BLM Rangeland Health Standards Manual).

Public land. Land or interest in land owned by the United States and administered by the Secretary of the Interior through the BLM without regard to how the United States acquired ownership, except lands located on the Outer Continental Shelf, and land held for the benefit of Indians, Aleuts, and Eskimos. (from H-1601-1, BLM Land Use Planning Handbook).

Reasonable Foreseeable Development (RFD) Scenario. The prediction of the type and amount of oil and gas activity that would occur in a given area. The prediction is based on geologic factors, past history of drilling, projected demand for oil and gas, and industry interest.

Recreation and Public Purposes (R&PP) Act (of 1926). Recreation and Public Purposes Act provided for the lease and sale of public lands determined valuable for public purposes. The objective of the R&PP Act is to meet the needs of State and local government agencies and non-profit organizations by leasing or conveying public land required for recreation and public purpose uses. Examples of uses made of R&PP lands are parks and greenbelts, sanitary landfills, schools, religious facilities, and camps for youth groups. The act provides substantial cost-benefits for land acquisition and provides for recreation facilities or historical monuments at no cost.

Recreation Opportunity Spectrum (ROS). A continuum used to characterize recreation opportunities in terms of setting, activity and experience opportunities. The spectrum covers a range of recreation opportunities from primitive to urban. With respective to river management planning, ROS represents one possible method for delineating management units or zones. See BLM Manual Section 8320 for more detailed discussion (from M-8351, BLM WSR Policy and Program).

Resource Management Plan (RMP). A land use plan as prescribed by the Federal Land Policy and Management Act that establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

Rest Rotation. Grazing rotation that rests pastures that have been grazed early the prior year or that have been identified as needing rest for resource reasons.

Right-of-Way (ROW). Means the public lands authorized to be used or occupied for specific purposes pursuant to a right-of-way grant, which are in the public interest and which require rights-of-way over, upon, under, or through such lands.

Riparian Area. A form of wetland transition between permanently saturated wetlands and upland areas. Riparian areas exhibit vegetation or physical characteristics that reflect the influence of permanent surface or subsurface water. Typical riparian areas include lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels. Excluded are ephemeral streams or washes that lack vegetation and depend on free water in the soil.

Rock Art. Petroglyphs (carvings) or pictographs (painting) used by native persons to depict their history and culture.

Rotation. Grazing rotation between pastures in the allotment for the permitted time.

Scenic Byways. Highway routes, which have roadsides or corridors of special aesthetic, cultural, or historic value. An essential part of the highway is its scenic corridor. The corridor may contain outstanding scenic vistas, unusual geologic features, or other natural elements.

Season of Use. The time during which livestock grazing is permitted on a given range area, as specified in the grazing lease.

Special recreation management area (SRMA). A public lands unit identified in land use plans to direct recreation funding and personnel to fulfill commitments made to provide specific, structured

recreation opportunities (i.e., activity, experience, and benefit opportunities). The BLM recognizes three distinct types of SRMAs: community-based; intensive; and undeveloped big open. (from H-1601-1, BLM Land Use Planning Handbook).

Split Season. Removing livestock from the allotment and returning them later in the year within the permitted time.

State Implementation Plan (SIP). A detailed description of the programs a state will use to carry out its responsibilities under the Clean Air Act. State implementation plans are collections of the regulations used by a state to reduce air pollution.

Threatened Species. Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (from M6840, Special Status Species Manual).

Total Maximum Daily Load (TMDL). An estimate of the total quantity of pollutants (from all sources: point, nonpoint, and natural) that may be allowed into waters without exceeding applicable water quality criteria.

Traditional Cultural Property. a property that derives significance from traditional values associated with it by a social and/or cultural group such as an Indian tribe or local community. A traditional cultural property may qualify for the National Register if it meets the criteria and criteria exceptions at 36 CFR 60.4. See National Register Bulletin 38.

Valid Existing Rights. Any lease established (and valid) prior to a new authorization, change in land designation, or in regulation.

Visibility (Air Quality). A measurement of the ability to see and identify objects at different distances.

Visitor Day. Twelve visitor hours which may be aggregated by one or more persons in single or multiple visits.

Visitor Use. Visitor use of a resource for inspiration, stimulation, solitude, relaxation, education, pleasure, or satisfaction.

Visual Resource Management (VRM) Classes. Visual resource management classes define the degree of acceptable visual change within a characteristic landscape. A class is based on the physical and sociological characteristics of any given homogeneous area and serves as a management objective. Categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. Each class has an objective which prescribes the amount of change allowed in the characteristic landscape. (from H-1601-1, BLM Land Use Planning Handbook). The four classes are described below:

Class I provides for natural ecological changes only. This class includes primitive areas, some natural areas, some wild and scenic rivers, and other similar areas where landscape modification activities should be restricted.

Class II areas are those areas where changes in any of the basic elements (form, line, color, or texture) caused by management activity should not be evident in the characteristic landscape.

Class III includes areas where changes in the basic elements (form, line, color, or texture) caused by a management activity may be evident in the characteristic landscape. However, the changes should remain subordinate to the visual strength of the existing character.

Class IV applies to areas where changes may subordinate the original composition and character; however, they should reflect what could be a natural occurrence within the characteristic landscape.

Volatile Organic Compounds (VOC's). Volatile organic chemicals that produce vapors readily; at room temperature and normal atmospheric pressure. Volatile organic chemicals include gasoline, industrial chemicals such as benzene, solvents such as toluene and xylene, and tetrachloroethylene (perchloroethylene, the principal dry cleaning solvent).

Wild, Scenic, and/or Recreational (WSR). The term used in this Manual Section for what is traditionally shortened to "Wild and Scenic" rivers. Designated river segments are classified, i.e., wild, scenic, and/or recreational, but cannot overlap (from M-8351, BLM WSR Policy and Program).

Wild River. Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic River. A river or section of a river that is free of impoundments and whose shorelines are largely undeveloped but accessible in places by roads.

Recreational River. Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wild and Scenic Study River. Rivers identified in Section 5 of the Wild and Scenic Rivers Act for study as potential additions to the National Wild and Scenic Rivers System. The rivers shall be studied under the provisions of Section 4 of the Act (from M-8351, BLM WSR Policy and Program).

Wilderness. A congressionally designated area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, that is protected and managed to preserve its natural conditions and that (1) generally appears to have been affected mainly by the forces of nature, with human imprints substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres or is large enough to make practical its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historic value. The definition contained in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891) (from H-6310-1, Wilderness Inventory and Study Procedures).

Wilderness Characteristics. Wilderness characteristics include size, the appearance of naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation. They may also include ecological, geological, or other features of scientific, educational, scenic, or historical value. However Section 2(c) of the Wilderness Act of 1964 has been updated by IM-2003-195, dated June 20, 2003. Indicators of an area's naturalness include the extent of landscape modifications; the presence of native vegetation communities; and the connectivity of habitats. Outstanding opportunities for solitude or primitive and unconfined types of recreation

may be experienced when the sights, sounds, and evidence of other people are rare or infrequent, in locations where visitors can be isolated, alone or secluded from others, where the use of the area is through non-motorized, non-mechanical means, and where no or minimal developed recreation facilities are encountered.

Wilderness Study Area (WSA). A designation made through the land use planning process of a roadless area found to have wilderness characteristics as described in Section 2(c) of the Wilderness Act of 1964 (from H-6310-1, Wilderness Inventory and Study Procedures).

Wildland Fire. Any fire, regardless of ignition source, that is burning outside of a prescribed fire and any fire burning on public lands or threatening public land resources, where no fire prescription standards have been prepared (from H-1742-1, BLM Emergency Fire Rehabilitation Handbook).

CHAPTER 9 LIST OF PREPARERS

Table 9-1. —List of Preparers

Name	Discipline	Qualifications and Experience	Area of Participation
Bureau of Land Management			
Jeremy Casterson	Land Use Planning	B.S., M.A., 2 years	BLM Project Manager
Rob Schmitzer	Recreation /Travel Management	B.S. Forest Biology 26 years	RMP Core Team- recreation, travel management, special management areas
Andrea Minor	Range Management	B.S., 23 years	RMP Core Team- range, soils, wild horses
Fred Contrath	Oil and Gas Geology	B.A. Geology, 25 years	RMP Core Team- Lands and Minerals
Tim Novotny	Wildlife Biology	B.A. Fish & Wildlife Biology, 11 years	RMP Core Team- Wildlife, T&E species, riparian
Desa Ausmus	Wildlife Biology	B.A., M.A., 6 years	Terrestrial Wildlife, T & E Animals, Aquatic Wildlife, Migratory Birds
Mike Albee	Wildlife Biology	B.S. 30 years	Wildlife, T&E Species
Phillis Bowers	Realty Specialist	BLM, 12 years	Rights-of-Way
Ole Olsen	Forest and Range Management	B.S., 25 years	Soil, Water and Air Program Lead and Riparian Coordinator
Hunter Seim	Rangeland Management Specialist	B.S., 10 years	Range Management
Jim McBrayer	Outdoor Recreation Planner	B.A., M.S., 24 years	Recreation program lead, VRM, wild & scenic rivers, WSAs, ACECs, SRMAs
Booz Allen Hamilton			
Jim May	Zoology, Planning	A.B., MS, 34 years	Project Manager
Kasey Pearson	Environmental Biology	B.A., 7 years	Assistant Project Manager
Jean Tate	Biology, Ecology	B.S., M.S., Ph.D., 28 years	Coordination of Land and Water Resource Specialists, Fish and Wildlife sections
Melanie Martin	Natural Resource Management	Masters Candidate, B.S., 6 years	Resource Team Lead and QA/QC for air quality, cultural, paleontology, geology, minerals and energy, lands and realty, and socioeconomics.
Jeff Ward	Parks, Recreation & Tourism; Natural Resource Planning & Management	B.S., 10 years	Recreation Group Lead; Resource Specialist, Special Designations
Sara Kirschbaum	Geography and Environmental Studies	M.A., 6 years	GIS
Amy Wiedeman	Environmental Studies, Urban and Regional Planning	B.A. and M.U.R.P; 4 years	Water Resources, Visual Resource, Special Designations
Mike Sumner	Recreation Resource Management	B.S., 4 years	Recreation

Table 9-1 continued. —List of Preparers

Name	Discipline	Qualifications and Experience	Area of Participation
Leslie Watson	Zoology	B.S. 15 years	Resource Analyst
Quincy Bahr	Natural and Cultural Resource Management	A.S., B.S., 7 years	Cultural Resource Management Paleontological Resource Management Soils Management
Michael Ghazizadeh	Geologist	Ph.D., CPG	Resource Specialist for Geology and Minerals and Energy
Peter Brandom	Environmental Management	MSc., 8 years	Resource Specialist for Lands and Realty and Transportation and Access
Jeff Petty	Vegetation Ecologist, Hydrologist	M.A., 18 years	Vegetation, Livestock, Wild Horses
Jared Gunnerson	Natural Resource Management/Planning	B.A., M.P.A., 10 years	Forests and Woodlands
Warner Reeser	Atmospheric Science/Meteorology	B.A., M.S., Ph.D., 37 years	Air Quality
Richard Pinkham	Geography; Natural Resource Policy and Management	B.A., M.S., 15 years	Socioeconomics
Gary Armstrong	Public Policy and Planning Analysis	B.A., M.A., 11 years	Wild and Scenic Rivers Specialist
Donald Gray	Geology & Air Quality Compliance	B.S., 18 years	Staff, Data Collection for Air Quality Section
Bryan Klyse	Environmental Science and Planning	B.A., M.E.S.M., 4 years	Technical Writer/Editor Water Resources
David Wegner	Environmental Scientist	M.S., 30 years	ESA Consultation

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